

## OPS Roadmap

		<p><b>Regional HRC 1:</b> RS, including RI and RE</p> <p><b>Regional ORC 1:</b> ARC</p> <p style="text-align: center;"><b>Regional Goal I:</b> Achieve a continuous reduction of operational safety risks  <b>Regional Goal IV:</b> Strengthen collaboration at the regional and national levels to address safety issues</p> <p style="text-align: center;"><b>Targets</b></p> <p><b>T1.1:</b> APAC States to maintain a 5-year moving average decreasing trend of <b>regional</b> accident rate  <b>T1.2:</b> APAC States to maintain a 5-year moving average decreasing trend of accidents and serious incidents for each <b>regional</b> high-risk category of occurrence (R-HRC)  <b>T1.3:</b> APAC States to maintain a 5-year moving average decreasing trend of accidents and serious incidents related to the other <b>regional</b> risk categories of occurrences  <b>T4.3:</b> By 2027, all APAC States to contribute to a regional mechanism within RASG-APAC to ensure the effective utilization of information on operational safety risks and emerging issues for regional aviation safety planning.</p>					
GASP SEI	Precursor Events	Regional SEI	Stakeholder(s) & OPS Action(s)	SEI Custodian	Metric (MET)	Timeline	Metric Information Mechanism
OPS 9 (RE) OPS 10 (RI) OPS 19 (ARC)	<p><b>Runway Excursion:</b></p> <p>Unstabilised approach (continued to land)</p> <p>Abnormal runway contact</p> <p>Landing outside of the touchdown zone</p> <p>High-speed rejected takeoffs</p> <p>Late or inappropriate go-around decision</p> <p>Loss of situational awareness</p> <p><b>Runway Incursion:</b></p>	<p><b>SEI.1.1* RS 1:</b> Runway Safety Maturity Checklist</p>	<p><b>APRAST Actions:</b></p> <p><b>APRAST1.</b> Develop an understanding of the SEI (such any implementation challenges) and encourage State representatives to drive domestic implementation.</p> <p><b>APRAST2.</b> Encourage States to update the ICAO SEI monitoring tool quarterly to report the SEI implementation level.</p> <p><b>State/Administration-level implementation actions:</b></p> <p><b>Air Navigation Service Providers (ANSP)</b></p> <p><b>ANSP1.</b> Review the content of the respective GAPPRI and GAPPRE documents including the recommendations and guidance materials</p> <p><b>ANSP2.</b> Utilize the GAPPRI and GAPPRE documentation as a training and reference resource</p> <p><b>Aircraft Operator (AO)</b></p> <p><b>AO1.</b> Review the content of the respective GAPPRI and GAPPRE documents including the recommendations and guidance materials</p>	<p>OPS WG: RI and RE Task Forces</p> <p>In coordination with:</p> <p>APANPIRG's AOP/SG</p>	<p><b>Leading:</b></p> <p><b>MET1.</b> The percentage of APAC States/Administrations with at least 75% Implementation Level A reported in the ICAO SEI monitoring tool.</p> <p><b>MET2.</b> The percentage of APAC Service Providers with at least 75% Implementation Level C reported in the ICAO SEI monitoring tool.</p> <p><b>MET3:</b> The trend in the rate of unstabilized approaches (continued to land) within the region as reported through safety information sharing initiatives.</p> <p><b>MET4.</b> The trend in the rate of RIs within the region as reported through safety information sharing initiatives.</p> <p><b>MET5.</b> The trend in the rate of taxiway incursions/taxi errors within the region as reported through safety information sharing initiatives.</p> <p><b>MET6.</b> The number of State/Administration</p>	<p><b>MET1.</b> End Q2 2026</p> <p><b>MET2.</b> End Q4 2026</p> <p><b>MET3.</b> End Q4 2027</p> <p><b>MET4.</b> End Q4 2027</p> <p><b>MET5.</b> End Q4 2027</p> <p><b>MET6.</b> End Q2 2026</p> <p><b>MET7.</b> End Q4 2026</p> <p><b>MET8.</b> End Q4 2027</p> <p><b>MET9.</b> End Q4</p>	<p>RASG-APAC/APRAST safety information sharing initiatives (e.g. SRP WG, Regional Safety Data and Information Sharing Programs)</p> <p>ICAO SEI monitoring tool</p>

	<p>Deviation from or incorrectly issued taxi instructions</p> <p>Communication errors</p> <p>Loss of situational awareness</p>		<p><b>AO2.</b> Utilize the GAPPRI and GAPPRE documentation as a training and reference resource</p> <p><b>State Regulators (REG)</b></p> <p><b>REG1.</b> Review the content of the respective GAPPRI and GAPPRE documents including the recommendations and guidance materials</p> <p><b>REG2.</b> Utilize the GAPPRI and GAPPRE documentation as a training and reference resource</p> <p><b>Aerodrome Operators (ADR)</b></p> <p><b>ADR1.</b> Review the content of the respective GAPPRI and GAPPRE documents including the recommendations and guidance materials.</p> <p><b>ADR2.</b> Utilize the GAPPRI and GAPPRE documentation as a training and reference resource</p>		<p>responses to the GAPPRI and GAPPRE trackers</p> <p><b>MET7.</b> The regional implementation of Essential GAPPRI and GAPPRE recommendations.</p> <p><b>MET8.</b> The regional implementation of Intermediate/Mid-term GAPPRI and GAPPRE recommendation.</p> <p><b>Lagging:</b></p> <p><b>MET9.</b> The trend of fatality risk, accidents and serious incidents categorized as RS and ARC.</p>	2027	
<p>OPS 9 (RE)</p> <p>OPS 19 (ARC)</p>		<p>SEI.I.2* Runway Excursion (RE) 2: Guidance material on Unstabilised Approach</p>	<p><b><u>APRAST Actions:</u></b></p> <p><b>APRAST1.</b> Develop an understanding of the SEI (such any implementation challenges) and encourage State representatives to drive domestic implementation.</p> <p><b>APRAST2.</b> Encourage States to update the ICAO SEI monitoring tool quarterly to report the SEI implementation level.</p> <p><b><u>State/Administration-level implementation actions:</u></b></p> <p><b>Air Navigation Service Provider (ANSP)</b></p> <p><b>ANSP1.</b> Review the contents of the SEI safety output.</p> <p><b>ANSP2.</b> Review existing procedures and training program for ATC that may affect the stability of an approach against recommended best practices within the SEI output. Assessment and revision (if necessary) of procedures, training program, and training materials should be conducted accordingly.</p> <p><b>ANSP3.</b> Coordinate and work with the regulator and air operators in mitigating the risk of unstablized approach in the context of SEI outputs.</p>				

		<p><b>Aircraft Operators (AO)</b></p> <p><b>AO1.</b> Note the existence of SEI safety output.</p> <p><b>AO2.</b> Consider implementation of the Approach and Landing Accident Reduction (ALAR) Toolkit</p> <p><b>Procedure Designers (PD)</b></p> <p><b>PD1.</b> Review the contents of the SEI safety output.</p> <p><b>PD2.</b> Review existing training material for procedure designers that may affect the stability of an approach against recommended best practices within the SEI output. Assessment and revision (if necessary) of training materials should be conducted accordingly.</p>					
		<p>SEI.I.3* RE 7: Guidance material and training program for runway pavement, maintenance and operations from aerodrome operator's perspective</p>	<p><b><u>APRAST Actions:</u></b></p> <p><b>APRAST1.</b> Develop an understanding of the SEI (such any implementation challenges) and encourage State representatives to drive domestic implementation.</p> <p><b>APRAST2.</b> Encourage States to update the ICAO SEI monitoring tool quarterly to report the SEI implementation level.</p> <p><b><u>State/Administration-level implementation actions:</u></b></p> <p><b>Aerodrome Operators (ADR)</b></p> <p><b>ADR1.</b> Review the contents of the SEI safety output.</p> <p><b>ADR2.</b> Provide training (initial and/or recurrent) that reinforces runway safety management (use of the ACI guidance, webinars, and training courses highly encouraged).</p> <p><b>ADR3.</b> Evaluate existing procedures designed to mitigate runway safety events against recommended best practices within the SEI output.</p> <p><b>ADR4.</b> Assess and revise airport policies and procedures based on the results from the evaluation of ADR3.</p> <p><b>ADR5.</b> Provide feedback to the regulator as applicable.</p> <p><b>State Regulator (REG)</b></p>				

			<p><b>REG1.</b> Review the contents of the SEI safety output.</p> <p><b>REG2.</b> Adopt the applicable SEI elements into national regulation or advisory circular.</p> <p><b>REG3.</b> Socialize to the aerodrome operators.</p> <p><b>REG4.</b> Monitor the implementation of the regulation or advisory circular.</p>				
OPS 10 (RI)		SEI.I.4* RI 2: Model Advisory Circular —Runway Incursion (RI) Prevention and Pilot Training	<p><b>APRAST Actions:</b></p> <p><b>APRAST1.</b> Develop an understanding of the SEI (such any implementation challenges) and encourage State representatives to drive domestic implementation.</p> <p><b>APRAST2.</b> Encourage States to update the ICAO SEI monitoring tool quarterly to report the SEI implementation level.</p> <p><b>State/Administration-level implementation actions:</b></p> <p><b>State Regulator (REG)</b></p> <p><b>REG1.</b> Review the content of the SEI safety output</p> <p><b>REG2.</b> Adopt the applicable SEI elements into national regulations and/or advisory circulars.</p> <p><b>REG3.</b> Socialize to the ATOs and Aircraft Operators and drive effective implementation of guidance.</p>				
OPS 10 (RI)		SEI.I.5 GAPPRI Implementation Tracker	<p><b>APRAST Actions:</b></p> <p><b>APRAST1.</b> Develop an understanding of the SEI and encourage State representatives to work with key domestic stakeholders to complete the tracker.</p> <p><b>APRAST2.</b> Encourage States to update the ICAO SEI monitoring tool quarterly to report the SEI implementation level.</p> <p><b>APRAST3.</b> Analyze the State GAPPRI tracker responses to identify common regional implementation challenges and develop targeted assistance.</p> <p><b>State/Administration-level implementation actions:</b></p> <p><b>State Regulator (REG)</b></p>				

			<p><b>REG1.</b> Work with key stakeholders identified in the GAPPRI tracker to establish implementation levels and identify barriers to implementation and domestic safety challenges.</p> <p><b>REG2.</b> To provide the completed tracker to APRAST and encourage key domestic stakeholders to participate in APRAST’s targeted assistance efforts.</p>				
OPS 9 (RE) OPS 19 (ARC)	SEI.I.6 GAPPRE Implementation Tracker		<p><b>APRAST Actions:</b></p> <p><b>APRAST1.</b> Develop GAPPRE tracker and promulgate to States via State Letter.</p> <p><b>APRAST2.</b> Develop an understanding of the SEI and encourage State representatives to work with key domestic stakeholders to complete the tracker.</p> <p><b>APRAST3.</b> Encourage States to update the ICAO SEI monitoring tool quarterly to report the SEI implementation level.</p> <p><b>APRAST4.</b> Analyze the State GAPPRE tracker responses to identify common regional implementation challenges and develop targeted assistance.</p> <p><b><u>State/Administration-level implementation actions:</u></b></p> <p><b>State Regulator (REG)</b></p> <p><b>REG1.</b> Work with key stakeholders identified in the GAPPRE tracker to establish implementation levels and identify barriers to implementation and domestic safety challenges.</p> <p><b>REG2.</b> To provide the completed tracker to APRAST and encourage key domestic stakeholders to participate in APRAST’s targeted assistance efforts.</p>				

**Table 1: OPS Actions and Targets associated with Regional HRC 1 and ORC 1**

		Regional HRC 2: MAC					
		<p align="center"><b>Regional Goal I:</b> Achieve a continuous reduction of operational safety risks</p> <p align="center"><b>Regional Goal IV:</b> Strengthen collaboration at the regional and national levels to address safety issues</p> <p align="center"><b>Targets</b></p> <p align="center"><b>T1.1:</b> APAC States to maintain a 5-year moving average decreasing trend of <b>regional</b> accident rate</p> <p align="center"><b>T1.2:</b> APAC States to maintain a 5-year moving average decreasing trend of accidents and serious incidents for each <b>regional</b> high-risk category of occurrence (R-HRC)</p> <p align="center"><b>T4.3:</b> By 2027, all APAC States to contribute to a regional mechanism within RASG-APAC to ensure the effective utilization of information on operational safety risks and emerging issues for regional aviation safety planning.</p>					
GASP SEI	Precursor Events	Regional SEI	Stakeholder(s) & OPS Action(s)	SEI Custodian	Metric (MET)	Timeline	Metric Information Mechanism
OPS 11	Loss of Separation  TCAS Resolution Advisory  Large Height Deviation  GNSS RFI  Communication Errors  Deviation from Clearance  Transitioning Controlled Airspace to Uncontrolled Airspace	MAC (Prioritized and Focused Regional SEIs will be developed within the triennium)	<p><b><u>APRAST Actions:</u></b></p> <p><b>APRAST1.</b> In coordination with the appropriate APANPIRG contributing bodies, identify geographic areas of concern and analyze the underlying factors specific to the APAC region.</p> <p><b>APRAST2.</b> Based on the analysis in APRAST1 and in accordance with the RASG Procedural Handbook, develop focused regional SEIs and/or RASG-APAC Safety Advisories (RSAs) (as appropriate) and prioritize the SEIs accordingly.</p> <p><b><u>State/Administration-level implementation actions:</u></b></p> <p><b>State Regulators (REG)</b></p> <p><b>REG1.</b> In accordance with the GASP, AP-RASP, and the State's individual safety reviews, incorporate MAC risk into the National Aviation Safety Plan (NASP) as appropriate.</p>	OPS WG: MAC Task Force  In coordination with:  APANPIRG's RASMAG, CNS/SG and ATM/SG	<p><b><u>Leading:</u></b></p> <p><b>MET1.</b> The number of SEIs and/or RSAs developed and published on the ICAO website.</p> <p><b>MET2.</b> The Collision Risk Estimate, including Category E, J, and K Large Height Deviations, (LHDs) within the region as reported through safety information sharing initiatives.</p> <p><b>MET3.</b> The number of States/Administrations that address MAC risk within their NASP that have been identified by the APRAST of having risk proportionate of warranting corrective action.</p> <p><b><u>Lagging:</u></b></p> <p><b>MET4.</b> The trend of fatality risk, accidents and serious incidents categorized as MAC.</p>	<p><b>MET1.</b> End Q1 2027</p> <p><b>MET2.</b> End Q3 2027</p> <p><b>MET3.</b> End Q4 2027</p> <p><b>MET4.</b> End Q4 2027</p>	RASG-APAC/APRAST safety information sharing initiatives (e.g. SRP WG, Regional Safety Data and Information Sharing Programs)  APAC Region's Monitoring Agencies: (MAAR, PARMO, JASMA, BOBASMA, SEASMA, AAMA, and China RMA)

**Table 2: OPS Actions and Targets associated with Regional HRC 2**

	<p><b>Regional HRC 3: LOC-I</b></p> <p><b>Regional ORC 3: TURB</b></p> <p style="text-align: center;"><b>Regional Goal I:</b> Achieve a continuous reduction of operational safety risks</p> <p style="text-align: center;"><b>Regional Goal IV:</b> Strengthen collaboration at the regional and national levels to address safety issues</p> <p style="text-align: center;"><b>Targets</b></p> <p style="text-align: center;"><b>T1.1:</b> APAC States to maintain a 5-year moving average decreasing trend of <b>regional</b> accident rate</p> <p style="text-align: center;"><b>T1.2:</b> APAC States to maintain a 5-year moving average decreasing trend of accidents and serious incidents for each <b>regional</b> high-risk category of occurrence (R-HRC)</p> <p style="text-align: center;"><b>T1.3:</b> APAC States to maintain a 5-year moving average decreasing trend of accidents and serious incidents related to the other <b>regional</b> risk categories of occurrences</p> <p style="text-align: center;"><b>T4.3:</b> By 2027, all APAC States to contribute to a regional mechanism within RASG-APAC to ensure the effective utilization of information on operational safety risks and emerging issues for regional aviation safety planning.</p>						
GASP SEI	Precursor Events	Regional SEI	Stakeholder(s) & OPS Action(s)	SEI Custodian	Metric (MET)	Timeline	Metric Information Mechanism
OPS 6 (CFIT)	Stall Warning Triggered	SEI.III.1* LOC 1, CFIT 2: Model Advisory Circular — Air Operators Standard Operating Procedures for Flight Deck Crewmembers	<b>APRAST Actions:</b>	OPS WG: LOC-I Task Force	<b>Leading:</b>	<b>MET1.</b> End Q1 2027	RASG-APAC/ APRAST safety information sharing initiatives (e.g. SRP WG, Regional Safety Data and Information Sharing Programs)
OPS 7 (LOC-I)	Unreliable Airspeed		<b>APRAST1.</b> Encourage States/Administrations to update the ICAO SEI monitoring tool quarterly to report on the SEI implementation level.	In coordination with:	<b>MET1.</b> The percentage of APAC States/Administrations with at least 75% Implementation Level A reported in the ICAO APAC Online SEI Monitoring Tool.	<b>MET2.</b> End Q3 2027	
	Severe Turbulence		<b>APRAST2.</b> Encourage States/Administrations to participate in the safety information sharing initiatives.	APANPIRG's MET/SG and RASMAG (i.e. regarding TURB)	<b>MET2.</b> The percentage of APAC Service Providers with at least 75% Implementation Level C reported in the ICAO APAC Online SEI Monitoring Tool.	<b>MET3.</b> End Q3 2026	
	Overbank / Subthreshold Roll		<b>State/Administration-level implementation actions:</b>		<b>MET3.</b> The trend in the rate of Loss of Control-Inflight (LOC-I) precursor events within the region as identified and reported through safety information sharing initiatives.	<b>MET4.</b> End Q1 2027	
	CG out of limits / incorrect loading status		<b>State Regulators (REG)</b>		<b>MET4.</b> The number of SEIs and/or RSAs developed and published on the ICAO website regarding TURB.	<b>MET5.</b> End Q4 2027	
	Convective and Frontal Activity		<b>REG1.</b> Note the existence of SEI safety output.		<b>MET5.</b> The number of States/Administrations that address TURB risk within their NASP that have been identified by the APRAST of having risk proportionate of warranting corrective action.	<b>MET6.</b> End Q4 2027	
	Mountain Waves		<b>Aircraft Operators (AO)</b>				
	Temperature Inversion	<b>ATO1.</b> Note the content of SEI safety output.					
		<b>Approved Training Organizations (ATO)</b>					
		<b>ATO1.</b> Note the content of SEI safety output.					

OPS 7 (LOC-I)	Windshear	<b>SEI.III.2*</b> LOC 2, LOC 4: Guidance Material on Flight Crew Proficiency	<b><u>APRAST Actions:</u></b>  <b>APRAST1.</b> Encourage States/Administrations to update the ICAO SEI monitoring tool quarterly to report on the SEI implementation level.  <b>APRAST2.</b> Encourage States/Administrations to participate in the safety information sharing initiatives.  <b><u>State/Administration-level implementation actions:</u></b>  <b>State Regulators (REG)</b>  <b>REG1.</b> Note the existence of SEI safety output.  <b>Aircraft Operators (AO)</b>  <b>AO1.</b> Note the content of SEI safety output.  <b>Approved Training Organizations (ATO)</b>  <b>ATO1.</b> Note the content of SEI safety output.		<b><u>Lagging:</u></b>  <b>MET6.</b> The trend of fatality risk, accidents and serious incidents categorized as LOC-I and TURB.		
		<b>SEI.III.3* LOC</b> 5: Advisory Circular — Mode Awareness and Energy State Management Aspects of Flight Deck Automation	<b><u>APRAST Actions:</u></b>  <b>APRAST1.</b> Encourage States/Administrations to update the ICAO SEI monitoring tool quarterly to report on the SEI implementation level.  <b>APRAST2.</b> Encourage States/Administrations to participate in the safety information sharing initiatives.  <b><u>State/Administration-level implementation actions:</u></b>  <b>State Regulators (REG)</b>  <b>REG1.</b> Note the existence of SEI safety output.  <b>Aircraft Operators (AO)</b>  <b>AO1.</b> Note the content of SEI safety output.  <b>AO2.</b> Include UPRT elements in flight crew recurrent training syllabus with reference to SEI.I.3 and SEI.I.4.				

		<p>SEI.III.4* LOC 6: Guidance material on Upset Prevention and Recovery Training (UPRT) ICAO Doc 10011</p> <p>ICAO Doc 9868</p> <p>Airplane UPRT Aid (AUPRTA)</p>	<p><b>Approved Training Organizations (ATO)</b></p> <p><b>ATO1.</b> Note the content of SEI safety output.</p> <p><b>ATO2.</b> Include UPRT elements in flight crew licensing / aircraft type rating training syllabus with reference to SEI.I.3 and SEI.I.4</p> <hr/> <p><b><u>APRAST Actions:</u></b></p> <p><b>APRAST1.</b> Encourage States/Administrations to update the ICAO SEI monitoring tool quarterly to report on the SEI implementation level.</p> <p><b>APRAST2.</b> Encourage States/Administrations to participate in the safety information sharing initiatives.</p> <p><b>APRAST3.</b> Review the results of the APRAST UPRT survey, in conjunction with Industry analyses, to better understand the gap in UPRT implementation (if any).</p> <p><b>APRAST4.</b> Based on the analysis in APRAST3 and in accordance with the RASG Procedural Handbook, develop an SEI and/or RASG-APAC Safety Advisory (as appropriate).</p> <p><b><u>State/Administration-level implementation actions:</u></b></p> <p><b>State Regulators (REG)</b></p> <p><b>REG1.</b> Note the existence of SEI safety output.</p> <p><b>Aircraft Operators (AO)</b></p> <p><b>AO1.</b> Note the content of SEI safety output.</p> <p><b>AO2.</b> Include UPRT elements in flight crew recurrent training syllabus with reference to SEI.I.3 and SEI.I.4.</p> <p><b>Approved Training Organizations (ATO)</b></p> <p><b>ATO1.</b> Note the content of SEI safety output.</p> <p><b>ATO2.</b> Include UPRT elements in flight crew training syllabus (i.e., type rating) with reference to SEI.I.3 and SEI.I.4.</p>				
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			<p><b>ATO3.</b> Include UPRT elements in flight crew training syllabus (i.e., ab initio) with reference to SEI.I.3 and SEI.I.4.</p>				
OPS 21 (TURB)		TURB (Prioritized and Focused Regional SEIs will be developed within the triennium)	<p><b><u>APRAST Actions:</u></b></p> <p><b>APRAST1.</b> In coordination with the appropriate APANPIRG contributing bodies, identify areas of concern and analyze the underlying factors specific to the APAC region.</p> <p><b>APRAST2.</b> Based on the analysis in APRAST1 and in accordance with the RASG Procedural Handbook, develop focused regional SEIs and/or RASG-APAC Safety Advisories (RSAs) (as appropriate) and prioritize the SEIs accordingly.</p> <p><b><u>State/Administration-level implementation actions:</u></b></p> <p><b>State Regulators (REG)</b></p> <p><b>REG1.</b> In accordance with the GASP, AP-RASP, and the State’s individual safety reviews, incorporate TURB risk into the National Aviation Safety Plan (NASP) as appropriate.</p>				

**Table 3: OPS Actions and Targets associated with Regional HRC 3 and ORC 3**

		Regional HRC 4: CFIT					
		<p align="center"><b>Regional Goal I:</b> Achieve a continuous reduction of operational safety risks</p> <p align="center"><b>Regional Goal IV:</b> Strengthen collaboration at the regional and national levels to address safety issues</p> <p align="center"><b>Targets</b></p> <p align="center"><b>T1.1:</b> APAC States to maintain a 5-year moving average decreasing trend of <b>regional</b> accident rate</p> <p align="center"><b>T1.2:</b> APAC States to maintain a 5-year moving average decreasing trend of accidents and serious incidents for each <b>regional</b> high-risk category of occurrence (R-HRC)</p> <p align="center"><b>T4.3:</b> By 2027, all APAC States to contribute to a regional mechanism within RASG-APAC to ensure the effective utilization of information on operational safety risks and emerging issues for regional aviation safety planning.</p>					
GASP SEI	Precursor Events	Regional SEI	Stakeholder(s) & OPS Action(s)	SEI Custodian	Metric (MET)	Timeline	Metric Information Mechanism
OPS 6 (CFIT)	<p>GPWS Alert and Warning (Modes 1-4)</p> <p>GNSS Radio Frequency Interference (RFI)</p> <p>Subthreshold Roll</p> <p>Loss of situational awareness</p> <p>Late or No communication of MSAW Alert</p>	<p><b>SEI.IV.1</b> CFIT 1: Model Regulation on Ground Proximity Warning System (GPWS)</p> <p><b>SEI.IV.2</b> CFIT 1: Advisory Circular — Guidance for Operators to Ensure Effectiveness of GPWS Equipment</p> <p><b>SEI.IV.3</b> CFIT 1: Advisory Circular — Guidance for Operators on Training Programme on the use of GPWS</p>	<p><b>APRAST Actions:</b></p> <p><b>APRAST1.</b> Develop an understanding of current mandatory and voluntary reporting mechanisms of GPWS/EGPWS Cautions and Alerts.</p> <p><b>APRAST2.</b> In coordination with the appropriate APANPIRG contributing bodies, identify geographic areas of concern within each Flight Information Region (FIR) and analyze the underlying factors specific to the APAC region.</p> <p><b>APRAST3.</b> Develop an understanding of the three (3) SEIs (such any implementation challenges) and encourage State/Administration representatives to drive domestic implementation.</p> <p><b>APRAST4.</b> Encourage States/Administrations to update the ICAO SEI monitoring tool quarterly to report the SEI implementation level.</p> <p><b>APRAST5.</b> Develop a comprehensive holistic understanding of OEM guidance and regional efforts on managing the risk of GNSS interference.</p> <p><b>APRAST6.</b> In coordination with the appropriate APANPIRG contributing bodies, identify and implement additional efforts to mitigate the risk of GNSS interference within the region.</p>	<p>OPS WG: CFIT Task Force</p> <p>In coordination With:</p> <p>APANPIRG’s CNS/SG and ATM/SG</p>	<p><b>Leading:</b></p> <p><b>MET1.</b> The percentage of APAC States/Administrations with at least 75% Implementation Level A reported in the ICAO SEI monitoring tool.</p> <p><b>MET2.</b> The percentage of APAC Service Providers with at least 75% Implementation Level C reported in the ICAO SEI monitoring tool.</p> <p><b>MET3.</b> The trend in the rate of genuine GPWS/EGPWS caution and alerts within the region as reported through safety information sharing initiatives.</p> <p><b>MET4.</b> The trend of GNSS interference events, which includes spurious GPWS/EGPWS cautions and alerts, reported by States/Administrations and Industry.</p> <p><b>Lagging:</b></p> <p><b>MET5.</b> The trend of fatality risk, accidents and serious incidents categorized as CFIT.</p>	<p><b>MET1.</b> End Q2 2026</p> <p><b>MET2.</b> End Q4 2026</p> <p><b>MET3.</b> End Q4 2027</p> <p><b>MET4.</b> End Q3 2026</p> <p><b>MET5.</b> End Q4 2027</p>	<p>RASG-APAC/APRAST safety information sharing initiatives (e.g. SRP WG, Regional Safety Data and Information Sharing Programs)</p> <p>Industry FDAP/FOQA Programs</p> <p>ICAO SEI monitoring tool</p>

			<p><b><u>State/Administration-level implementation actions:</u></b></p> <p><b>State Regulator (REG)</b></p> <p><b>REG1.</b> Review the contents of the three (3) SEI safety outputs.</p> <p><b>REG2.</b> Adopt the applicable SEI elements into national regulation or advisory circular.</p> <p><b>REG3.</b> Socialize the REG2 mechanism to the aircraft operators.</p> <p><b>REG4.</b> Monitor the implementation of the regulation or advisory circular.</p> <p><b>REG5.</b> Update the ICAO SEI monitoring tool quarterly to report the SEI implementation level.</p> <p><b>Aircraft Operators (AO)</b></p> <p><b>AO1.</b> Note the content of SEI.IV.2 and SEI.IV.3 safety outputs.</p> <p><b>AO2.</b> Update software to the latest available standard.</p> <p><b>AO3.</b> Update databases to the latest available standard.</p> <p><b>AO4.</b> Ensure that the GNSS position is provided to GPWS.</p> <p><b>AO5.</b> Enable the GPWS geometric altitude function (if available).</p> <p><b>AO6.</b> Enable the GPWS peaks and obstacles function (if available).</p> <p><b>AO7.</b> Implement any applicable service bulletins issued by manufacturers.</p> <p><b>AO8.</b> Ensure the flight crew are provided with the minimum training and maintain relevant records of all ground and simulator training provided to the flight crew.</p>				
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		<p><b>SEI.IV.6 CFIT 5:</b> Advisory Circular —Crew Resource Management Training Programme (CRM)</p> <p><b><u>APRAST Actions:</u></b></p> <p><b>APRAST1.</b> Develop an understanding of the SEI (such any implementation challenges) and encourage State/Administration representatives to drive domestic implementation.</p> <p><b>APRAST2.</b> Encourage States/Administrations to update the ICAO SEI monitoring tool quarterly to report the SEI implementation level.</p> <p><b><u>State/Administration -level implementation actions:</u></b></p>				

			<p><b>State Regulator (REG)</b></p> <p><b>REG1.</b> Review the contents of the SEI safety output.</p> <p><b>REG2.</b> Adopt the applicable SEI elements into national regulation or advisory circular.</p> <p><b>REG3.</b> Socialize the REG2 mechanism to the aircraft operators.</p> <p><b>REG4.</b> Monitor the implementation of the regulation or advisory circular.</p> <p><b>REG5.</b> Update the ICAO SEI monitoring tool quarterly to report the SEI implementation level.</p> <p><b>Aircraft Operators (AO)</b></p> <p><b>AO1.</b> Note the content of the safety output.</p> <p><b>AO2.</b> In the absence of State/Administration regulation or guidance, develop, implement, reinforce, and assess a CRM training program as noted in the safety output.</p>				
		<p><b>SELIV.7 CFIT 6: Advisory Circular — Controlled Flight into Terrain (CFIT) and Approach and Landing Accident Reduction (ALAR) Training Programme</b></p>	<p><b><u>APRAST Actions:</u></b></p> <p><b>APRAST1.</b> Develop an understanding of the SEI (such any implementation challenges) and encourage State/Administration representatives to drive domestic implementation.</p> <p><b>APRAST2.</b> Encourage States/Administrations to update the ICAO SEI monitoring tool quarterly to report the SEI implementation level.</p> <p><b><u>State/Administration -level implementation actions:</u></b></p> <p><b>State Regulator (REG)</b></p> <p><b>REG1.</b> Review the contents of the SEI safety output.</p> <p><b>REG2.</b> Adopt the applicable SEI elements into national regulation or advisory circular.</p> <p><b>REG3.</b> Socialize the REG2 mechanism to the aircraft operators.</p> <p><b>REG4.</b> Monitor the implementation of the regulation or</p>				

		<p><b>SEI.IV.8 CFIT 7: Guidance for Air Operators in Establishing a Flight Safety Documents System</b></p>	<p>advisory circular.</p> <p><b>REG5.</b> Update the ICAO SEI monitoring tool quarterly to report the SEI implementation level.</p> <p><b>Aircraft Operators (AO)</b></p> <p><b>AO1.</b> Note the content of the safety output.</p> <p><b>AO2.</b> In the absence of State/Administration regulation and/or guidance, give high priority to incorporating ALAR/CFIT training into the flight operations and training programmes.</p>				
			<p><b><u>APRAST Actions:</u></b></p> <p><b>APRAST1.</b> Develop an understanding of the SEI (such any implementation challenges) and encourage State/Administration representatives to drive domestic implementation.</p> <p><b>APRAST2.</b> Encourage States/Administrations to update the ICAO SEI monitoring tool quarterly to report the SEI implementation level.</p> <p><b><u>State/Administration -level implementation actions:</u></b></p> <p><b>State Regulator (REG)</b></p> <p><b>REG1.</b> Review the contents of the SEI safety output.</p> <p><b>REG2.</b> Adopt the applicable SEI elements into national regulation or advisory circular.</p> <p><b>REG3.</b> Socialize the REG2 mechanism to the aircraft operators.</p> <p><b>REG4.</b> Monitor the implementation of the regulation or advisory circular.</p> <p><b>REG5.</b> Update the ICAO SEI monitoring tool quarterly to report the SEI implementation level.</p> <p><b>Aircraft Operators (AO)</b></p> <p><b>AO1.</b> Note the content of the safety output.</p>				

			<p><b>AO2.</b> In the absence of State/Administration regulation or guidance, develop and organize a flight safety document system as noted in the safety output.</p>				
		<p><b>SEI.IV.9</b> CFIT 8: Model Advisory Circular — Issuance of Terrain or Obstacle Alert / Warning</p>	<p><b><u>APRAST Actions:</u></b></p> <p><b>APRAST1.</b> Develop an understanding of the SEI (such any implementation challenges) and encourage State/Administration representatives to drive domestic implementation.</p> <p><b>APRAST2.</b> Encourage States/Administrations to update the ICAO SEI monitoring tool quarterly to report the SEI implementation level.</p> <p><b><u>State/Administration -level implementation actions:</u></b></p> <p><b>State Regulator (REG)</b></p> <p><b>REG1.</b> Review the contents of the SEI safety output.</p> <p><b>REG2.</b> Adopt the applicable SEI elements into national regulation or advisory circular.</p> <p><b>REG3.</b> Socialize the REG2 mechanism to the air navigation service providers.</p> <p><b>REG4.</b> Monitor the implementation of the regulation or advisory circular.</p> <p><b>REG5.</b> Update the ICAO SEI monitoring tool quarterly to report the SEI implementation level.</p> <p><b>Air Navigation Service Providers (ANSP)</b></p> <p><b>ANSPI1.</b> Ensure the availability of an MSAW-compliant system, supported by regularly updated terrain and obstacle data as this represents a critical additional ground-based safety net.</p>				

**Table 4: OPS Actions and Targets associated with Regional HRC 4**

		Regional ORC 2: SCF-NP and SCF-PP					
		<p align="center"><b>Regional Goal I:</b> Achieve a continuous reduction of operational safety risks  <b>Regional Goal IV:</b> Strengthen collaboration at the regional and national levels to address safety issues</p> <p align="center"><b>Targets</b></p> <p align="center"><b>T1.1:</b> APAC States to maintain a 5-year moving average decreasing trend of <b>regional</b> accident rate  <b>T1.3:</b> APAC States to maintain a 5-year moving average decreasing trend of accidents and serious incidents related to the other <b>regional</b> risk categories of occurrences  <b>T4.3:</b> By 2027, all APAC States to contribute to a regional mechanism within RASG-APAC to ensure the effective utilization of information on operational safety risks and emerging issues for regional aviation safety planning.</p>					
GASP SEI	Precursor Events	Regional SEI	Stakeholder(s) & OPS Action(s)	SEI Custodian	Metric (MET)	Timeline	Metric Information Mechanism
OPS 20 (SCF-NP)	<p>Multiple system failures or significant degradation in the redundancy of aircraft systems critical to maintaining flight safety</p> <p>Air turn back, diversion, or emergency descent due to technical reasons</p> <p>In-flight engine shutdown/significant loss of thrust</p> <p>Rejected Take-off events due to technical reasons</p>	SCF (Prioritized and Focused Regional SEIs will be developed within the triennium)	<p><b>APRAST Actions:</b></p> <p><b>APRAST1.</b> Identify areas of concern and analyze the underlying factors specific to the APAC region.</p> <p><b>APRAST2.</b> Based on the analysis in APRAST1 and in accordance with the RASG Procedural Handbook, develop focused regional SEIs and/or RASG-APAC Safety Advisories (RSAs) (as appropriate) and prioritize the SEIs accordingly.</p> <p><b>APRAST3.</b> Based on the analysis in APRAST1, identify and implement additional opportunities (workshops, webinars, etc.) to complement the work in APRAST2.</p> <p><b>State/Administration-level implementation actions:</b></p> <p><b>State Regulators (REG)</b></p> <p><b>REG1.</b> In accordance with the GASP, AP-RASP, and the State’s individual safety reviews, incorporate SCF risk into the National Aviation Safety Plan (NASP) as appropriate.</p>	OPS WG: SCF Task Force	<p><b>Leading:</b></p> <p><b>MET1.</b> The number of SEIs and/or RSAs developed and published on the ICAO website.</p> <p><b>MET2.</b> The number of workshops, webinars, etc. that are implemented.</p> <p><b>MET3.</b> The number of States/Administrations that address SCF risk within their NASP that have been identified by the APRAST of having risk proportionate of warranting corrective action.</p> <p><b>MET4.</b> The number of regulators that provide points of contact in the ICAO online Airworthiness Information Network.</p> <p><b>MET5.</b> The most common deficiencies among APAC States identified through the USOAP Protocol Questions (PQs) in the Airworthiness Area.</p> <p><b>Lagging:</b></p> <p><b>MET6.</b> The trend of fatality risk, accidents and serious incidents categorized as SCF-NP and SCF-PP.</p>	<p><b>MET1.</b> End Q1 2027.</p> <p><b>MET2.</b> End Q1 2027</p> <p><b>MET3.</b> End Q4 2027</p> <p><b>MET4.</b> End Q4 2027</p> <p><b>MET5.</b> End Q4 2026</p> <p><b>MET6.</b> End Q4 2027</p>	RASG-APAC/APRAST safety information sharing initiatives (e.g. SRP WG, Regional Safety Data and Information Sharing Programs)

**Table 5: OPS Actions and Targets associated with Regional ORC 2**