



# **NATIONAL AVIATION SAFETY PLAN 2022-24**

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## **PLAN**

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## Section 1.

### INTRODUCTION

#### 1.1. OVERVIEW OF THE NASP

- 1.1.1. Safety is always the primary consideration of Pakistan aviation agencies to ensure continued confidence in our aviation industry.
- 1.1.2. National Aviation Safety Plan (NASP) 2022-2024 of Pakistan complements the Pakistan State Safety Programme (SSP). It identifies initiatives that are being undertaken to reduce the risks associated with aviation operations in Pakistan, and details the strategic direction for the management of aviation safety in the short, medium and long term.
- 1.1.3. This first edition of the NASP presents the national strategy and roadmap of actions for enhancing aviation safety for the period 2022 to 2024. Pakistan safety enhancement initiatives (SEIs) not only support the improvement of safety domestically, but within the Asia-Pacific region and globally.
- 1.1.4. While the NASP is based on Pakistan's operating environment and risks, it is strategically aligned with the International Civil Aviation Organization's (ICAO) Global Aviation Safety Plan 2020-2022 (GASP) and the Asia Pacific Regional Aviation Safety Plan 2020 2022 (AP-RASP), in recognition that aviation activities are global in nature.
- 1.1.5. The NASP is subject to ongoing maintenance aligned to the review, development and publication of the GASP, the AP-RASP and the Pakistan SSP.

#### 1.2. STRUCTURE OF THE NASP

- 1.2.1. This NASP presents the strategy for enhancing aviation safety for a period of three years. It comprises six sections. In addition to the introduction, sections include: the purpose of the NASP, Pakistan's strategic approach to managing aviation safety, the national operational safety risks identified for the 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.
- 1.2.2. Competing priorities and interests can hinder achievement of SSP and NASP objectives and goals. However, to ensure efforts are aligned, Pakistan has established a governance structure that is inclusive of relevant regulatory functions and ensures oversight of all SSP and NASP activities. Pakistan will monitor the SSP governance framework to ensure alignment of agency activities and that the requirements of the SSP are met

#### 1.3. RELATIONSHIP BETWEEN THE NASP AND THE STATE SAFETY PROGRAMME (SSP)

- 1.3.1. As the SSP is in process of implementation in Pakistan, this NASP addresses operational safety risks identified in the ICAO GASP and APRASP. PCAA is committed to fully implement an SSP, as a State's responsibilities for the management of safety comprise both safety oversight and safety management, collectively implemented through an SSP.
- 1.3.2. The NASP is one of the key documents developed as part of Pakistan's SSP documentation. It is the means by which PCAA defines and drives the implementation of SEIs generated by the SSP process and drawn from the ICAO GASP and the AP-RASP. It also allows PCAA to determine initiatives to strengthen the SSP or otherwise needed to achieve its safety objectives.

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

- 1.4.1. SSP Branch (PCAA) is responsible for the development, implementation and monitoring of the NASP, in collaboration with all other regulatory directorates and with the national aviation industry.
- 1.4.2. The NASP was developed in consultation with national operators and other stakeholders, and in alignment with the Global Aviation Safety Plan (GASP), as well as AP-RASP.

## 1.5. NATIONAL SAFETY ISSUES, GOALS AND TARGETS

- 1.5.1. Consistent with the ICAO's GASP and the Asia Pacific Regional Aviation Safety Plan (AP-RASP), the NASP establishes following goals and targets, to enhance aviation safety at the national level:
  - a) Improve the safety of Pakistani aviation operations across all sectors by continuously reducing operational safety risks.
  - b) Strengthen Pakistan's safety oversight capabilities.
  - c) Embed an effective State Safety Programme that delivers an acceptable level of safety performance;
  - d) Move towards data-driven regulatory oversight
  - e) Ensure the appropriate infrastructure is available to support safe operations

## 1.6. OPERATIONAL CONTEXT

- 1.6.1. There are 26 operational aerodromes in Pakistan, out of which 12 are certified aerodromes, (international aerodromes). There are 14 licensed airstrips in Pakistan.
- 1.6.2. Pakistani airspace is classified into Class A, B, C E and G. Pakistan Airspace is divided into 02 Flight Information Regions (FIRs) i.e., Karachi and Lahore FIRs. Lahore FIR includes airspace North of latitude 30° North whereas Karachi FIR includes Pakistan airspace south of latitude 30° North as well as those portions of high seas (upto 2330N) where the responsibility for provision of ATS rests with Pakistan. The services in respective FIRs are provided by Karachi, Lahore and Islamabad Area Control Centers (ACCs).
- 1.6.3. There were 232000 aircraft movements in Pakistan airspace including departures, arrivals and transit traffic, over the period of January to December 2021.
- 1.6.4. There are currently 17 Air Operator Certificates (AOCs) issued by Flight Standards Directorate (FSD), and of those 03 are issued to operators conducting international commercial air transport operations and also has one operator, which operates domestic services. There are 07 Heli-operators in Pakistan certified by FSD.
- 1.6.5. Pakistan Aviation Industry is facing following challenges:
  - Rapid growth in air traffic
  - Increasing complexity of our aviation system
  - Capability and capacity building
  - Global, regional and national priorities
  - Other emerging concerns like densely populated areas around airports, global economy issues and COVID-19 pandemic

## Section 2.

### PURPOSE OF THE NASP

- 2.1. The SSP sets out how PCAA identifies, monitors and maintains the effectiveness of its aviation safety performance, and sets key safety principles that underpin the system. The NASP is the continuous improvement element of the SSP. It prioritizes initiatives that aim to enhance aviation safety by identifying strategies and actions to reduce specific risks.
- 2.2. The NASP reaffirms Pakistan's commitment to aviation safety, and seeks to ensure initiatives are appropriately managed and resourced. For each safety initiative, the NASP clearly defines responsibilities, accountabilities, timelines and deliverables, whilst ensuring alignment to GASP and AP-RASP requirements.
- 2.3. The NASP integrates all SSP agencies' existing corporate planning documents to present a consistent national aviation safety strategy that is efficient to develop and implement. The NASP is not intended to replace SSP agencies' existing corporate planning documents or processes.
- 2.4. Implementing this NASP satisfies Pakistan's obligations under ICAO Assembly Resolution A39-12, which recognizes the importance of effective national aviation safety planning consistent with the vision and goals of the GASP.

## Section 3.

### STRATEGIC APPROACH TO MANAGING AVIATION SAFETY

#### 3.1 PAKISTAN AVIATION SAFETY GOALS

Pakistan's safety goals, represent our desired outcomes and objectives against the challenges faced by the state. Following safety goals that align with the GASP global safety goals and AP-RASP regional priorities, are also outlined in Table 1.

##### 3.1.1. *Goal 1 - Improve the safety of Pakistan aviation operations across all sectors by continuously reducing operational safety risks*

Goal 1 seeks to achieve continuous reduction of operational safety risks faced by Pakistan SSP stakeholders (including industry) and reflects the ICAO HRCs.

##### 3.1.2. *Goal 2 - Strengthen Pakistan's safety oversight capabilities*

Goal 2 seeks to improve Pakistan's organizational ability and oversight capabilities. Pakistan will continue to effectively implement the eight ICAO CEs and ensure the State oversight and governance structure is appropriate to meet State organizational challenges.

##### 3.1.3. *Goal 3 — Embed an effective SSP that delivers an acceptable level of safety performance*

Goal 3 seeks to ensure the continued effectiveness and improvement of SSP, including in achieving aviation safety goals and service providers' level of SMS implementation.

##### 3.1.4. *Goal 4 - Move towards data-driven regulatory oversight*

Goal 4 seeks to support regulatory oversight through data collection, processing and monitoring of safety trends, in conjunction with the Safety Goal 2.

##### 3.1.5. *Goal 5 - Ensure the appropriate infrastructure is available to support safe operations*

Goal 5 seeks to ensure that Pakistan Aviation Industry has the appropriate infrastructure to support safe operations. It is linked to Pakistan's obligations under the ICAO Global Air Navigation Plan (GANP) and seeks ongoing investment in Pakistan's air navigation and airport core infrastructure to maintain compliance with safety standards.

	1	2	3	4	5	6
GASP	Achieve a decreasing trend of global Accident rate	Strengthen States safety oversight capabilities	Implement effective State safety programmes (SSPs)	Increase Collaboration at the regional level	Expand the use of Industry Programmes	Ensure the appropriate infrastructure is available to support safe operations
AP-RASP	Reduce Operational risks	Improve States' safety oversight and compliance	Implement effective SMS and SSP	Move towards data-driven regulatory oversight		Enhance aviation infrastructure
NASP	Improve the safety of Pakistan aviation operations across all sectors by continuously	Strengthen Pakistan's safety oversight capabilities	Embed an effective SSP that delivers an acceptable level of safety performance	Move towards data-driven regulatory oversight		Ensure the appropriate infrastructure is available to support safe operations

	reducing operational safety risks					
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Table-1

### 3.2 ACCEPTABLE LEVEL OF SAFETY PERFORMANCE

- 3.2.1. The Acceptable Level of Safety Performance (ALoSP) defines the focus of a State towards the safety of aviation system.
- 3.2.2. The PCAA ALoSP is expected to set the safety standards for Civil Aviation in Pakistan to have the trust and confidence of those encountering that system.
- 3.2.3. Aviation is generally regarded as one of the safest modes of transportation. When assessing aviation safety performance across the Pakistan, it is acknowledged that different safety standards are acceptable in different aviation sectors. The intent is that, through State oversight, the safety performance of each sector will continue to inspire trust and confidence in Pakistan aviation industry.
- 3.2.4. Each safety goal contributes to an overall acceptable level of safety performance for Pakistan. Pakistan's acceptable level of safety performance, or the sum output of the safety goals, is:

***No accidents involving commercial air transport that result in serious injuries or fatalities, no serious injuries or fatalities to third parties as a result of aviation activities and improving safety performance across all sectors.***

### 3.3 SAFETY PERFORMANCE INDICATORS AND TARGETS

- 3.3.1. Each safety goal is accompanied by safety performance indicators (SPI) to measure State performance and provide evidence on whether desired outcomes are being achieved.
- 3.3.2. To define a benchmark for each SPI, PCAA has set safety performance targets (SPT) which represent the level of performance considered to be acceptable. A summary of Pakistan's safety goals, SPIs and SPTs is at Table 2.
- 3.3.3. PCAA focuses following key safety areas in aviation sector for the implementation of effective State Safety Programme:
- 3.3.4. **Airborne Conflict**
  - a) TCAS RAs (Where systems onboard the aircraft alert the crew to take action to avoid another aircraft)
  - b) Occurrences of 'level bust' (Where an aircraft descends below or climbs above their cleared level)
  - c) 'AIRPROX' events
  - d) Airspace infringement events;
- 3.3.5. **Controlled Flight Into Terrain (CFIT)**
  - a) Enhanced Ground Proximity Warning System (EGPWS) warnings (Terrain etc)
- 3.3.6. **Wildlife and Bird Strikes (WSH);**
- 3.3.7. **Runway Excursions** due to
  - a) Weather
  - b) Human Performance

- c) Technical Failure

#### 3.3.8. Runway Incursions by

- a) Aircraft (due to Pilots / ATC error)
- b) Vehicles (drivers / operators)
- c) People

#### 3.3.9. Loss of Control Inflight (LOC-I) due to:

- a) Weather
- b) Human Performance
- c) Technical Failure

#### 3.3.10. Ground Collisions (GCOL) & Ground Safety:

- a) Resulting in aircraft damage
- b) Relating to loading errors
- c) As a result of other ground services (cold weather, fuelling, etc.)

#### 3.3.11. Poor Handling of Dangerous Goods; and

#### 3.3.12. Poor / Deficient Maintenance

- a) Updated Aircraft Maintenance Programs
- b) Recurrence of audit Findings
- c) Reporting culture

#### 3.3.13. Protocol Questions (PQs)

- a) PQs are the primary tool used by ICAO in its USOAP CMA to assess the effective implementation of the eight CEs of a State safety oversight system. The USOAP CMA Working Group is responsible for coordinating Pakistan's response to all PQs by SSP agencies and for tracking overall compliance.
- b) There are currently around 800 PQs, of which ICAO has identified a subset of Priority PQs with a higher correlation to operational safety risks that should be used to prioritize State resources. SSP Foundational PQs are another subset considered by ICAO as prerequisites for the sustainable implementation of a full SSP.

#### 3.3.14. Safety Oversight Index

A State's Safety Oversight Index is defined by ICAO as the difference between the State's E score and the minimum E score the State should have based on its Traffic volume. A Safety Oversight Index can be positive or negative.

3.3.15. SPIs are established on the State safety objectives and focus on occurrences (quantitative) and contributing factors (qualitative). The SPIs are based on the available safety data including the sources detailed in the SSP inputs section. The SPIs are monitored and reviewed by the SSP Branch with the assistance of other regulatory directorates to ensure they remain appropriate.

3.3.16. Considering the above key safety areas, PCAA has determined following SPIs and SPTs:



Safety Goal	Ref No.	SPI	SPT
<b>Goal1:</b> Improve the safety of Pakistan aviation operations across all sectors by continuously reducing operational safety risks		<b>Airborne Conflict</b>	
	1.1	Number of fatal accidents	No fatal accidents
	1.2	Number of risk bearing AIRPROX per 10000 flights over Pakistan airspace.	5% improvement between each annual mean rate
	1.3	Number of TCAS RA in controlled airspace leading to breach of separation per 10000 flights over Pakistan airspace.	5% improvement between each annual mean rate
	1.4	Number of aircraft not or incorrectly complying with ATC instructions (including level bust) per 10000 flights over Pakistan airspace	5% improvement between each annual mean rate
	1.5	Number of AIRPROX attributable to ATC / system failure per 10000 flights over Pakistan airspace	5% improvement between each annual mean rate
	1.6	Number of Airspace Infringements per 10000 flights over Pakistan airspace	5% improvement between each annual mean rate
		<b>Controlled Flight Into Terrain (CFIT)</b>	
	1.7	Number of GPWS warnings (Scheduled airlines) per 10000 departures	5% improvement between each annual mean rate
		<b>Wildlife and Bird Strikes (WSH)</b>	
	1.8	Number of reported bird strikes at all airports per 10,000 movements (only for 6 Major / Medium Airports – JIAP, AIIAP, IIAP, BKIAP, SIAL, MIAP)	5% improvement between each annual mean rate
	1.9	Number of substantial aircraft damage due to wildlife / bird strike per 10,000 movements	5% improvement between each annual mean rate
		<b>Runway Excursions (Runway Safety)</b>	
	1.10	Number of unstable approaches per 10000 approaches	5% improvement between each annual mean rate
	1.11	Number of runway excursions per 10000 approaches	5% improvement between each annual mean rate
		<b>Runway Incursions (Runway Safety)</b>	
	1.12	Number of runway incursions (aircraft / vehicle / person)	5% improvement between each annual mean rate
		<b>Other Runway Safety Issues (FOD)</b>	
	1.13	Number of runway foreign object debris hazard reports rate per 10000 flights	5% improvement between each annual mean rate
	1.14	Number of runway foreign object damage to aircraft per 10000 flights	5% improvement between each annual mean rate
		<b>Loss of Control Inflight (LOC-I)</b>	
	1.15	Loss of control precursor events per 10000 flights	5% improvement between each annual mean rate

Safety Goal	Ref No.	SPI	SPT
	1.16	Number of Laser Beam Incidents to pilots per 10000 flights (May be regarded as Separate SPI)	5% improvement between each annual mean rate
		<b>Ground Collisions (GCOL) &amp; Ground Safety (Runway Safety)</b>	
	1.17	Number of fatal accidents	No fatal accidents
	1.18	Number of ramp incidents (involving damage to aircraft, vehicles or loss of life/serious injury to personnel)	10% improvement between each annual mean rate
		<b>Inappropriate Handling of Dangerous Goods</b>	
	1.19	Number of airline DGR incident reports per 10000 flights	5% improvement between each annual mean rate
		<b>Poor / Deficient Maintenance</b>	
	1.20	Incident involving component/system Failure per 10000 flights	5% improvement between each annual mean rate
	1.21	Number of Maintenance errors per 10000 flights	5% improvement between each annual mean rate
	1.22	Inflight Engine Shutdown incidents per 10000 flights	5% improvement between each annual mean rate
	1.23	Smoke/Fire Warnings Incidents rate per 10000 flights	5% improvement between each annual mean rate
	1.24	Recurring Discrepancy rate	5% improvement between each annual mean rate
	1.25	Emergency Equipment Failure Incidents rate per 10000 flights	5% improvement between each annual mean rate
<b>Goal 2:</b> Strengthen Pakistan's safety oversight capabilities	2.1	Safety regulatory implementation	80% of regulatory development delivered against plan
	2.2	Priority PQs self-assessment (%)	Better than previous score
	2.3	PQs (all) self-assessment (%)	100% completion of all Priority PQs self-assessment
	2.4	Safety Oversight Index (SOI)	95% compliance score
	2.5	Number of ICAO significant safety concerns findings	Nil ICAO Significant Safety Concerns Findings
	2.6	ICAO audit findings (action)	Nil ICAO Significant Safety Concerns Findings
	2.7	Domestic safety surveillance events	80% of surveillance achieved against schedule
	2.8	Unnecessary SAR incidents (false Emergency Locator Transmission activation, SARTIME errors)	10% reduction on the number of unnecessary SAR incidents
<b>Goal 3:</b> Embed an effective SSP that delivers an acceptable level of safety performance	3.1	Foundational SSP PQs self-assessment (%)	90% completion of all foundational PQs (self-assessment)
	3.2	Appropriate SSP governance	90% of defined SSP governance meetings conducted (based on annual schedule)

Safety Goal	Ref No.	SPI	SPT
	3.3	Implementation of strategy items included in the NASP	90% of NASP safety enhancement initiative actions completed in accordance with defined timeline
	3.4	Number of aviation safety awareness seminars to industry	95% of seminars delivered against annual plan
<b>Goal 4:</b> Move towards data-driven regulatory oversight	4.1		Develop a national mechanism for data collection, analysis and sharing (SDCPS)
<b>Goal 5:</b> Ensure the appropriate infrastructure is available to support safe operations	5.1.	% EI in AGA of USOAP CMA	To achieve at least 75% EI in AGA of USOAP CMA
	5.2.	% EI in ANS of USOAP CMA	To achieve at least 75% EI in ANS of USOAP CMA
	5.3.	Number of certified aerodromes that are used for international operations	Certify all aerodromes that are used for international operations

**Table – 2**

\* Defined service providers include all Certified Aerodromes, ANSP, all Airlines/Operators, ATOs and Approved Maintenance Organizations

## Section 4.

### NATIONAL OPERATIONAL SAFETY RISKS

#### 4.1. SUMMARY OF ACCIDENTS & SERIOUS INCIDENTS

The summary of accidents and serious incidents that occurred in Pakistan, and those for aircraft registered in Pakistan 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>Occurrences in Pakistan</b>			
2021	00	00	35
2020	01+01 (Military Heli)	00	19
2019	00	01	09
<b>Occurrences involving only aircraft registered in Pakistan</b>			
2021	00	00	29
2020	01+01 (Military Heli)	00	12
2019	00	01	07

#### 4.2. HIGH RISK CATEGORIES (HRC) OF OCCURRENCES

4.2.1. The following five national high-risk categories of occurrences (HRCs) in the operational context were considered of the utmost priority because of the number of fatalities and risk of fatalities associated with such events. These were identified based on analyses from mandatory and voluntary reporting systems, accident and incident investigation reports, safety oversight activities over the past three years, as well as on the basis of regional analysis conducted by RASG-APAC and on the operational safety risks described in the GASP.

- 1) Airborne Conflict (Mid Air Collision – MAC)
- 2) Controlled Flight into Terrain (CFIT)
- 3) Runway Incursions (Runway Safety)
- 4) Runway Excursions (Runway Safety)
- 5) Loss of Control In Flight (LOC-I)

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

- 1) Wildlife / bird strike Hazard
- 2) Inappropriate Handling of Dangerous Goods
- 3) Deficient Maintenance
- 4) Ground Collision
- 5) Other Runway Safety Issues (FOD etc)

#### 4.3. SAFETY ENHANCEMENT INITIATIVES

4.3.1. 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 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.

4.3.2. To address the national operational safety risks listed above, Pakistan CAA identified the following contributing factors leading to HRCs, some of which are derived from the OPS roadmap, contained in the ICAO GASP:

- 1) Regulatory Oversight
- 2) Severe weather events
- 3) Aircraft malfunction
- 4) Manual handling / flight controls,
- 5) Long / floated/ bounced / firm / off-center / crabbed landings, and
- 6) overall crew performance

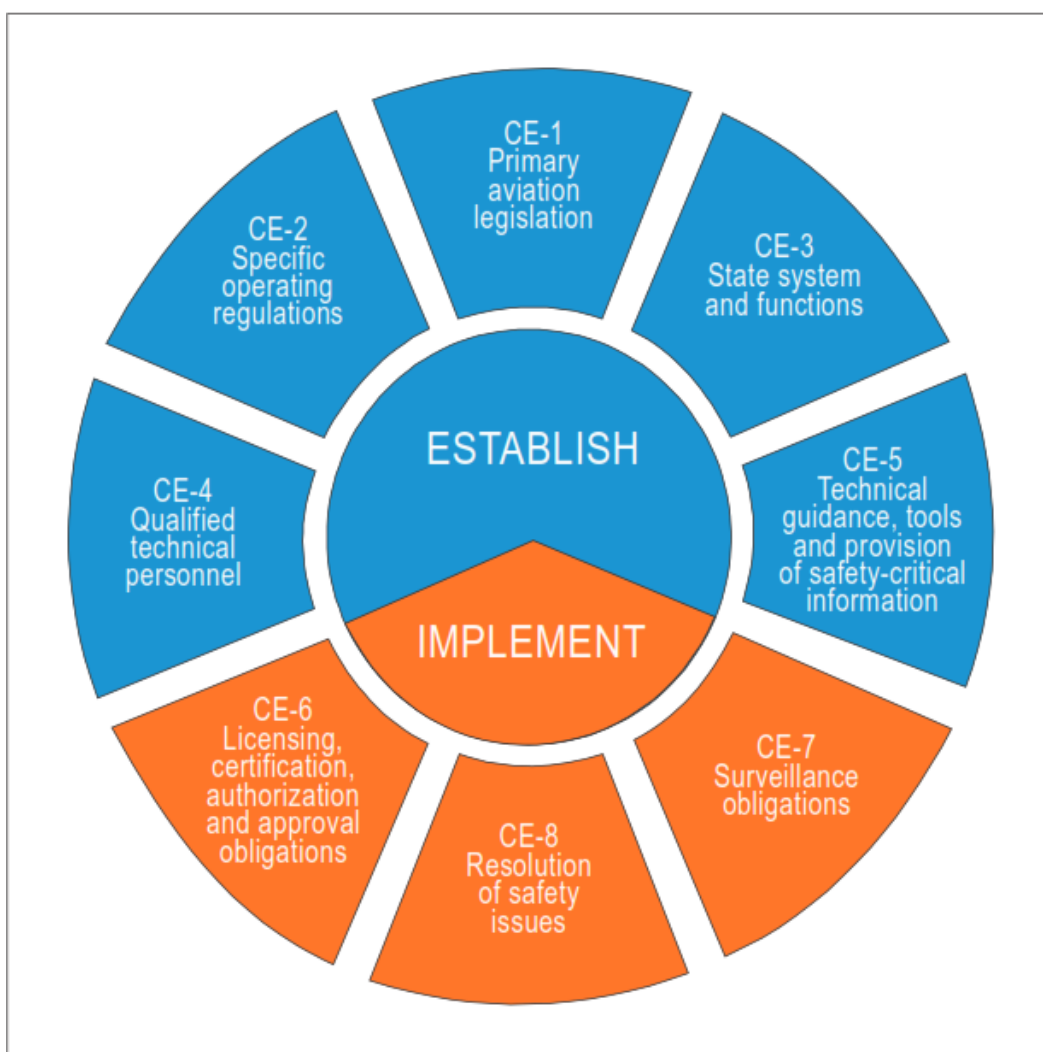
4.3.3. The NASP Ops and Org roadmaps are detailed in Appendix-A and Appendix-B, which cover following points:

- a) **Goal.** Pakistan National Goals I-V support the State's strategic approach to managing safety at the national level.
- b) **Target(s).** Targets which serve to fulfil their respective Goal, including the year(s) in which the respective Target is expected to be achieved.
- c) **GASP SEI.** Where the Actions stem from the SEIs in the GASP Roadmap, specific references are made for easier reference.
- d) **Action.** A description of the specific SEI or initiative, and the tasks required for its implementation. The Actions support the Targets of the Goals.
- e) **Responsible Entity.** Appointed by PCAA to lead the group of stakeholders identified to further develop specific details for implementation of the respective Action.
- f) **Timeline.** The year(s) in which the respective Action is expected to be implemented.
- g) **Stakeholders.** The entities/ stakeholders in the Pakistan, to which the Action(s) is addressed.
- h) **Metrics.** A description of the specific Target, and the indicators required for performance measurement.

## Section 5.

### OTHER SAFETY ISSUES

- 5.1. In addition to the national operational safety risks listed in the NASP, PCAA has identified other safety issues and initiatives selected for the NASP. These are given priority in the NASP since they are aimed at enhancing and strengthening PCAA's safety oversight capabilities and the management of aviation safety at the national level.
- 5.2. The eight critical elements (CEs) of a safety oversight system are defined by ICAO. Pakistan is committed to the effective implementation of these eight CEs, as part of its overall safety oversight responsibilities, which emphasize Pakistan's commitment to safety in respect of its aviation activities. The eight CEs are presented in Figure 1 below.



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

- 5.3. As part of the ICAO Universal Safety Oversight Audit Programme (USOAP), the latest ICAO activities to measure the effective implementation of the eight CEs of Pakistan's safety oversight system in November 2021, have resulted in the following scores:

Overall EI score							
70.39 %							
EI score by CE							
CE-1	CE-2	CE-3	CE-4	CE-5	CE-6	CE-7	CE-8
65.52%	76.53%	71.88%	50.00%	89.92%	77.50%	50.52%	38.64%
EI score by audit area							
LEG	ORG	PEL	OPS	AIR	AIG	ANS	AGA
50.00%	63.64%	69.77%	72.88%	94.48%	67.07%	43.12%	70.63%

- 5.4. 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 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 State's aviation system. Pakistan's SOI have resulted in the following scores:

Score	Operations	Air Navigation	Support Functions
SOI	1.17	1.13	1.1
EI (%)	79.04	56.88	60.24

- 5.5. The following other safety issues in the organizational context were considered of the utmost priority because these are systemic issues, which impact the effectiveness of safety risk controls. These were identified based on analysis from USOAP data, accident and incident investigation reports, safety oversight activities over the past three years, as well as on the basis of regional analysis conducted by RASG-APAC. These issues are typically organizational in nature and relate to challenges associated with the conduct of States' safety oversight functions, implementation of SSP at the national level and the level of SMS implementation by national service providers:

5.5.1. Increased need for capability and capacity building

5.5.2. Limited collection of and use of safety data for decision-making

5.5.3. COVID-19 pandemic outbreak

- 5.6. To address the issues listed above, PCAA will implement a series of SEIs, some of which are derived from the ICAO ORG roadmap, contained in the GASP. Complete list of the SEIs is presented in the Appendix-B to the NASP.





## Section 6.

### MONITORING IMPLEMENTATION

- 6.1. PCAA 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.
- 6.2. In addition to the above, SSP Branch, in consultation with all regulatory directorates will review the NASP every three years or earlier, if required, to keep the identified operational safety risks, safety issues and selected SEIs updated and relevant. The 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, PCAA will seek the support of RASG-APAC to ensure the timely implementation of SEIs to address safety deficiencies and mitigate risks. Through close monitoring of the SEIs, PCAA will make adjustments to the NASP and its initiatives, if needed, and update the NASP accordingly.
- 6.3. PCAA 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. Annual safety report will be published to provide stakeholders with relevant up-to-date information on the progress made in achieving the national safety goals and targets, as well as the implementation status of the SEIs.
- 6.4. In the event that the national safety goals and targets are not met, the root causes will be presented. It 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.
- 6.5. Pakistan adopted a standardized approach to provide information at the regional level, for reporting to the RASG-APAC. This allows the region to receive information and assess operational safety risks using common methodologies.
- 6.6. Any questions regarding the NASP and its initiatives, and further requests for information, may be addressed to the following:

**Additional Director SSP,  
HQCAA  
Karachi – Pakistan  
Email: [adld.ssp@caapakistan.com.pk](mailto:adld.ssp@caapakistan.com.pk)**

# APPENDICES

APPENDIX – A

**NATIONAL OPERATIONAL SAFETY RISKS (OPS) ROADMAP**

<b>HRC 1: AIRBORNE CONFLICT (MID AIR COLLISION)</b>							
<b>Goal 1: Improve the safety of Pakistan aviation operations across all sectors by continuously reducing operational safety risks</b>							
<b>Targets: T1.1 to T1.6</b>							
<b>SEI</b>	<b>Action</b>	<b>Timeline</b>	<b>Responsible entity</b>	<b>Stakeholders</b>	<b>Metrics/Indicators</b>	<b>Priority</b>	<b>Monitoring Activity</b>
GASP OPS3 (MAC)	A1.1 MAC-1 b), c) & d) <ul style="list-style-type: none"> <li>Ensure adherence to ACAS warning procedures</li> <li>Promote the improvement of air traffic control (ATC) systems, procedures and tools to enhance conflict management</li> <li>Promote the improvement of communications systems and procedures, such as controller-pilot datalink</li> </ul>	2023	<ul style="list-style-type: none"> <li>FSD</li> <li>DAAR (AANS)</li> </ul>	<ul style="list-style-type: none"> <li>ANSP</li> <li>Airlines / Operators</li> </ul>	<ul style="list-style-type: none"> <li>Number of confirmed TCAS-RA incidents after investigations</li> </ul>	High	PCAA Monitoring Tool, i.e., SDCPS
GASP OPS3 (MAC)	A1.2 MAC-2 Validate the effectiveness of the SEIs through the analysis of MORs and VORs and accident/incident investigations (apply safety management methodologies)	2023	<ul style="list-style-type: none"> <li>FSD</li> <li>DAAR (AANS)</li> <li>SSP</li> </ul>	<ul style="list-style-type: none"> <li>ANSP</li> <li>Airlines / Operators</li> </ul>	<ul style="list-style-type: none"> <li>Number of confirmed TCAS-RA incidents after investigations</li> </ul>	High	PCAA Monitoring Tool, i.e. SDCPS
GASP OPS3 (MAC)	A1.3 MAC-3 Identify additional contributing factors, like <ul style="list-style-type: none"> <li>Traffic conditions - traffic density, complexity, mixture of aircraft types and capabilities</li> <li>ATC performance related to workload, competence, teamwork, procedures, commitment, etc., as well as the</li> </ul>	2023	<ul style="list-style-type: none"> <li>FSD</li> <li>DAAR (AANS)</li> </ul>	<ul style="list-style-type: none"> <li>ANSP</li> <li>Airlines / Operators</li> </ul>	<ul style="list-style-type: none"> <li>Number of confirmed TCAS-RA incidents after investigations</li> <li>Number of Airborne Conflict incidents</li> </ul>	High	PCAA Monitoring Tool, i.e. SDCPS

**HRC 1: AIRBORNE CONFLICT (MID AIR COLLISION)**

**Goal 1:** Improve the safety of Pakistan aviation operations across all sectors by continuously reducing operational safety risks

**Targets: T1.1 to T1.6**

SEI	Action	Timeline	Responsible entity	Stakeholders	Metrics/Indicators	Priority	Monitoring Activity
	<p>influence of ANSPs' safety management</p> <ul style="list-style-type: none"> <li>Flight crew training and corporate culture with workload, competence, teamwork, procedures, commitment etc., and the influence of aircraft operator's safety management</li> <li>ATC systems - flight data processing, communication, short term conflict alert (STCA), etc., as well as the interaction with the human operators and the aircraft systems, and the procurement policy of the ANSP</li> <li>Aircraft equipment - autopilots, transponders and ACAS, but also aircraft performance (e.g. rate-of-climb) and their physical size</li> <li>Navigation infrastructure - both coverage and quality</li> <li>Surveillance - both coverage and quality</li> <li>Flight plan processing - efficiency and reliability of flight plan submission, approval and distribution</li> <li>Airspace - complexity of airspace design, route layout, extent of controlled or uncontrolled airspace, proximity</li> </ul>						

**HRC 1: AIRBORNE CONFLICT (MID AIR COLLISION)**

**Goal 1:** Improve the safety of Pakistan aviation operations across all sectors by continuously reducing operational safety risks

**Targets: T1.1 to T1.6**

SEI	Action	Timeline	Responsible entity	Stakeholders	Metrics/Indicators	Priority	Monitoring Activity
	<p>of military operational or training areas, etc.</p> <ul style="list-style-type: none"> <li>Flight in adverse environmental conditions that may influence conflict management and collision avoidance</li> </ul>						
GASP OPS3 (MAC)	A1.4 MAC-4 Develop and implement further SEIs to mitigate the risk of the identified contributing factors, if any, for MAC	2023	<ul style="list-style-type: none"> <li>FSD</li> <li>DAAR (AANS)</li> <li>SSP</li> </ul>	<ul style="list-style-type: none"> <li>ANSP</li> <li>Airlines / Operators</li> </ul>	<ul style="list-style-type: none"> <li>Number of confirmed TCAS-RA incidents after investigations</li> <li>Number of Airborne Conflict incidents</li> </ul>	High	PCAA Monitoring Tool, i.e. SDCPS
GASP OPS3 (MAC)	A1.5 MAC-5 Conduct continuous evaluations of the performance of the SEIs	2023	<ul style="list-style-type: none"> <li>FSD</li> <li>DAAR (AANS)</li> <li>SSP</li> </ul>	<ul style="list-style-type: none"> <li>ANSP</li> <li>Airlines / Operators</li> </ul>	<ul style="list-style-type: none"> <li>Number of confirmed TCAS-RA incidents after investigations</li> <li>Number of Airborne Conflict incidents</li> </ul>	High	PCAA Monitoring Tool, i.e. SDCPS

**HRC 2: CONTROLLED FLIGHT INTO TERRAIN (CFIT)**

**Goal 1:** Improve the safety of Pakistan aviation operations across all sectors by continuously reducing operational safety risks

**Target: T1.7**

SEI	Action	Timeline	Responsible entity	Stakeholders	Metrics/Indicators	Priority	Monitoring Activity
GASP OPS1 (CFIT)	<p>A2.1 CFIT1</p> <ul style="list-style-type: none"> <li>Ensure aircraft are equipped with Enhanced Ground Proximity Warning System (EGPWS) in accordance with Annex 6</li> <li>Promote the wider use of EGPWS beyond the requirements of Annex 6</li> <li>Issue a Safety Advisory to increase adherence to EGPWS warning procedures</li> <li>Promote greater awareness of approach risks</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> <li>Promote the use of GPS-derived position data to feed EGPWS</li> </ul>	2023	PCAA Airlines / Operators	<ul style="list-style-type: none"> <li>PCAA</li> <li>Airlines / Operators</li> <li>ANSP</li> </ul>	<ul style="list-style-type: none"> <li>Issuance of Safety Advisory</li> <li>Number of awareness sessions conducted</li> <li>Number of CFIT events</li> </ul>	High	<ul style="list-style-type: none"> <li>Surveillance of airlines / ANSP</li> <li>Monitoring of SPIs / SPTs</li> </ul>
GASP OPS1 (CFIT)	<p>A2.2 CFIT2</p> <p>Validate the effectiveness of the safety enhancement initiatives (SEIs) presented in this roadmap through the analysis of mandatory</p>	2023	<ul style="list-style-type: none"> <li>All Regulatory Dtes</li> <li>SSP</li> </ul>	<ul style="list-style-type: none"> <li>PCAA</li> <li>Airlines / Operators</li> <li>ANSP</li> </ul>	<ul style="list-style-type: none"> <li>Number of CFIT events</li> </ul>	High	<ul style="list-style-type: none"> <li>Surveillance of airlines / ANSP</li> <li>Monitoring of SPIs / SPTs</li> </ul>

**HRC 2: CONTROLLED FLIGHT INTO TERRAIN (CFIT)**

**Goal 1:** Improve the safety of Pakistan aviation operations across all sectors by continuously reducing operational safety risks

**Target: T1.7**

SEI	Action	Timeline	Responsible entity	Stakeholders	Metrics/Indicators	Priority	Monitoring Activity
	occurrence reporting (MORs) and voluntary occurrence reporting systems (VORs) and accident/incident investigations (apply safety management methodologies)						
GASP OPS1 (CFIT)	<p>A2.3 CFIT3</p> <p>Identify additional contributing factors, like:</p> <ul style="list-style-type: none"> <li>Flight in adverse environmental conditions</li> <li>Approach design and documentation (e.g. approaches with vertical guidance (APV) or localizer performance with vertical guidance (LPV) approaches)</li> <li>Phraseology used (standard vs. non-standard)</li> <li>Pilot fatigue and disorientation</li> </ul>	2023	<ul style="list-style-type: none"> <li>All Regulatory Dtes</li> <li>SSP</li> </ul>	<ul style="list-style-type: none"> <li>PCAA</li> <li>Airlines / Operators</li> <li>ANSP</li> </ul>	<ul style="list-style-type: none"> <li>Number of awareness sessions conducted</li> <li>Number of CFIT events</li> </ul>	High	<ul style="list-style-type: none"> <li>Surveillance of airlines / ANSP</li> <li>Monitoring of SPIs / SPTs</li> </ul>
GASP OPS1 (CFIT)	<p>A2.4 CFIT4</p> <p>Develop and implement further SEIs to mitigate the risk of the identified contributing factors, if any, for CFIT</p>	2023	<ul style="list-style-type: none"> <li>All Regulatory Dtes</li> <li>SSP</li> </ul>	<ul style="list-style-type: none"> <li>PCAA</li> <li>Airlines / Operators</li> <li>ANSP</li> </ul>	<ul style="list-style-type: none"> <li>Issuance of Safety Advisory</li> <li>Number of awareness sessions conducted</li> <li>Number of CFIT events</li> </ul>	High	<ul style="list-style-type: none"> <li>Surveillance of airlines / ANSP</li> <li>Monitoring of SPIs / SPTs</li> </ul>

**HRC 3: RUNWAY INCURSIONS (RUNWAY SAFETY)**

**Goal 1:** Improve the safety of Pakistan aviation operations across all sectors by continuously reducing operational safety risks

**Target: T1.13 & T1.18**

SEI	Action	Timeline	Responsible entity	Stakeholders	Metrics/Indicators	Priority	Monitoring Activity
GASP OPS5 (RI)	<p>A3.1 RI-1</p> <ul style="list-style-type: none"> <li>Ensure the establishment and implementation of a State runway safety programme and runway safety teams</li> <li>Promote the establishment of policy, procedures and training that supports situational awareness for controllers, pilots and airside vehicle drivers</li> <li>Ensure effective use of suitable technologies to assist the improvement of situational awareness, such as improved resolution airport moving maps (AMM), electronic flight bags (EFBs), enhanced vision systems (EVS) and head-up displays (HUD), advanced-surface movement guidance and control systems (A-SMGCS), stop bars, and runway incursion warning systems (ARIWS)</li> <li>Ensure the use of standard phraseologies in accordance with applicable State regulations and ICAO provisions (e.g., Doc 9432, Manual of Radiotelephony)</li> <li>Ensure the identification and publication of hot spots at aerodromes in the AIP</li> <li>Ensure that suitable strategies to remove hazards or mitigate risks</li> </ul>	2023	<ul style="list-style-type: none"> <li>DAAR</li> </ul>	<ul style="list-style-type: none"> <li>Airlines</li> <li>APS</li> <li>ANSP</li> <li>GHAs</li> <li>ATOs</li> </ul>	<ul style="list-style-type: none"> <li>Reduction in RI incidents</li> </ul>	High	<ul style="list-style-type: none"> <li>MORs / SDCPS</li> </ul>



**HRC 3: RUNWAY INCURSIONS (RUNWAY SAFETY)**

**Goal 1:** Improve the safety of Pakistan aviation operations across all sectors by continuously reducing operational safety risks

**Target: T1.13 & T1.18**

SEI	Action	Timeline	Responsible entity	Stakeholders	Metrics/Indicators	Priority	Monitoring Activity
	associated with identified hot spots are developed and executed						
GASP OPS5 (RI)	A3.2 RI-2 Validate the effectiveness of the SEIs through the analysis of MORs, VORs and accident / incident investigations (apply safety management methodologies)	2023	DAAR	<ul style="list-style-type: none"> <li>Airlines</li> <li>APS</li> <li>ANSP</li> <li>GHAs</li> <li>ATOs</li> </ul>	<ul style="list-style-type: none"> <li>Reduction in RI incidents</li> </ul>	High	<ul style="list-style-type: none"> <li>MORs / SDCPS</li> </ul>
GASP OPS5 (RI)	A3.3 RI-3 Identify additional contributing factors, <ul style="list-style-type: none"> <li>Operations in low visibility conditions</li> <li>Complex or inadequate aerodrome design</li> <li>Complexity of traffic (multiple simultaneous line-ups)</li> <li>Conditional clearances</li> <li>Simultaneous use of intersecting runways</li> <li>Late issue of or late changes to departure clearances</li> <li>Phraseology use (e.g. non-standard vs. standard, call-sign confusion)</li> <li>Concurrent use of more than one language for ATC communications</li> </ul>	2023	DAAR	<ul style="list-style-type: none"> <li>Airlines</li> <li>APS</li> <li>ANSP</li> <li>GHAs</li> <li>ATOs</li> </ul>	<ul style="list-style-type: none"> <li>Reduction in RI incidents</li> </ul>	High	<ul style="list-style-type: none"> <li>MORs / SDCPS</li> </ul>

**HRC 3: RUNWAY INCURSIONS (RUNWAY SAFETY)**

**Goal 1:** Improve the safety of Pakistan aviation operations across all sectors by continuously reducing operational safety risks

**Target: T1.13 & T1.18**

SEI	Action	Timeline	Responsible entity	Stakeholders	Metrics/Indicators	Priority	Monitoring Activity
	<ul style="list-style-type: none"> <li>English language competence despite the introduction by ICAO of a system of validating competence in aviation English</li> <li>Inadequate manoeuvring area driver training and assessment programme</li> </ul>						
GASP OPS5 (RI)	A3.4 RI-4 Develop and implement further SEIs to mitigate the risk of the identified contributing factors, if any, for RI	2023	DAAR	<ul style="list-style-type: none"> <li>Airlines</li> <li>APS</li> <li>ANSP</li> <li>GHAs</li> <li>ATOs</li> </ul>	<ul style="list-style-type: none"> <li>Reduction in RI incidents</li> </ul>	High	<ul style="list-style-type: none"> <li>MORs / SDCPS</li> </ul>
GASP OPS5 (RI)	A3.5 RI-5 Conduct continuous evaluations of the performance of the SEIs	2023	DAAR	<ul style="list-style-type: none"> <li>Airlines</li> <li>APS</li> <li>ANSP</li> <li>GHAs</li> <li>ATOs</li> </ul>	<ul style="list-style-type: none"> <li>Reduction in RI incidents</li> </ul>	High	<ul style="list-style-type: none"> <li>MORs / SDCPS</li> </ul>

**HRC 4: RUNWAY EXCURSIONS (RUNWAY SAFETY)**

**Goal 1:** Improve the safety of Pakistan aviation operations across all sectors by continuously reducing operational safety risks

**Targets: T1.11, T1.12 & T1.18**

SEI	Action	Timeline	Responsible entity	Stakeholders	Metrics/Indicators	Priority	Monitoring Activity
GASP OPS4 (RE)	<p>A4.1 RE-1</p> <ul style="list-style-type: none"> <li>All airlines / operators / ATOs to provide training / awareness w.r.t <ul style="list-style-type: none"> <li>rejected landings, go-arounds, crosswind and tailwind landings</li> <li>runway overrun awareness and alerting systems on aircraft</li> <li>Increased emphasis on coordination between two pilots with respect to traffic clearances given by ATC</li> <li>Increased emphasis on situational awareness regarding traffic on approach / departures / taxiing on runways</li> </ul> </li> <li>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)</li> <li>Certify aerodrome in accordance with ICAO Annex 14, Volume I as well as Doc 9981, PANS-Aerodrome</li> </ul>	2023	FSD DAAR	<ul style="list-style-type: none"> <li>Airlines</li> <li>ATOs</li> <li>ANS</li> <li>APS</li> </ul>	<ul style="list-style-type: none"> <li>Reduction in RE incidents</li> <li>Completion of training / awareness sessions</li> </ul>	High	<ul style="list-style-type: none"> <li>MORs / SDCPS</li> </ul>

**HRC 4: RUNWAY EXCURSIONS (RUNWAY SAFETY)**

**Goal 1:** Improve the safety of Pakistan aviation operations across all sectors by continuously reducing operational safety risks

**Targets:** T1.11, T1.12 & T1.18

SEI	Action	Timeline	Responsible entity	Stakeholders	Metrics/Indicators	Priority	Monitoring Activity
	<ul style="list-style-type: none"> <li>Ensure that procedures to systematically reduce the rate of unstabilized approaches to runways are developed and used</li> <li>Continuous periodic monitoring through route/ in-flight checks</li> </ul>						
GASP OPS4 (RE)	A4.2 RE-2 Validate the effectiveness of the SEIs through the analysis of MORs, VORs and accident / incident investigations (apply safety management methodologies)	2023	FSD DAAR	<ul style="list-style-type: none"> <li>Airlines</li> <li>ATOs</li> <li>ANS</li> <li>APS</li> </ul>	<ul style="list-style-type: none"> <li>Reduction in RE incidents</li> <li>Completion of training / awareness sessions</li> </ul>	High	<ul style="list-style-type: none"> <li>MORs / SDCPS</li> </ul>
GASP OPS4 (RE)	A4.3 RE-3 Identify additional contributing factors, <ul style="list-style-type: none"> <li>Ineffective SOPs</li> <li>Failure to adhere to the appropriate SOPs</li> <li>Long / floated / bounced / firm / off-centre / crabbed landing</li> <li>Inadequate approach procedures design</li> <li>Inadequate regulatory oversight</li> </ul>	2023	FSD DAAR	<ul style="list-style-type: none"> <li>Airlines</li> <li>ATOs</li> <li>ANS</li> <li>APS</li> </ul>	<ul style="list-style-type: none"> <li>Reduction in RE incidents</li> <li>Completion of training / awareness sessions</li> </ul>	High	<ul style="list-style-type: none"> <li>MORs / SDCPS</li> </ul>
GASP OPS4 (RE)	A4.4 RE-4 Develop and implement further SEIs to mitigate the risk of the identified contributing factors, if any, for RE	2023	FSD DAAR	<ul style="list-style-type: none"> <li>Airlines</li> <li>ATOs</li> <li>ANS</li> <li>APS</li> </ul>	<ul style="list-style-type: none"> <li>Reduction in RE incidents</li> <li>Completion of training / awareness sessions</li> </ul>	High	<ul style="list-style-type: none"> <li>MORs / SDCPS</li> </ul>

HRC 4: RUNWAY EXCURSIONS (RUNWAY SAFETY)							
Goal 1: Improve the safety of Pakistan aviation operations across all sectors by continuously reducing operational safety risks							
Targets: T1.11, T1.12 & T1.18							
SEI	Action	Timeline	Responsible entity	Stakeholders	Metrics/Indicators	Priority	Monitoring Activity
GASP OPS4 (RE)	A4.5 RE-5 Conduct continuous evaluations of the performance of the SEIs	2023	FSD DAAR	<ul style="list-style-type: none"> <li>Airlines</li> <li>ATOs</li> <li>ANS</li> <li>APS</li> </ul>	<ul style="list-style-type: none"> <li>Reduction in RE incidents</li> <li>Completion of training / awareness sessions</li> </ul>	High	<ul style="list-style-type: none"> <li>MORs / SDCPS</li> </ul>

**HRC 5: LOSS OF CONTROL INFLIGHT (LOC-I)**

**Goal 1:** Improve the safety of Pakistan aviation operations across all sectors by continuously reducing operational safety risks

**Targets: T1.16 to T1.17**

SEI	Action	Timeline	Responsible entity	Stakeholders	Metrics/Indicators	Priority	Monitoring Activity
GASP OPS2 (LOC)	A5.1 LOC-1 <ul style="list-style-type: none"> <li>Require upset prevention and recovery training in all full flight simulator type conversion and recurrent training programmes</li> <li>Require more time devoted to training for the pilot monitoring role</li> </ul>	2023	FSD	<ul style="list-style-type: none"> <li>Airlines / Operators</li> <li>ATOs</li> <li>FSD</li> <li>Pilot's Associations</li> </ul>	<ul style="list-style-type: none"> <li>Training programmes updated with upset prevention and recovery</li> <li>Number/percentage of pilots completing upset prevention and recovery training</li> <li>Upset occurrence rates in voluntary reporting</li> <li>Stick-shaker activation events in FDA data</li> <li>LOC-I occurrence rates</li> </ul>	High	<ul style="list-style-type: none"> <li>Surveillance of operator and ATO training activities</li> </ul>
GASP OPS2 (LOC)	A5.2 LOC-2 Validate the effectiveness of the SEIs through the analysis of MORs, VORs and accident / incident investigations (apply safety management methodologies)	2023	FSD	<ul style="list-style-type: none"> <li>Airlines / Operators</li> <li>ATOs</li> <li>FSD</li> <li>Pilot's Associations</li> </ul>	<ul style="list-style-type: none"> <li>Reduction in LOC-I events</li> </ul>	High	<ul style="list-style-type: none"> <li>Surveillance of operator and ATO training activities through SDCPS</li> </ul>
GASP OPS2 (LOC)	A5.3 LOC-3 Identify additional contributing factors, e.g, Distraction, Adverse weather, Complacency, Inadequate standard operating procedures (SOPs) for effective flight management, Insufficient	2023	FSD	<ul style="list-style-type: none"> <li>Airlines / Operators</li> <li>ATOs</li> <li>FSD</li> <li>Pilot's Associations</li> </ul>	<ul style="list-style-type: none"> <li>Reduction in LOC-I events</li> </ul>	High	<ul style="list-style-type: none"> <li>Surveillance of operator and ATO training activities through SDCPS</li> </ul>

HRC 5: LOSS OF CONTROL INFLIGHT (LOC-I)							
Goal 1: Improve the safety of Pakistan aviation operations across all sectors by continuously reducing operational safety risks							
Targets: T1.16 to T1.17							
SEI	Action	Timeline	Responsible entity	Stakeholders	Metrics/Indicators	Priority	Monitoring Activity
	height above terrain for recovery, Lack of awareness of or competence in procedures for recovery from unusual aircraft attitudes, Inappropriate flight control inputs in response to a sudden awareness of an abnormal bank angle						
GASP OPS2 (LOC)	A5.4 LOC-5 Conduct continuous evaluations of the performance of the SEIs	2023	FSD	<ul style="list-style-type: none"> <li>Airlines / Operators</li> <li>ATOs</li> <li>FSD</li> <li>Pilot's Associations</li> </ul>	<ul style="list-style-type: none"> <li>Reduction in LOC-I events</li> </ul>	High	<ul style="list-style-type: none"> <li>Surveillance of operator and ATO training activities through SDCPS</li> </ul>

**OTHER SAFETY ISSUES: WILDLIFE / BIRD STRIKE HAZARD**

**Goal 1:** Improve the safety of Pakistan aviation operations across all sectors by continuously reducing operational safety risks

**Targets: T1.8 to T1.10**

SEI	Action	Timeline	Responsible entity	Stakeholders	Metrics/Indicators	Priority	Monitoring Activity
NASP WSH	A6.1 Reiterate reporting of wildlife / bird sightings by pilots	2023	DAAR (AS) / FSD	<ul style="list-style-type: none"> <li>Airport Operators (APS)</li> <li>Airlines / Operators</li> </ul>	<ul style="list-style-type: none"> <li>Bird Hit reports</li> </ul>	High	<ul style="list-style-type: none"> <li>SDCPS</li> </ul>
NASP WSH	A6.2 Awareness campaign in localities and schools regarding wildlife / bird hazards	2023	APS Dte	<ul style="list-style-type: none"> <li>Airport Operators (APS)</li> <li>Airlines / Operators</li> </ul>	<ul style="list-style-type: none"> <li>No. of awareness campaigns / sessions</li> </ul>	Medium	<ul style="list-style-type: none"> <li>Monitoring of Airports</li> </ul>
NASP WSH	A6.3 Dedicated team managed by trained staff to ensure implementation of wildlife / bird strike control measures	2023	APS Dte	<ul style="list-style-type: none"> <li>Airport Operators</li> <li>Airlines / Operators</li> </ul>	<ul style="list-style-type: none"> <li>Trained work force</li> </ul>	Medium	<ul style="list-style-type: none"> <li>Monitoring of Airports</li> </ul>
NASP WSH	A6.4 Review of existing mitigation action and identify the areas of improvement with airport management	2023	APS Dte SQMS Dte	<ul style="list-style-type: none"> <li>Airport Operators</li> <li>Airlines / Operators</li> </ul>	<ul style="list-style-type: none"> <li>Bird hit reports</li> </ul>	Medium	<ul style="list-style-type: none"> <li>SDCPS</li> </ul>
NASP WSH	A6.5 Apprise administration of all the Federal & Provincial Governments, through communication to the Chief Secretaries of the provinces on the importance of compliance of Rule 70 of the CARs	2023	APS Dte SQMS Dte	<ul style="list-style-type: none"> <li>Airport Operators</li> <li>Airlines / Operators</li> </ul>	<ul style="list-style-type: none"> <li>No. of meetings</li> </ul>	Medium	<ul style="list-style-type: none"> <li>Monitoring of Airports</li> </ul>
NASP WSH	A6.6	2023	APS Dte	<ul style="list-style-type: none"> <li>Airport Operators</li> </ul>	<ul style="list-style-type: none"> <li>Bird hit reports</li> </ul>	Medium	<ul style="list-style-type: none"> <li>SDCPS</li> </ul>



	Instruct management of all airports to take effective steps for mitigation of wildlife / bird hazard			<ul style="list-style-type: none"> <li>Airlines / Operators</li> </ul>			
NASP WSH	A6.7 Detailed study of the wildlife species around the airport.	2023	APS Dte SQMS Dte	<ul style="list-style-type: none"> <li>Airport Operators</li> <li>Airlines / Operators</li> </ul>	<ul style="list-style-type: none"> <li>Submission of report</li> </ul>	Medium	<ul style="list-style-type: none"> <li></li> </ul>
NASP WSH	A6.8 Adoption of Habitat Management Strategies	2023	APS Dte	<ul style="list-style-type: none"> <li>Airport Operators</li> <li>Airlines / Operators</li> </ul>	<ul style="list-style-type: none"> <li></li> </ul>		<ul style="list-style-type: none"> <li></li> </ul>

This SPI is linked with LOC-I & RE

**OTHER SAFETY ISSUES: INAPPROPRIATE HANDLING OF DANGEROUS GOODS**

**Goal 1:** Improve the safety of Pakistan aviation operations across all sectors by continuously reducing operational safety risks

**Target: T1.20**

SEI	Action	Timeline	Responsible entity	Stakeholders	Metrics/Indicators	Priority	Monitoring Activity
NASP DGR	A7.1 Establish relevant regulatory requirements for ADM operators to <ul style="list-style-type: none"> <li>designate appropriate areas for the storage of dangerous goods.</li> <li>establish methods for the delivery storage, dispensing and handling of dangerous goods at the aerodrome</li> </ul>	2023	DAAR (AS) FSD	<ul style="list-style-type: none"> <li>Certified Aerodrome Operators</li> <li>Airline / Operators</li> <li>Cargo Handlers</li> </ul>	<ul style="list-style-type: none"> <li>Issuance of ANO / guidelines</li> </ul>	Medium	<ul style="list-style-type: none"> <li></li> </ul>
NASP DGR	A7.2 To emphasize implementation of SMS by ground handling and to follow-up.	2023	FSD	<ul style="list-style-type: none"> <li>Airline / Operators</li> <li>Cargo Handlers</li> </ul>	<ul style="list-style-type: none"> <li>Reduction in dangerous goods related incidents</li> </ul>	Medium	<ul style="list-style-type: none"> <li>SDCPS</li> </ul>
NASP DGR	A7.3 To encourage safety reporting among the ground handlers to identify the serious threats to aircraft on ground, especially in following areas <ul style="list-style-type: none"> <li>Reporting of hazards and threats in ground handling;</li> <li>Promotion of the safety culture;</li> <li>Effective oversight on GHAs</li> </ul>	2023	FSD	<ul style="list-style-type: none"> <li>Airline / Operators</li> <li>Cargo Handlers</li> </ul>	<ul style="list-style-type: none"> <li>No of hazard reports</li> </ul>	Medium	<ul style="list-style-type: none"> <li>SDCPS</li> </ul>

**OTHER SAFETY ISSUES: POOR / DEFICIENT MAINTENANCE**

**Goal 1:** Improve the safety of Pakistan aviation operations across all sectors by continuously reducing operational safety risks

**Targets: T1.21 to T1.26**

SEI	Action	Timeline	Responsible entity	Stakeholders	Metrics/Indicators	Priority	Monitoring Activity
NASP MAINT	A9.1 Review of qualifying requirements for licensing of technical personnel due to advancement of technology	2023	AW PEL	<ul style="list-style-type: none"> <li>• AW Dte</li> <li>• Airlines / Operators</li> <li>• MROs</li> </ul>	•	High	• MORs
NASP MAINT	A9.2 PCAA, with the support of relevant service providers, shall develop programmes to encourage voluntary reporting in technical work through a non-punitive approach	2023	AW	<ul style="list-style-type: none"> <li>• AW Dte</li> <li>• Airlines / Operators</li> <li>• MROs</li> </ul>	• No. of VORs	Medium	• VORs
NASP MAINT	A9.3 Integration of avionic system training along with other airframe / engine system	2023	AW	<ul style="list-style-type: none"> <li>• AW Dte</li> <li>• Airlines / Operators</li> <li>• MROs</li> </ul>	• No. of trainings		•
NASP MAINT	A9.4 Improve the qualifying requirement of senior technicians	2023	AW	<ul style="list-style-type: none"> <li>• AW Dte</li> <li>• Airlines / Operators</li> <li>• MROs</li> </ul>	•		•

APPENDIX – B

**ORGANISATIONAL CHALLENGES (ORG) ROADMAP**

STATE SAFETY OVERSIGHT SYSTEM							
Goal 2: Strengthen Pakistan's safety oversight capabilities Targets: T2.1 to T2.8							
SEI	Action	Timeline	Responsible entity	Stakeholders	Metrics/Indicators	Priority	Monitoring Activity
GASP 1.1 SEI-1 (Consistent implementation of ICAO SARPs at the national level)	A10.1 Work at the national level to address significant safety concerns as a priority	2022	SSP	<ul style="list-style-type: none"> <li>All Regulatory Dtes</li> <li>All Service Providers</li> </ul>	<ul style="list-style-type: none"> <li>Removal of SSC</li> </ul>	High	<ul style="list-style-type: none"> <li>ICAO Monitoring Tool</li> </ul>
	A10.2 Address all priority protocol questions (PQs) of the USOP CMA	2022	SSP	<ul style="list-style-type: none"> <li>All Regulatory Dtes</li> </ul>	<ul style="list-style-type: none"> <li>Number / percentage of responded PQs</li> <li>Number / percentage of unsatisfied PQs</li> </ul>	High	<ul style="list-style-type: none"> <li>ICAO Monitoring Tool</li> </ul>
	A10.3 Review primary aviation law and regulations, to empower the competent authority to conduct regulatory oversight, this includes separation of oversight functions and service provision functions (CE-1 and CE-2)	2022	SSP	<ul style="list-style-type: none"> <li>All Regulatory Dtes</li> </ul>	<ul style="list-style-type: none"> <li>Implementation and enforcement of CAA ordinance</li> </ul>	High	<ul style="list-style-type: none"> <li></li> </ul>
	A10.4 Increase the level of compliance with ICAO SARPs and the EI of CEs at the national level (CE-1 to CE-5)	2022	SSP	<ul style="list-style-type: none"> <li>All Regulatory Dtes</li> <li>All Service Providers</li> </ul>	<ul style="list-style-type: none"> <li>Reduction in number of NCs / Observations during annual oversight audits / inspections</li> </ul>	High	<ul style="list-style-type: none"> <li>Oversight inspections of service providers</li> </ul>
GASP 1.1 SEI-2 (Development of a	A10.5 Establish and maintain an independent regulatory oversight authority, which includes separation of oversight functions	2022	SSP	<ul style="list-style-type: none"> <li>All Regulatory Dtes</li> <li>All Service Providers</li> </ul>	<ul style="list-style-type: none"> <li>Implementation and enforcement of CAA ordinance</li> </ul>	High	<ul style="list-style-type: none"> <li></li> </ul>

comprehensive regulatory oversight framework)	from service provision functions where these exist within the authority (CE-3)						
	A10.6 Develop an effective system to promulgate technical guidance and tools, and provide safety-critical information needed for technical personnel to effectively perform their safety oversight functions (CE-5)	2022	SSP	• All Regulatory Dtes	• Issuance and implementation of the guidance material	Medium	•
	A10.7 Establish an effective system to attract, recruit, train and retain qualified and sufficient technical personnel to support regulatory oversight (CE-3 and CE-4)	2022	DHR / DGCAA	• All Regulatory Dtes	• Recruitment system updated with new recruitment package • Number of training sessions on safety inspector/oversight • Number / percentage of personnel completing safety inspector/oversight training	Medium	•
GASP 1.1 SEI-4 (Strategic allocation of resources to enable effective safety oversight)	A10.8 Confirm executive or legislative mandate to receive financial resources from government or other external sources and expend them (CE-1)	2022	Finance Dte / DGCAA	• All Regulatory Dtes	• Implementation and enforcement of CAA ordinance and segregation / establishment of financial resources	Medium	•
	A10.9 Establish a process for the resource planning and allocation in alignment with a competent authority's organizational structure, which is required to conduct effective safety oversight (CE-2)	2022	DHR / DGCAA	• All Regulatory Dtes	• Implementation and enforcement of CAA ordinance and segregation / establishment of organizational structure	Medium	•

	and CE-3). SEI-1 and SEI-5 could be used to identify resource requirements (CE-1 to CE-5)						
	<p>A10.10</p> <p>Obtain a sustainable and stable source of financing through commitments from the national and agency leadership and other stakeholders (CE-1 to CE-3). For small scope short-term improvements:</p> <ul style="list-style-type: none"> <li>Utilize the ICAO Safety Fund (SAFE), or other means to acquire technical and financial assistance in coordination with RASG-APAC/RSOO/ICAO Regional Office</li> <li>Seek assistance from sources of financing (World Bank, Asian Development Bank, etc.) in coordination with RASG / RSOO / ICAO Regional Office</li> </ul>	2022	Finance Dte / DGCAA	<ul style="list-style-type: none"> <li>All Regulatory Dtes</li> </ul>	<ul style="list-style-type: none"> <li>Implementation and enforcement of CAA ordinance and segregation / establishment of financial resources</li> <li>Implementation of MoUs established with SAFE/WB etc, if any</li> </ul>		
GASP 1.1 SEI-4 (Qualified technical personnel to support effective safety oversight)	<p>A10.11</p> <p>Establish an effective system to identify and track qualifications and training of existing technical personnel (CE-4)</p>	2022	DHR / DGCAA	<ul style="list-style-type: none"> <li>All Regulatory Dtes</li> <li>IT Branch</li> <li>HR Dte</li> </ul>	<ul style="list-style-type: none"> <li>Identification of the gaps in qualifications and training of existing technical personnel</li> </ul>		•
	<p>A10.12</p> <p>Identify the gaps in qualified technical personnel and training requirements necessary to implement the oversight mandate (CE-4)</p>	2022	DHR / DGCAA	<ul style="list-style-type: none"> <li>All Regulatory Dtes</li> <li>HR Dte</li> </ul>	<ul style="list-style-type: none"> <li>Training policies / programmes updated with new plan</li> <li>Number of training sessions of safety technical personnel</li> <li>Number / percentage of technical personnel</li> </ul>		•

					completing relevant trainings		
A10.13 Establish a compensation scheme for the attraction and retention of qualified technical personnel (CE-4)	2022	DHR / DGCAA	<ul style="list-style-type: none"><li>• All Regulatory Dtes</li><li>• HR Dte</li></ul>	<ul style="list-style-type: none"><li>• Implementation of compensation scheme</li><li>• Number/percentage of qualified technical personnel retained more than 12 months after recruitment</li></ul>		<ul style="list-style-type: none"><li>•</li></ul>	
A10.14 Establish human resource plans to support hiring and retention of the appropriate number of qualified technical personnel required (CE-4)	2023	DHR / DGCAA	<ul style="list-style-type: none"><li>• All Regulatory Dtes</li><li>• HR Dte</li></ul>	<ul style="list-style-type: none"><li>• Implementation of HR plan(s)</li><li>• Number/percentage of qualified technical personnel retained more than 12 months after recruitment</li></ul>		<ul style="list-style-type: none"><li>•</li></ul>	
A10.15 Implement training policies and programmes for technical personnel and verify that the type and frequency of training successfully completed (i.e., initial, recurrent, specialized and on-the-job training) are sufficient to acquire/maintain the required qualifications and level of competence corresponding to the assigned duties and responsibilities of technical personnel (CE-4)	2023	DHR / SSP	<ul style="list-style-type: none"><li>• All Regulatory Dtes</li><li>• HR Dte</li></ul>	<ul style="list-style-type: none"><li>• Training policies/ programmes updated with new plan</li><li>• Number of training sessions of safety technical personnel</li><li>• Number / percentage of technical personnel completing relevant trainings</li></ul>		<ul style="list-style-type: none"><li>•</li></ul>	
A10.16 Develop a process for assessing changing needs for qualified technical personnel requirements and develop procedures to update		DHR	<ul style="list-style-type: none"><li>• All Regulatory Dtes</li></ul>			<ul style="list-style-type: none"><li>•</li></ul>	

	hiring, retention and training of personnel needs, in coordination with SEI-4B (CE-4)						
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**SSP IMPLEMENTATION**

**Goal 3:** Embed an effective SSP that delivers an acceptable level of safety performance

**Targets: T3.1 to T3.4**

SEI	Action	Timeline	Responsible entity	Stakeholders	Metrics/Indicators	Priority	Monitoring Activity
GASP 2.2 SEI-10 to 12 3.1 SEI-7	A11.1 Support the robust implementation and continuous improvement of SMS and SSP	2022	SSP	<ul style="list-style-type: none"> <li>All Regulatory Dtes</li> <li>All Service Providers</li> </ul>	<ul style="list-style-type: none"> <li>No. of SSP-related courses/ workshops conducted for aviation stakeholders</li> <li>No. of stakeholders participated in courses / workshops</li> </ul>	Low	<ul style="list-style-type: none"> <li>Progress report to SSP</li> </ul>
GASP 2.2 SEI-11 3.1 SEI-1 & SEI-7	A11.2 Improve the sharing of best practices in safety management, safety data and analyses among all the service providers	2022	SSP	<ul style="list-style-type: none"> <li>All Regulatory Dtes</li> <li>All Service Providers</li> </ul>	<ul style="list-style-type: none"> <li>No. of SSP-related sharing sessions / presentations;</li> <li>No. of SSP areas covered;</li> <li>No. of Regulatory Dtes / Service Providers which presented</li> </ul>	Low	<ul style="list-style-type: none"> <li>Progress report to SSP</li> </ul>

INCREASING CAPACITY BUILDING & COLLABORATION							
Goal 4: Move towards data-driven regulatory oversight							
Targets: T4.1 to T4.2							
SEI	Action	Timeline	Responsible entity	Stakeholders	Metrics/Indicators	Priority	Monitoring Activity
GASP 2.1.1 SEI-5; 2.1.2 SEI-9	A12.1 Establish a mechanism to collect and analyse SSP SPIs data from service providers	2022	SSP / All Regulatory Dtes	<ul style="list-style-type: none"> <li>• All Regulatory Dtes</li> <li>• All Service Providers</li> </ul>	<ul style="list-style-type: none"> <li>• Completion of documented action plan</li> </ul>	High	<ul style="list-style-type: none"> <li>• SDCPS</li> </ul>
GASP 2.2 SEI-13; 3.1 SEI-4C; 3.1 SEI-7 (C,D,E,F)	A12.2 Establish and populate a State Risk Register	2022	SSP / All Regulatory Dtes	<ul style="list-style-type: none"> <li>• All Regulatory Dtes</li> <li>• All Service Providers</li> </ul>	<ul style="list-style-type: none"> <li>• Completion of Risk Register</li> </ul>	High	<ul style="list-style-type: none"> <li>• SDCPS</li> </ul>
GASP 2.2 SEI-7	A12.3 Develop guidance on governance framework for aviation Safety data sharing projects	2022	SSP / All Regulatory Dtes	<ul style="list-style-type: none"> <li>• All Regulatory Dtes</li> <li>• All Service Providers</li> </ul>	<ul style="list-style-type: none"> <li>• Completion of communication</li> </ul>	Medium	<ul style="list-style-type: none"> <li>• Progress report to SSP</li> </ul>
GASP 2.2 SEI-16; 3.1 SEI-4C; 3.1 SEI-7 (C,D,E,F)	A12.4 Develop a more data-driven, precision-/targeted approach of identifying risks	2022	SSP / All Regulatory Dtes	<ul style="list-style-type: none"> <li>• All Regulatory Dtes</li> <li>• All Service Providers</li> </ul>	<ul style="list-style-type: none"> <li>• No. of meetings represented</li> </ul>	Medium	<ul style="list-style-type: none"> <li>• Progress report to SSP</li> </ul>

INCREASING CAPACITY BUILDING & COLLABORATION							
Goal 5: Ensure the appropriate infrastructure is available to support safe operations							
Targets: T5.1 to T5.4							
SEI	Action	Timeline	Responsible entity	Stakeholders	Metrics/Indicators	Priority	Monitoring Activity
GASP 1.1 SEI-1 1.1 SEI-3 1.1 SEI-4	A13.1 Support APS / Airport Operators on the implementation of the ICAO Annex 14 requirements to achieve compliance with regards to Aerodrome Design and Operations, through Workshops/Training	2023	DAAR / ICAO Cell	<ul style="list-style-type: none"> <li>DAAR / SSP</li> <li>APS / Airport Operators</li> <li>RASG-APAC</li> </ul>	<ul style="list-style-type: none"> <li>Number of sessions conducted</li> <li>Reduced observations / findings on Annex 14 requirements</li> </ul>	High	<ul style="list-style-type: none"> <li>Annual Safety Audit reports</li> </ul>
GASP 1.1 SEI-6	A13.2 Enhance capacity building for CAA Regulatory and Airport Operators related to aerodromes certification through Workshops/Training	2023	DAAR / ICAO Cell	<ul style="list-style-type: none"> <li>DAAR / SSP</li> <li>APS / Airport Operators</li> <li>RASG-APAC</li> </ul>	<ul style="list-style-type: none"> <li>Number of sessions conducted</li> <li>Reduced observations / findings on Annex 14 requirements</li> </ul>	High	<ul style="list-style-type: none"> <li>Annual Safety Audit reports</li> </ul>
GASP 1.1 SEI-6	A13.3 Develop guidance material on Apron Management	2022	DAAR / SSP	<ul style="list-style-type: none"> <li>APS / Airport Operators</li> </ul>	<ul style="list-style-type: none"> <li>Completion of guidance material</li> </ul>	Medium	<ul style="list-style-type: none"> <li>Progress report to SSP</li> </ul>
GASP 1.1 SEI-4	A13.4 Upgradation of ATM System by ANSP	2023	DAAR / OPS Dte	<ul style="list-style-type: none"> <li>CNS Dte</li> <li>OPS Dte</li> </ul>	<ul style="list-style-type: none"> <li>Installation of ATM System</li> </ul>	Medium	<ul style="list-style-type: none"> <li>Progress report to SSP</li> </ul>
GASP 1.1 SEI-4	A13.5 Review and revision of ATS routes	2023	DAAR / OPS Dte	<ul style="list-style-type: none"> <li>OPS Dte</li> <li>CNS Dte</li> </ul>	<ul style="list-style-type: none"> <li>Implementation of revised ATS routes</li> </ul>	Medium	<ul style="list-style-type: none"> <li>Progress report to SSP</li> </ul>

## APPENDIX - C

### **ABBREVIATIONS & ACRONYMS**

ADM	Aerodrome
ANS	Air Navigation Services
ANSP	Air Navigation Services Provider
APAC	Asia Pacific Region
APRASP	Asia Pacific Regional Aviation Safety Plan
APS	Airport Services
ADB	Asian Development Bank
CAA	Civil Aviation Authority
CE	Critical Element
CFIT	Controlled Flight Into Terrain
CMA	Continuous Monitoring Approach
DAAR	Directorate of Airspace & Aerodrome Regulations
DG CAA	Director General Civil Aviation Authority
DHR	Director Human Resource
Dte	Directorate
EGPWS	Enhanced Ground Proximity Warning System
EI	Effective Implementation
FSD	Flight Standards Directorate
GASP	Global Aviation Safety Plan
GHA	Ground Handling Agency / Agent
HRC	High Risk Categories of Occurrences
ICAO	International Civil Aviation Organization
LOC-I	Loss of Control in-flight
MAC	AIRPROX/ TCAS alert/ loss of separation/ near miss collisions/ mid-air collisions
NASP	National Aviation Safety Plan
OPS	Flight Operations (USOAP Audit Area)
Ops	Operational (Safety)
ORG	Civil Aviation Organisation (USOAP Audit Area)
Org	Organisational / Systemic
PCAA	Pakistan Civil Aviation Authority
PQ	Protocol Question
RASG	Regional aviation safety group
RSOO	Regional safety oversight organization
SAFE	ICAO Safety Fund
SARPs	Standards and Recommended Practices
SEI	Safety Enhancement Initiative(s)

SM ICG	Safety Management International Collaboration Group
SMS	Safety Management System
SPI	Safety Performance Indicator
SPT	Safety Performance Target
SQMS	Safety & Quality Management System
SSC	Significant Safety Concern
SSP	State Safety Programme
UN	United Nations
USOAP	Universal Safety Oversight Audit Programme
VOR	Voluntary Occurrence Report
WB	World Bank
WSH	Wildlife / Bird Strike Hazard