ประกาศสำนักงานการบินพลเรือนแห่งประเทศไทย
เรื่อง แผนปฏิบัติการด้านความปลอดภัยในการบินพลเรือนแห่งชาติ
พ.ศ. ๒๕๖๗ – ๒๕๖๙

ตามที่มาตรา ๒๑/๑ แห่งพระราชบัญญัติการเดินอากาศ พ.ศ. ๒๔๙๗ แก้ไขเพิ่มเติมโดยพระราชบัญญัติการเดินอากาศ (ฉบับที่ ๑๔) พ.ศ. ๒๕๖๒ กำหนดให้สำนักงานการบินพลเรือนแห่งประเทศไทยจัดทำแผนนิรภัยในการบินพลเรือนแห่งชาติ เพื่อเป็นแนวทางในการบริหารจัดการความปลอดภัยการบินพลเรือนในระดับประเทศ โดยแผนดังกล่าวให้มีคณะกรรมการนิรภัยในการบินพลเรือนแห่งชาติซึ่งคณะกรรมการการบินพลเรือนแต่งตั้ง เพื่อขับเคลื่อนแผนนิรภัยในการบินพลเรือนแห่งชาติให้เป็นไปตามวัตถุประสงค์และเป้าหมาย อาศัยอำนาจตามมาตรา ๒๑/๒ (๒) (๓) และ (๔) ที่กำหนดว่าเพื่อประโยชน์ในการบริหารจัดการแผนนิรภัยในการบินพลเรือนแห่งชาติ ให้ผู้อำนวยการสำนักงานการบินพลเรือนแห่งประเทศไทยมีหน้าที่และอำนาจจัดให้มีกลไก มาตรการเกี่ยวกับความปลอดภัยในการบินพลเรือน จัดให้มีกระบวนการเพื่อลำดับความสำคัญในการตรวจ ตรวจสอบ และสำรวจโดยพิจารณาจากข้อบกพร่องด้านความปลอดภัยหรือการประเมินความเสี่ยง และส่งเสริมให้ผู้ที่เกี่ยวข้องตระหนักรู้และดำเนินการสื่อสารข้อมูลด้านความปลอดภัยในการบินพลเรือน เพื่อสนับสนุนองค์กรและพัฒนาวัฒนธรรมความปลอดภัยขององค์กรซึ่งจะเสริมสร้างประสิทธิภาพและประสิทธิผลของแผนนิรภัยในการบินพลเรือนแห่งชาติ โดยสำนักงานการบินพลเรือนแห่งประเทศไทยได้จัดทำแผนปฏิบัติการด้านความปลอดภัยในการบินพลเรือนแห่งชาติ (Thailand Aviation Safety Action Plan: TASAP) พ.ศ. ๒๕๖๔ – ๒๕๖๖ เพื่อกำหนดกลไกและกระบวนการในการดำเนินงานกิจกรรมด้านความปลอดภัยและการปรับปรุงด้านความปลอดภัยของผู้ที่เกี่ยวข้องเพื่อเป็นกลไกและมาตรการในการขับเคลื่อนแผนนิรภัยในการบินพลเรือนแห่งชาติได้อย่างมีประสิทธิภาพยิ่งขึ้น ซึ่งกำหนดให้มีการทบทวนและจัดทำแผนปฏิบัติการด้านความปลอดภัยในการบินพลเรือนใหม่ทุกสามปี ดังนั้น ผู้อำนวยการสำนักงานการบินพลเรือนแห่งประเทศไทยจึงได้จัดทำแผนปฏิบัติการด้านความปลอดภัยในการบินพลเรือนแห่งชาติ (Thailand Aviation Safety Action Plan: TASAP) พ.ศ. ๒๕๖๗ – ๒๕๖๙ ซึ่งได้รับความเห็นชอบจากคณะกรรมการนิรภัยในการบินพลเรือนแห่งชาติในการประชุม ครั้งที่ ๓/๒๕๖๖ เมื่อวันที่ ๒๒ ธันวาคม ๒๕๖๖ และออกประกาศเรื่องแผนปฏิบัติการด้านความปลอดภัยในการบินพลเรือนแห่งชาติไว้ ดังต่อไปนี้

ข้อ ๑ ประกาศนี้ เรียกว่า “ประกาศสำนักงานการบินพลเรือนแห่งประเทศไทย เรื่อง แผนปฏิบัติการด้านความปลอดภัยในการบินพลเรือนแห่งชาติ พ.ศ. ๒๕๖๗ – ๒๕๖๙”

ข้อ ๒ ประกาศนี้ให้ใช้ตั้งแต่วันถัดจากวันประกาศเป็นต้นไป

ข้อ ๓ การดำเนินงานกิจกรรมด้านความปลอดภัยให้เป็นไปตามแผนปฏิบัติการด้านความปลอดภัยในการบินพลเรือนแห่งชาติ พ.ศ. ๒๕๖๗ – ๒๕๖๙ แนบท้ายประกาศนี้

ประกาศ ณ วันที่ ๗ กุมภาพันธ์ พ.ศ. ๒๕๖๗

(นายสุทธิพงษ์ คงพูล)
ผู้อำนวยการสำนักงานการบินพลเรือนแห่งประเทศไทย

Thailand Aviation Safety Action Plan

2024 - 2026

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PURPOSE OF TASAP

In 2015 the Thai Government created the Civil Aviation Authority of Thailand (CAAT), with appropriate resources and powers paving the way for a full transformation of the Thai safety oversight system to better regulate and oversee aviation safety.

The International Civil Aviation Organization (ICAO) is leading a change of approach in the global civil aviation system from being reactive as a result of previous events and accidents to being proactive to prevent potential safety issues.

This change in approach requires Civil Aviation Organisations (CAOs) to implement a Safety Management System (SMS) and States to implement a State Safety Programme (SSP) both oriented on enhanced safety risk management, and safety performance monitoring and management.

CAAT developed the Thai SSP document that sets out the roles and responsibilities and describes how operational safety risks and issues are identifed and managed. CAAT is responsible in collaboration with other stakeholders for developing the TASAP.

Further to the implementation of activities described in the Thai SSP, actions have been identified to manage and reduce the safety risks to the Thai aviation system.

This TASAP is the result of a collaborative work with the Thai industry and complements the SSP with clear actions to improve aviation safety. It has been developed from the analysis of the available safety data and information.

Globally:	ICAO Global Aviation Safety Plan (GASP)
Regionally:	ICAO Regional Aviation Safety Plan for Asia Pacific region (AP-RASP)
Nationally:	Analysis of safety events reported to CAAT and feedback from surveillance and industry.

The TASAP is the means by which Thailand defines and drives the implementation of safety actions and safety improvements generated by the SSP. The actions detailed in the TASAP will be monitored by the Aviation Safety Management and Standards Assurance Office (SMO) of CAAT who will regularly report on the progress. The stakeholders, as detailed in the SSP document include:

1. The Thai Government and its agencies, with CAAT playing the central role for the whole Civil Aviation Safety Management in Thailand
2. The Thai Aviation industry
3. Foreign operators

Globally

Regionally

Nationally

THAI AVIATION INDUSTRY

This scheme describes the operational context in Thailand. The information as of September 2023

25 AIR OPERATOR

- 23 International
- 1 Domestic
- 1 Balloon Domestic

597 AIRCRAFT

- 296 Commercial
- 294 Private
- 7 Aerial work

77,780 UNMANNED AIRCRAFT

- 70,159 Weight under 2 kg
- 6,621 Weight between 2-25 kg
- 1,000 Weight over 25 kg

241 MAINTENANCE ORGANISATIONS

- 41 Domestic
- 200 Foreign

39 AIRPORTS/ 4 AIRPORT OPERATORS

- 39 Public airports
- 10 International airports
- 26 Domestic airports
- 3 Licensed aerodrome

8 AIR NAVIGATION SERVICES/ 6 AIR NAVIGATION SERVICE PROVIDERS

- 2 ANSPs/ Air Traffic Service
- 2 ANSPs/ Communication Navigation and Surveillance Service
- 2 ANSPs/ Aeronautical Meteorological Service
- 1 ANSP/ Aeronautical Search and Rescue Service
- 1 ANSP/ Instrument Flight Procedure Design Service
- 1 ANSP/ Airspace Management Service
- 1 ANSP/ Air Traffic Flow Management Service
- 1 ANSP/ Aeronautical Information Service

41 APPROVED TRAINING ORGANISATIONS

- 17 Flying Training Organisation (FTO)
- 2 Air Traffic Control Training Course/Organisation (ATCTO)
- 5 Maintenance Training Organisation (MTO)
- 5 Aviation Language Proficiency Testing Center (LPC)
- 12 Air Traffic Control Synthetic Training Device (STD)

23,117 LICENSE HOLDERS

- 1,702 Private Pilot (PPL)
- 7,904 Commercial Pilot (CPL)
- 4,154 Air Transport Pilot (ATPL)
- 6,766 Maintenance Engineer (AMEL)
- 1,603 Air Traffic Controller (ATC)
- 988 Flight Operations Officer (FOO)

5 Aeromedical Centres (AMC)

97 DESIGNATED PERSONNEL

- 72 Designated Check Pilot
- 25 Senior Designated Check Pilot

DEVELOPMENT OF THE TASAP

A fundamental part of the State Safety Programme is for the State to define an Acceptable Level of Safety Performance (ALoSP). This is intended to enable the prioritisation of resources and actions. For Thailand the focus is on reducing the risk of an aviation accident and improving compliance with the international safety standards as defined by ICAO.

The ALoSP has been developed from an analysis of the Thai aviation system as well as considering regional and global aviation accident data. The ALoSP is the foundation of the TASAP and aims to ensure there is continuous improvement of aviation safety. The ALoSP defines how safe the Thai aviation system must be to remain acceptable to the Thai government, CAAT and the travelling public.

ALoSP indicators have been identified that will measure the achievement of ALoSP and allow the National Civil Aviation Safety Board (NCASB) to decide on actions to be taken should there be any shortfall.

To achieve the ALoSP, State safety objectives were defined with the Thai aviation industry in two different categories:

1. Generic Organisational Objectives (GEN)

GEN objectives focus on implementing and improving safety management at every level of the system that drives the work of CAAT and other stakeholders to develop the necessary structural and organisational capabilities to improve aviation safety. Although CAAT plays the key role for most GEN objectives, the Thai industry also plays a critical role in supporting CAAT.

2. Specific Operational Objectives (OPR)

OPR objectives focus on safety outcomes to reduce numbers and severity of safety events. OPR objectives intend to address identified safety issues in Thailand. These need to deal with the High-Risk Category (HRC) occurrences defined in the GASP and AP-RASP and are, by nature, outcome oriented. The Thai industry plays a leading role in achieving these objectives with support from CAAT.

Accordingly, State Safety Performance Indicators (SPIs) were agreed to measure the achievement of each of the State safety objectives.

As agreed with the industry; to achieve State safety objectives the plan needs to include actions to be implemented and their progress need to be monitored.

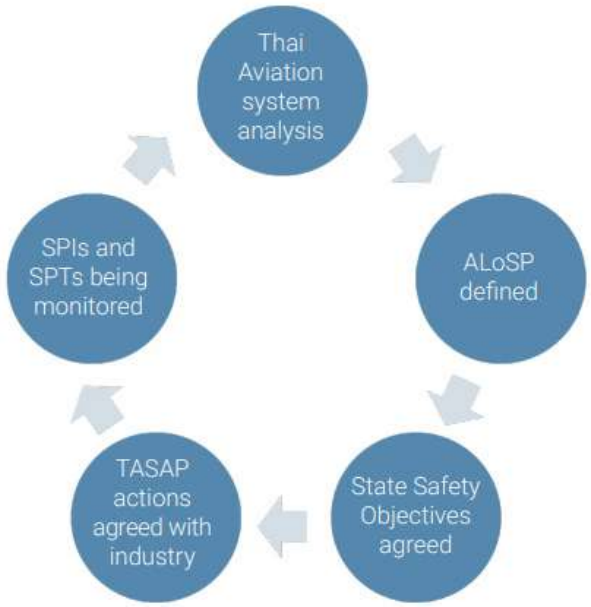

Figure 2: The process to develop ALoSP, State Safety objectives, SPIs and SPTs

The TASAP progress is monitored at 3 levels:

- The progress of each action is monitored through a series of indicators.
- The level of achievement of a State safety objective is monitored through State SPIs with objectives considered as reached when State Safety Performance Targets (SPTs) are reached.
- The level of achievement of the ALoSP is monitored through ALoSP indicators representing the overall level of safety performance of the system.

THAILAND
ACCEPTABLE LEVEL OF SAFETY PERFORMANCE & SAFETY OBJECTIVES

Improving the overall safety performance of the Thai civil aviation system, the 2024 – 2026 edition of the TASAP contains five ALoSPs.

ALoSP No.	ALoSP	ALoSP Indicators
ALoSP 1	Zero fatal accidents occurred during commercial operations by Thai AOC holders	Number of commercial air transport fatal accidents involving Thai AOC holders
ALoSP 2	Zero fatal accidents of foreign commercial air transport caused by the Thai aviation system	Number of fatal accidents of foreign commercial air transport operating in Thailand caused by the Thai aviation system
ALoSP 3	A decreasing trend of fatal accidents during non-commercial operations	The 3-year rolling average number of non-commercial operations fatal accidents per 1 million departures
ALoSP 4	A decreasing trend of non-fatal accidents and serious incidents during commercial operations by Thai AOC holders	The 5-year rolling average number of non-fatal accidents and serious incidents involving Thai AOC holders per 1 million departures
ALoSP 5	A level of effective implementation of international civil aviation safety standards (ICAO's SARPs) above 85% in each ICAO domain and above 85% for standards related to Licensing, certification, authorisation and approval obligations (CE-6), Surveillance obligations (CE-7) and Resolution of safety concerns (CE-8)	Percentage of USOAP Effective Implementation (EI) score

GENERIC ORGANISATIONAL SAFETY OBJECTIVES (GEN)

For the GEN objectives, their level of achievement will be monitored using Safety Performance Indicators (SPIs) and will be considered as being achieved when Safety Performance Targets (SPTs) are reached.

Thailand has established the following as the GEN objectives:

Objective No.	GEN Objectives
GEN-1	To have an effective safety oversight capability in Thailand
GEN-2	To effectively implement State safety programmes (SSPs)
GEN-3	To have an effective safety reporting system and promote Just Culture within the industry
GEN-4	To actively collaborate with all aviation stakeholders to enhance safety in Thailand
GEN-5	To ensure that aviation organisations implemented an operating SMS across all the aviation system

SPECIFIC OPERATIONAL SAFETY OBJECTIVES (OPR)

For the OPR objectives, their level of achievement will be monitored using Safety Performance Indicators (SPIs) and will be considered as being achieved when Safety Performance Targets (SPTs) are reached.

Thailand has established the following as the OPR objectives:

Objective No.	GEN Objectives
OPR-1	To reduce the rate of occurrences related to Controlled Flight into Terrain (CFIT)
OPR-2	To reduce the rate of occurrences related to Loss of Control In-flight (LOC-I)
OPR-3	To reduce the rate of occurrences related to Mid-Air Collision (MAC)
OPR-4	To reduce the rate of actual Runway Excursions (RE)
OPR-5	To reduce the rate of actual Runway Incursions (RI)
OPR-6	To reduce the rate of bird strikes with damage to aircraft parts

GEN-1:

To have an effective safety oversight capability in Thailand

For the sake of safety, Thailand is committed to ensure compliance of its safety oversight system with the ICAO Standards and Recommended Practices (SARPs). Safety ovesight aims at ensuring that civil aviation operations are safe.

This includes ensuring that regulatory requirements are met and that safety performance of the organisations are acceptable. The safety oversight system is part of the State Safety Programme (SSP) as detailed in the SSP document.

The table below details the SPIs and SPTs for GEN-1 objective:

Safety Performance Indicators (SPIs)	Safety Performance Targets (SPTs)
Level of Effective Implementation (EI) score of International Civil Aviation Organization (ICAO) SARPs	80% overall EI of International Civil Aviation Safety Standards (ICAO) by end of 2024
	85% overall EI of International Civil Aviation Safety Standards (ICAO) by end of 2025
	90% overall EI of International Civil Aviation Safety Standards (ICAO) by end of 2026
Level of EI score of ICAO SARPs for each area	80% EI of International Civil Aviation Safety Standards (ICAO) in each area by end of 2024
Level of EI score of ICAO SARPs for State system and functions (CE-3), Licensing, Certification, Authorisation and Approval obligations (CE-6), Surveillance obligations (CE-7) and Resolution of safety concerns (CE-8)	At least 80% of EI score for State system and functions (CE-3), Licensing, Certification, Authorisation and Approval obligations (CE-6), Surveillance Obligations (CE-7) and Resolution of Safety Concerns (CE-8) by end of 2024

Actions to achieve GEN-1 objective:

No.	Safety actions	Progress indicators	Target date	Responsible	Stakeholders
Implement TCARs through authorisation, licensing, approval and certification					
GEN1.PEL01	Approve all the ATOs	Percentage of approved organisations	End of 2026	CAAT/PEL	Approved Training Organistions
GEN1.AIR01	Certify all the AMOs	Percentage of certified organisations	End of 2024	CAAT/AIR	AMOs
GEN1.ANS01	Certify ANSPs in – ATS – CNS – MET – IFPD – AIS and – SAR	Percentage of certified organisations	End of 2028	CAAT/ANS	ANSPs
GEN1.AGA01	Certify international public airport operators	Percentage of certified organisations	End of 2024	CAAT/AGA	CAAT/ANS, CAAT/SFD, CAAT/APD and Airport Operators
GEN1.AGA02	Certify domestic public airport operators	Percentage of certified organisations	End of 2026	CAAT/AGA	Airport Operators

No.	Safety actions	Progress indicators	Target date	Responsible	Stakeholders
Implement TCARs through risk-based surveillance					
GEN1.PEL02 GEN1.OPS02 GEN1.AIR02 GEN1.ANS02 GEN1.AGA03	Establish the process or procedures about the risk-based surveillance	Process or procedure is established	End of 2024	CAAT/Safety Oversight Departments	CAAT/SMO
GEN1.PEL03 GEN1.OPS03 GEN1.AIR03 GEN1.ANS03 GEN1.AGA04 GEN1.SMO01	Implement a risk-based surveillance methodology across operator sectors	Number of surveillance activities per year	End of 2025	CAAT/Safety Oversight Departments and CAAT/SMO	Approved Training Organisations Air Operators AMOs ANSPs Airport Operators
Encourage industry participation in defined* industry programmes					
GEN1.AGA05	Encourage use of APEX** in safety as tool to enhance AGA EI and aerodrome certification **APEX: Airport Council International Airport Excellence Programme SEI-1 Consistent implementation of ICAO SARPs A.II.5 (AP-RASP)	Number of activities to promote the use of APEX in safety as tool to enhance AGA EI and aerodrome certification at least once a year	End of 2025	CAAT/AGA	Airport Operators
GEN1.SMO02	Develop cooperate process for published operational directives	Date of publish the process	End of 2026	CAAT/SMO	CAAT/Safety Oversight Departments

*Defined industry programmes are those defined in the 2020-2022 GASP, for Thailand these are:
* Airport Council International - Airport Excellence in Safety Programme (for airports)

GEN-2:

To effectively implement State safety programmes (SSPs)

The SSP document details the policies, processes and procedures for managing aviation safety at state level in order to comply with the ICAO SARPs and with the Thai State safety policy. The main objective of the SSP in Thailand is to continuously improve civil aviation safety in Thailand through proactive risk management and the promotion of a positive safety culture, including:

- The identification of safety issues through the systematic collection and analysis of safety data and safety information from occurrences reported by service providers (Mandatory and Voluntary occurrence reports), from surveillance activities, and other inputs from international stakeholders.
- The mitigation of safety issues, where necessary, will be achieved through;

1. Rule-making activities: amendment of existing or implementation of new regulations;
2. Surveillance activities: the improvement of surveillance practices including implementation of a risk-based surveillance programme and appropriate enforcement actions following just culture principles, and;
3. Safety promotion activities: in particular safety training and publication of safety promotion material.

The ICAO GASP 2023-2025 calls for all States to implement the foundation of an SSP by 2023, and to have an effective SSP in place by 2028.

The table below details the SPIs and SPTs for GEN-2 objective:

Safety Performance Indicators (SPIs)	Safety Performance Targets (SPTs)
Maturity level of the SSP based on the ICAO SSP implementation Assessment tool	SSP maturity level that are present by end of 2025
	SSP maturity level are present and effective by end of 2028

Actions to achieve GEN-2 objective:

No.	Safety actions	Progress indicators	Target date	Responsible	Stakeholders
To ensure the availability of the necessary resources and competencies for SSP implementation					
GEN2.SMO01 GEN2.AAIC01 GEN2.SAR01	CAAT, AAIC and SAR office have allocated resources and monitoring staff levels to support the implementation and maintenance of the SSP	The resource planning tool in place	End of 2025	CAAT/SMO AAIC SAR office	CAAT/HCD CAAT/FAD
GEN2.HCD01 GEN2.AAIC02	Train qualified technical personnel to fulfill their duties and responsibilities regarding SSP implementation	1. Publish training programme including a training needs analysis (TNA) to determine relevant training needs for AAIC and CAAT	End of 2024	CAAT/HCD AAIC	CAAT/SMO, CAAT/PEL CAAT/OPS, CAAT/AIR CAAT/ANS, CAAT/AGA CAAT/AMD, CAAT/UAS and CAAT/LEG
		2. Publish training plan for CAAT and AAIC staff which consider both initial and recurrent training requirements	End of 2024		
		3. Number of CAAT and AAIC staff are trained according to training plan per year	Continuous		
GEN2.HCD02 GEN2.AAIC03	Develop and implement competency-based approach for personnel of AAIC and CAAT	Publish the Competency framework	End of 2024	CAAT/HCD AAIC	CAAT/SMO, CAAT/PEL CAAT/OPS, CAAT/AIR CAAT/ANS, CAAT/AGA CAAT/AMD and CAAT/UAS
GEN2.HCD03 GEN2.AAIC04	Develop and implement process to assess competency of personnel	1. Process to assess competency	End of 2025	CAAT/HCD AAIC	CAAT/SMO, CAAT/PEL CAAT/OPS, CAAT/AIR CAAT/ANS, CAAT/AGA CAAT/AMD and CAAT/UAS
		2. Number of inspectors are assessed competency	End of 2026		

No.	Safety actions	Progress indicators	Target date	Responsible	Stakeholders
Embed safety risk management at a national level.					
GEN2.SMO02	Publish the hazard register	Publication of hazard register	End of June 2024	CAAT/SMO	NCASB ASAG OPR Task Force
GEN2.SMO03	Develop the process to identify, evaluate and monitor emerging issues and new risks	Process is published	End of 2024	CAAT/SMO	
GEN2.SMO04	Identify the safety performance baseline	Baseline performance is established for all State SPIs	End of 2026	CAAT/SMO	
GEN2.SMO05	Develop and implement the process to define the actions to be taken upon a demonstrated deviation from the determined safety performance baseline (e.g. an alert level has been reached) and the responsibilities for taking these actions.	Process is published	End of 2027	CAAT/SMO	
Effective use of data analytics to enhance safety risk management					
GEN2.SMO06	Establish SPIs to monitor State's safety mitigation actions	Percentage of SPI is showing the positive trends	Continuous	CAAT/SMO	NCASB ASAG SDV-SG OPR task force
GEN2.SMO07	Assess the effectiveness of the State's safety mitigating actions	Percentage of State's safety mitigating actions assessed that effective	Continuous	CAAT/SMO	NCASB ASAG SDV-SG OPR task force

GEN-3:

To have an effective safety reporting system & promote Just Culture within the aviation industry

Effective safety management relies on the provision to managers of appropriate safety information to allow the right safety decision-making.

To have a clear understanding of the aviation safety risks in Thailand, the aviation community needs a reliable set of safety data and information to identify risks and priorities. This cannot be achieved without an increase of occurrences being reported.

This increase should not be limited to occurrences that are mandatory to report but needs to also include occurrences that are reported voluntarily (potential hazards, errors, near misses and emerging risks) to enable a better understanding of the system.

To make this increase possible, the implementation of a Just Culture policy by CAAT and industry is critical. The more safety data available, the more effective the analysis will be leading to a better understanding of aviation system risks.

The table below details the SPIs and SPTs for GEN-3 objective:

Safety Performance Indicators (SPIs)	Safety Performance Targets (SPTs)
Voluntary Occurrence Report (VOR) rate (Number of voluntary occurrences reported per 1,000 flight departures per year)	Annual increase above 5%

Actions to achieve GEN-3 objective:

No.	Safety actions	Progress indicators	Target date	Responsible	Stakeholders
Enhance Voluntary Occurrence Reporting System in Thailand					
GEN3.SMO01	Develop the new platform for VOR	1. New VoR system implemented	End of 2025	CAAT/SMO	CAOs Aviation Personnel Aviation staff
		2. Number of VOR received	Continuous		
GEN3.SMO02	Encourage personnel from industry to report self-made error or their mistake (VOR)	Number of safety promotion activities related to safety reporting	Continuous	CAAT/SMO	CAOs Aviation Personnel
Promote Just culture					
GEN3.SMO03	Assess the CAO's Just culture implementation	1. Checklist or tool for assess CAO's Just culture is published	End of 2025	CAAT/SMO	CAOs
		2. Percentage of CAOs are assessed just culture implementation	End of 2026		
GEN3.SMO04	Provide Just culture training for CAAT inspectors and AAIC staff	Percentage of CAAT safety inspectors and AAIC staff attend the training	Continuous	CAAT/SMO	CAAT/PEL, CAAT/OPS CAAT/AIR, CAAT/ANS CAAT/AGA, CAAT/UAS and AAIC
GEN3.SMO05	Deliver Just culture training course for industry	Number of Just culture training course for industry	End of 2024	CAAT/SMO	CAOs
GEN3.SMO06	Publication of safety promotion material to encourage stakeholders to submit occurrence reports	Safety promotion material is published	End of 2024	CAAT/SMO	CAAT/PEL, CAAT/OPS CAAT/AIR, CAAT/ANS CAAT/AGA, CAAT/UAS and CAOs

GEN-4:

To actively collaborate with all aviation stakeholders to enhance safety in Thailand

Aviation is international by nature, Improving aviation safety in the region will improve aviation safety in Thailand and for Thai citizens. Sharing lessons learnt and working collaboratively with neighbouring countries is critical as these countries probably face similar safety challenges.

The table below details the SPIs and SPTs for GEN-4 objective:

Safety Performance Indicators (SPIs)	Safety Performance Targets (SPTs)
CAAT attendance at COSCAP SEA and RASG meetings and conferences	Attendance at 100% of all activities
Number of conferences and workshops with the industry	To conduct 3 industry conferences or workshops per year
Propose the working/information paper regarding safety issues to the COSCAP SEA or RASG meeting and conference, or establish the action plan in accordance with the COSCAP SEA and RASG meeting minutes	At least 1 paper per year

Actions to achieve GEN-4 objective:

No.	Safety actions	Progress indicators	Target date	Responsible	Stakeholders
Strengthen international aviation safety engagement					
GEN4.SMO01	Ongoing participant in ICAO Asia-Pacific Meetings and Conferences	Number of participants in ICAO Asia-Pacific Meetings and Conferences per total number of ICAO Asia-Pacific Meetings and Conferences	Continuous	CAAT AAIC	ICAO
Strengthen aviation safety engagement at national level					
GEN4.SMO02	Arrange the communication roadshow on Introduction of TASAP 2024 - 2026	Number of participants attending per number of expected	End of March 2024	CAAT/SMO AAIC	Aviation industry CAOs
GEN4.SMO03	Arrange the SMS assessment forum	Number of participants attending per number of expected	End of June 2024	CAAT/SMO	CAOs
GEN4.SMO04	Arrange safety reporting seminar or workshop	1. Number of seminars or workshops per year 2. Number of participants attending per number of expected	End of June 2024	CAAT/SMO AAIC	CAOs
GEN4.SMO05	Arrange safety management conference	Number of participants attending per number of expected	End of 2026	CAAT/SMO AAIC	Aviation industry CAOs
GEN4.PEL01	Facilitate lesson learned workshops with a focus on enhancing safety and emphasising CRM principles in a professional context	Number of participants attending per number of expected	End of 2026	CAAT/PEL CAAT/SMO	CAOs
GEN4.PEL02	Publish safety promotion material on CRM to promote the development of CRM training	Number of safety promotion material is published	End of 2026		

GEN-5:

To ensure that aviation organisations implemented an operating SMS across all the aviation system

Aviation organisation's SMS generates a significant input for the SSP Safety Data Collection and Processing System (SDCPS). The effectiveness of the SMS reflects their capability and capacity to manage their safety risks appropriately and to focus on areas of greatest safety concern.

There should be a harmonised approach to SMS oversight both for certifcation and for safety performance monitoring across all CAAT departments. An operating SMS, means that the system is producing the expected output.

The table below details the SPIs and SPTs for GEN-5 objective:

Safety Performance Indicators (SPIs)	Safety Performance Targets (SPTs)
Percentage of CAOs having an operating SMS	100% of number of CAOs having an operating SMS which • Operators, AOCs, ATOs, AMOs by the end of 2025 • Certified airport operators, ANSPs by the end of 2026

Actions to achieve GEN-5 objective:

No.	Safety actions	Progress indicators	Target date	Responsible	Stakeholders
GEN5.SMO01	Transfer of SMS oversight activities from safety oversight departments to SMO	1. The transitional arrangement has been agreed with oversight departments	End of June 2024	CAAT/SMO	CAAT/Safety Oversight Departments
		2. Percentage of CAOs that has been assessed by SMO	Continuous		
GEN5.SMO02	Implement SMS assessment tool during SMS acceptance and surveillance process	1. Percentage of CAOs' SMS are accepted per year	Continuous	CAAT/SMO	CAOs
		2. Percentage of CAOs' SMS assessment per year			
GEN5.SMO03	Encourage CAOs to share the SMS best practices	Number of organisation shared their best practices	Continuous	CAOs	CAAT AAIC

OPR ▸ Specific Operational Safety Objectives

To mitigate the risk of fatalities, Thailand needs to identify and address the operational risk specific to the Thai aviation system. The identification of risks is made through the analysis of safety events and safety plan published by other States and International bodies. As the Safety Data Collection and Processing System (SDCPS) is not mature yet, the OPR objectives are derived from the ICAO High Risk Category occurrences contained in the Global and Regional Aviation Safety Plans.

Thailand has established the following as the OPR objectives:

OPR-1: **To reduce the rate of occurrences related to Controlled Flight into Terrain (CFIT)**

OPR-2: **To reduce the rate of occurrences related to Loss of Control In-flight (LOC-I)**

OPR-3: **To reduce the rate of occurrences related to Mid-Air Collision (MAC)**

OPR-4: **To reduce the rate of actual Runway Excursions (RE)**

OPR-5: **To reduce the rate of actual Runway Incursions (RI)**

As a result of the safety occurrence analysis, an additional OPR objective was added due to high frequency of such occurrences in Thailand:

OPR-6: **To reduce the rate of bird strikes with damage to aircraft parts**

Organisations shall focus their attention on identifying precursor events and contributing factors, and on monitoring the rate of occurrences of these with the objective to reduce these rates of occurrence as well as the severity of their potential consequences.

As a new occurrence reporting regulation has been applicable since April 2020, there has been an increase in the reporting of occurrence to CAAT. The wider application of Just Culture will also contribute to the increase of the occurrences reported to CAAT. This will improve the risk picture that CAAT will have so that it can improve the way it manages safety in the future.

While it is relevant, at global level, to follow the number of CFIT, LOC-I, MAC, RE or RI occurrences; it is not relevant at national level or at operator level.

At national or operator level, it is necessary:

- To monitor precursor events that could lead to an accident or serious incident. Precursor events are actions, omissions, events, conditions, or a combination thereof, that could lead to an accident. Precursor events should be considered as undesirable events in organisations' SMS.

- To monitor contributing factors of the occurrences. These factors are actions, omissions, events, conditions, or a combination thereof, which, if eliminated, avoided or absent, would have reduced the probability of the accident or incident occurring, or mitigated the severity of the consequences of the accident or incident.

OPR-1:

To reduce the rate of occurrences related to Controlled Flight into Terrain (CFIT)

Controlled Flight Into Terrain (CFIT) is an in-fight collision with terrain, water or obstacle without indication of loss of control. CFIT events are included in the TASAP due to the high risk of fatality.

Examples of contributing factors

- ATS procedure design and documentation
- Pilot fatigue and disorientation
- ILS malfunction or calibration
- PAPI alignment with glideslope
- Crew resource management
- Adverse weather
- Obstacles not appropriately documented (charts) or marked (lighting)
- Loss of situational awareness
- Mountainous terrain
- Aircraft not equipped with TAWS/EGPWS
- Aircraft system malfunction (Navigation equipment and EGPWS)

Examples of precusor events

- Altitude below minimum safe altitude
- Flight path below glideslope during ILS approach
- Excessive rate of descent
- TAWS (EGPWS) warning
- Go-around at low altitude
- Inappropriate low altitude manoeuvring
- Low fuel
- Low energy during approach
- ILS failures and malfunctions

The table below details the SPIs and SPTs for OPR-1 objective:

Safety Performance Indicators (SPIs)	Safety Performance Targets (SPTs)
2-year rolling average of rate of significant risk occurrence related to Controlled Flight into Terrain (CFIT) per million flights per year	Decreasing 2-year rolling average of rate of significant risk occurrence related to CFIT
2-year rolling average of rate of unstabilised approach at low altitude occurrences per million flights per year	Decreasing 2-year rolling average of rate of unstabilised approach at low altitude occurrences

Actions to achieve OPR-1 objective:

No.	Safety actions	Progress indicators	Target date	Responsible	Stakeholders
OPR1SMO01	Publish safety bulletin about ILS signal and encouraging VOR	Safety bulletin is published	End of April 2024	CAAT/SMO	OPR Task force Air operators Airport operators ANSPs

OPR-2:

To reduce the rate of occurrences related to Loss of Control In-flight (LOC-I)

Loss of Control In-fight is an extreme deviation from intended fight path. Occurrences categorised as LOC-I are events that lead or could lead to a non-recoverable loss of control. LOC-I accidents often have catastrophic results with very high risk of fatality; for this reason, it is included in this TASAP.

Examples of contributing factors

- Pilot performance as a result of Human Factors
- Inadequate flight crew training
- Operating procedure design
- ATS procedure design - SIDs & STARs
- Air trafc related such as wake turbulence
- Malfunctioning and/or misunderstanding of automation
- Aircraft system malfunction - Power plant, fight command
- Environment, including adverse weather conditions

Examples of precusor events

- System malfunction causing automation to disengage
- Aircraft not behaving as expected
- Wind shear event
- Stall warning and stick shaker events
- Excessive Bank angle

The table below details the SPIs and SPTs for OPR-2 objective:

Safety Performance Indicators (SPIs)	Safety Performance Targets (SPTs)
2-year rolling average of rate of significant risk occurrence related to Loss of Control In-flight events (LOC-I) per million flights per year	Decreasing 2-year rolling average of rate of significant risk occurrence related to LOC-I
2-year rolling average of rate of aircraft exceeding flight manual limitation occurrences per million flights per year	Decreasing 2-year rolling average of rate of aircraft exceeding flight manual limitation occurrences

Actions to achieve OPR-2 objective:

No.	Safety actions	Progress indicators	Target date	Responsible	Stakeholders
To reduce the occurrence related LOC-I					
OPR2.OPS01	Establish the addition guidance material for paramotor	The additional guidance material for paramotor is establish	End of 2026	CAAT/OPS	Paramotor operator
OPR2.OPS02	Arrange the safety conference on LOC-I	The safety conference on LOC-I is arranged	End of 2025	CAAT/OPS	Air Operators Airport Operators ANSP
OPR2.OPS03	Conduct the ramp check on reserve fuel of arrival aircraft	Number if ramp checks carried out Percentage of ramp checks that reveal reserve fuel deficiencies	Continuous	CAAT/OPS	Air Operators
To reduce the loading error events					
OPR2.SMO01	Develop and enforce comprehensive training programme for ground operation personnel involving in loading cargo and securing load	Percentage of CAOs implemented training programme	End of 2024	Air Operators	CAAT
OPR2.SMO02	Develop the guidance on comprehensive load securing	The guidance is published	End of 2024	Air Operators	CAAT/OPS CAAT/SMO

OPR-3:

To reduce the rate of occurrences related to Mid-Air Collision (MAC)

Mid-Air Collision refers to a collision between aircraft while both are airborne. There is also a high fatality risk associated with these events. Most occurrences reported relate to loss of separation and Trafc Collision Avoidance System (TCAS) Resolution Advisory (RA) warnings.

Examples of contributing factors

- Air traffic control errors
- Air traffic controller's workload and fatigue
- Communication errors between ATC and Pilot
- Released airborne objects such as sky lanterns, kites, firework, rocket and drones
- Flight crew training
- Aircraft system malfunction (TCAS, Altimeters)
- Congested airspace

Examples of precusor events

- Level busts
- TCAS RA
- Airspace infringements
- Loss of separation

The table below details the SPIs and SPTs for OPR-3 objective:

Safety Performance Indicators (SPIs)	Safety Performance Targets (SPTs)
2-year rolling average of rate of significant risk occurrence related to Mid-Air Collision (MAC) per million flights per year	Decreasing 2-year rolling average of rate of significant risk occurrence related to MAC
2-year rolling average of rate of TCAS RA occurrence per million flights per year	Decreasing 2-year rolling average of rate of TCAS RA occurrences per million flights per year

Actions to achieve OPR-3 objective:

No.	Safety actions	Progress indicators	Target date	Responsible	Stakeholders
OPR3.OPS01 OPR3.ANS01	Conduct the workshop regarding ICAO standard phraseology	Number of participants attending per number of expected	End of 2024	CAAT/OPS CAAT/ANS	CAOs
OPR3.OPS02	Develop safety promotion material on high climb/descent rate and level busts	Number of level busts per 10,000 aircraft movements	End of 2024	CAAT/OPS	Air Operators

OPR-4:

To reduce the rate of actual Runway Excursions (RE)

Runway Excursion is a veer off or overrun off the runway surface during both take-off and landing. This is the most prevalent occurrence related to “runway safety”. As opposed to previously described events, occurrences related to runway excursions have led, on average, to fewer fatalities. However, the reported occurrences relate to actual excursions rather than potential runway excursions so although the numbers are low the potential severity is high.

Examples of contributing factors

- Heavy rain and/or strong winds
- Pilot error and decision making
- Runway conditions
- Unstabilised approach
- Aircraft system malfunction - Thrust reversers, speed-brakes & brakes

Examples of precusor events

- Unstabilised approach that continues to land
- Long landings
- Too high energy in final approach
- Aquaplaning events
- Aircraft stopping device failures -Thrust reversers,speed-brakes & brakes
- Rejected take-off
- Abnormal runway contact

The table below details the SPIs and SPTs for OPR-4 objective:

Safety Performance Indicators (SPIs)	Safety Performance Targets (SPTs)
2-year rolling average of rate of significant risk occurrence related to runway excursion (RE) per million flights per year	Decreasing 2-year rolling average of rate of significant risk occurrence related to RE
2-year rolling average of rate of unstabilised approach with high speed occurrences per million flights per year	Decreasing 2-year rolling average of rate of unstabilised approach with high speed occurrences

Actions to achieve OPR-4 objective:

No.	Safety actions	Progress indicators	Target date	Responsible	Stakeholders
OPR4.AGA01	Establish National Runway Safety Program	Publish National Runway Safety Program	End of 2024	National Runway Safety Committee	-
OPR4.AGA02	Safety promotion regarding the lesson learnt from past runway excursion cases	Number of safety promotion	End of 2026	National Runway Safety Committee	-

OPR-5:

To reduce the rate of actual Runway Incursions (RI)

Runway Incursion is any occurrence at an aerodrome involving the incorrect presence of an aircraft, vehicle, or person on the protected area of a surface designated for the landing and take-off of aircraft. Although statistically very few runway incursions result in collisions, there is a high fatality risk associated with these events.

Examples of contributing factors

- Airport signage, marking and lighting
- Communication errors (Pilot / ATC)
- ATC error
- Use of non-standard phraseology
- Loss of situational awareness
- Runway and taxiway layout
- Poor visibility due to adverse weather conditions
- High speed taxiing

Examples of precusor events

- Aircraft partially passing stop bars
- Runway/Taxiway confusion

The table below details the SPIs and SPTs for OPR-5 objective:

Safety Performance Indicators (SPIs)	Safety Performance Targets (SPTs)
2-year rolling average of rate of significant risk occurrence related to Runway Incursion (RI) per million flights per year	Decreasing 2-year rolling average of rate of significant risk occurrence related to RI
2-year rolling average of rate of Runway Incursion (RI) by an aircraft per million aircraft movements per year	Decreasing 2-year rolling average of rate of RI by an aircraft

Actions to achieve OPR-5 objective:

No.	Safety actions	Progress indicators	Target date	Responsible	Stakeholders
OPR5.SMO01	Promote the safely airside driving rule	Number of runway incursions by vehicles	End of 2024	Airport Operators	CAAT/AGA Airport Operators
OPR5.AGA01	Establish National Runway Safety Program	Publish National Runway Safety Program	End of 2024	National Runway Safety Committee	-
OPR5.AGA02	Safety promotion regarding the lesson learnt from past runway incursion cases	Number of safety promotion articles published by National Runway Safety Committee	End of 2026	National Runway Safety Committee	-
OPR5.OPS01 OPR5.ANS01 OPR5.AGA03	Conduct the workshop regarding ICAO standard phraseology	Number of participants per number of expected	End of 2024	CAAT/OPS CAAT/ANS CAAT/AGA	ANSPs Air Operators Airport Operators

OPR-6:

To reduce the rate of bird strikes with damage to aircraft parts

Bird strike is a collision between a bird and an aircraft. The majority of bird collisions occur near or at airports during take-off, landing, and associated phases of fight. Although most bird strikes do not result in signifcant events, the potential for an aircraft to lose both engines as a result of hitting flocks of large birds is real. The Thai ecosystem together with the number of bird strikes reported to CAAT demonstrate that bird strikes is a safety issue that needs to be addressed.

Examples of contributing factors

- Birds inhabiting airport and surrounding areas
- Inadequate bird scaring activities

Examples of precusor events

- Large flocking birds sighted in close proximity to an aircraft

The table below details the SPIs and SPTs for OPR-6 objective:

Safety Performance Indicators (SPIs)	Safety Performance Targets (SPTs)
2-year rolling average rate of bird strike occurrence per million aircraft movement per year	10% reduction of the 2-year rolling average rate of bird strike occurrence
2-year rolling average rate of occurrences related to bird strikes with major damage to aircraft per million aircraft movements per year	10% reduction of the rate of occurrence related to bird strikes with major damage to aircraft

Actions to achieve OPR-6 objective:

No.	Safety actions	Progress indicators	Target date	Responsible	Stakeholders
OPR6.AGA01	Establish National Wildlife Hazard Management Committee	National Wildlife Hazard Management Committee is established	End of 2026	CAAT/AGA	-

APPENDIX: List of acronyms

A

AAIC	Aircraft Accident Investigation Committee
AIS	Aeronautical Information Service
ALoSP	Acceptable Level of Safety Performance
AMC	Aeromedical Centres
AMEL	Aircraft Maintenance Engineer License
AMO	Approved Maintenance Organisation
ANSP	Air Navigation Service Provider
AOC	Air Operator Certificate
APEX	Airport Excellent Programme
AP-RASP	Asia Pacific Regional Aviation Safety Plan
ATC	Air Traffic Controller
ATCTO	Air Traffic Control Training Course/ Organisation
ATS	Air Traffic Service
ATO	Approved Training Organisation
ATPL	Airline Transport Pilot License
ASAG	Aviation Safety Action Group

C

CAAT	Civil Aviation Authority of Thailand
CAAT/AIR	Airworthiness and Aircraft Engineering Department of CAAT
CAAT/AGA	Aerodrome Standards Department of CAAT
CAAT/ANS	Air Navigation Services Standards Department of CAAT
CAAT/APD	Aviation Industry Development and Promotion Department of CAAT
CAAT/HCD	Human Capital Management Department of CAAT
CAAT/OPS	Flight Operations Standards Department of CAAT
CAAT/PEL	Personnel Licensing Department of CAAT
CAAT/SFD	Aviation Security and Facilitation Standards Department of CAAT
CAAT/SMO	Aviation Safety Management and Standards Assurance Office of CAAT
CAAT/UAS	Unmanned Aircraft Standards Department of CAAT
CAO	Civil Aviation Organisation
CE	Critical Element of a safety oversight system
CFIT	Controlled Flight Into Terrain
CNS	Communication Navigation and Surveillance
COSCAP SEA	Cooperative Development of Operational Safety and Continuing Airworthiness Programme South East Asia
CPL	Commercial Pilot License
CRM	Crew Resource Management

E

EI	Effective Implementation
EGPWS	Enhanced Ground Proximity Warning System

F

FOO	Flight Operations Officer
FTO	Flying Training Organisation

G

GASP	ICAO Global Aviation Safety Plan
GEN	Generic organisational safety objective

H

HRC	High-Risk Category

I

ICAO	International Civil Aviation Organization
IFPD	Instrument Flight Procedure Design
ILS	Instrument Landing System

L

LOC-I	Loss of Control - In flight
LPC	Aviation Language Proficiency Testing Center

M

MAC	Mid-Air Collision
MET	Meteorological Services
MTO	Maintenance Training Organisation

N

NCASB	National Civil Aviation Safety Board

O

OPR	Specific Operational safety objective

P

PPL	Private Pilot Licensing

R

RASG	Regional Aviation Safety Plan
RE	Runway Excursion
RI	Runway Incursion

S

SAR	Search and Rescue
SARPs	Standards and Recommended Practices
SDCPS	Safety Data Collection and Processing System
SDV-SG	Safety Data Verification - Sub Group
SEI	Safety Enhancement Initiatives
SID	Standard Instrument Departure Routes
SMS	Safety Management System
SPI	Safety Performance Indicator
SPT	Safety Performance Target
SSP	State Safety Program
STAR	Standard Arrival Routes
STD	Air Traffic Control Synthetic Training Device

T

TASAP	Thailand Aviation Safety Action Plan
TAWS	Terrain Avoidance Warning System
TCAR	Thailand Civil Aviation Regulation
TCAS RA	Traffic Collision Avoidance System Resolution Advisory
TNA	Training Needs Analysis

V

VOR	Voluntary Occurrence Report