



# **CANSO ASIA PACIFIC REGIONAL SAFETY IMPLEMENTATION STRATEGY**

*In support of CANSO Global  
Strategy for the Future of Safety in  
Air Traffic Management*

3rd Edition

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# 1 Introduction

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This plan (referred to as the 'APAC Regional Safety Implementation Strategy') sets out the strategic context, safety priorities and supporting initiatives to implement the *CANSO Global Strategy for the Future of Safety in Air Traffic Management (ATM)* in the Asia Pacific (APAC) region. This plan is intended to coordinate collaborative regional safety improvement actions, as well as providing a reference guide to inform individual air navigation service providers' (ANSPs') own safety programmes.

The APAC Regional Safety Implementation Strategy has been developed by the CANSO APAC Safety Workgroup which is represented by a growing number of ANSPs in the region. In developing this plan, the Workgroup has cooperated through meetings and surveys to address the following questions:

- Are we safe?
- Will we be safe in the future?
- What do we need to do and prioritise to improve the safety of ATM operations?

The delivery of this plan will contribute to improving the safety of aviation while supporting the ongoing traffic growth across the region. It also aims to support harmonisation of safety management capabilities across ANSPs in the long term.

## 2 Overview of the Asia Pacific Region

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The APAC region is leading the world in air traffic growth. According to the International Air Transport Association (IATA)<sup>1</sup>, this region is the biggest driver of demand and the source of more than half the new passengers over the next two decades. By 2036 the region is expected to account for 3.5 billion annual passengers originating or terminating in the region.

This significant growth poses a range of safety challenges. For some ANSPs, traffic demand already exceeds existing capacity and capability in places leading to safety challenges in regard to workload, resourcing and coordination issues. Current airspace designs and route structures are being tested and require continual assessment and review.

The increasing traffic growth heightens the need to acquire and integrate modern advanced technologies and systems to support safe and efficient air navigation services. System interoperability needs to improve to lift safety performance across the region, given the air traffic density and complexity. Technological transformations may also introduce new risks in areas such as change management, human factors and training in the transition to next-generation ATM technologies.

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<sup>1</sup> Source: <https://www.iata.org/pressroom/pr/Pages/2017-10-24-01.aspx>

The ANSPs in the region come from countries of diverse national cultures which also influence safety cultures. There are considerable differences in the levels of safety management maturity. Some ANSPs are in the initiating stage of implementing a safety management system (SMS), while other ANSPs are in the advanced stages of managing, measuring and continuous improvement.

A number of similar safety risk factors are shared<sup>2</sup> by ANSPs in the region, including:

- Human performance: workload and fatigue issues in dealing with rapid traffic growth
- Human factors: communication and coordination issues (e.g. non-standard phraseology, hear-back / read-back errors, call sign confusion), procedural compliance issues (e.g. shortcutting procedures when under workload pressure to cope with traffic increases), integrating human factors in incident investigation
- Technologies: limitation in the existing ATM tools to cope with increasing traffic complexity (e.g. lack of suitable air traffic flow management systems, or tools to monitor and detect traffic conflicts)
- Airspace design limitations which are also impacted by military airspace requirements
- Runway safety issues (e.g. runway incursions, unstable approaches)
- Safety change management (e.g. communicating changes, managing risks associated with changes, managing risk information within the ANSP).

The challenges and opportunities associated with traffic growth highlight the importance of evolving our mindset and approach to safety management. ANSPs across the APAC region share a strong commitment to working together to ensure and improve safety.

Regional solutions are required beyond the boundary of individual ANSPs, as the safety and efficiency of flights transcend national borders. These solutions are necessitated by growing expectations of airspace users for more harmonised and seamless ATM services. Collaboration and shared learning is the key to ensure aviation safety in the region in times of significant demand and change. These are the key drivers underpinning this plan.

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<sup>2</sup> The points reflect the common safety risk issues that were discussed at the CANSO APAC Safety Workgroup meetings in December 2014 and May 2015.

### 3 Overview of CANSO Safety Strategy

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The APAC Regional Safety Implementation Strategy builds on the four themes of the *CANSO Global Strategy for the Future of Safety in ATM*. The CANSO APAC Safety Workgroup has agreed on the relative importance of these themes to guide the development of this region's safety priorities and implementation plans. The four themes, described below, are the working definitions produced by the APAC Safety Workgroup.

#### People Create Safety

The theme of 'People Create Safety' recognises that people are our strength rather than weakness. It emphasises the importance of building a positive safety culture, including embedding the Just Culture principles, where the focus of safety is not on individual failures and errors but guided by the organisation's clear definition and understanding of what constitute acceptable and unacceptable behaviours.

It is essential that we continue to embrace a continuous learning culture that is supported by robust investigation processes, analysing causal factors and contextual conditions. These learnings must be used to strengthen systems to control risk exposure and prevent reoccurrence of errors or failures. It is equally important to acknowledge areas within our operations that are performing well and to pass on these learnings and experiences.

Safety is achieved by all individuals in the organisation taking responsibility and ownership of their actions and behaviours. This should be supported by an environment that encourages and supports honest reporting of errors and failures without fear of punishment or ridicule. People also need to be supported by training/education, systems, tools and information so that they are competent and capable to perform their work safely and can effectively manage safety risks and challenges.

Safety culture is ultimately set by the leadership of the organisation and the trust between the management and frontline personnel. Leaders' commitment to safety improvement and demonstration of positive and proactive safety actions drive the standards of professionalism and level of safety performance of ANSPs.

#### Safety Intelligence

As ATM is becoming more complex while incidents/accidents are becoming less frequent, there is a heightened need to understand the risks in our system and develop effective strategies to ensure the risks are managed effectively. As a result, safety management increasingly depends on collecting and understanding information from day-to-day operations to assess and understand the performance of existing risk controls and performance variability so as to anticipate and prepare for emerging risks.

The theme of 'Safety Intelligence' relates to how ANSPs should gather and analyse data to address the key questions of "are we safe" and "will we be safe in the future".

It is about understanding what types of data to collect, the obstacles that prevent us from gathering such data and prioritising the findings after the data is analysed. The objective is to gain confidence over the safety performance of our services and guide the organisation's decision-making so that resources can be prioritised for key safety improvement interventions and initiatives.

'Safety Intelligence' is concerned with:

- Collecting safety data from various sources, such as safety reports from staff, audits, surveys and incident/accident investigations
- Analysing safety data against performance indicators/ targets
- Prioritising information to indicate key safety risks, effectiveness of risk controls as well as strengths and weaknesses of safety management processes
- Understanding factors which influence positive performance outcomes.

'Safety Intelligence' is critically linked with 'People Create Safety'. Valuable safety data relies on an open, just and proactive culture.

## Learning and Challenging

The theme of 'Learning and Challenging' recognises that ANSPs regionally are better prepared for tackling our safety challenges if we work together as an ANSP community. By collaborating and learning together (e.g. through networks and regular information exchange), we will be able to efficiently and effectively address common ATM safety risks, learn from lessons of other ANSPs, and contribute to safer skies.

This theme is also about striving for higher standards and not being content with the 'status quo'. It requires maintaining vigilance about emerging risks/threats and constantly scanning within and outside our organisations to seek improvement. 'Learning and Challenging' also depends on the safety culture where safety is on top of the organisation's agenda and staff can feel safe and supported to raise concerns or provide suggestions for safety improvement.

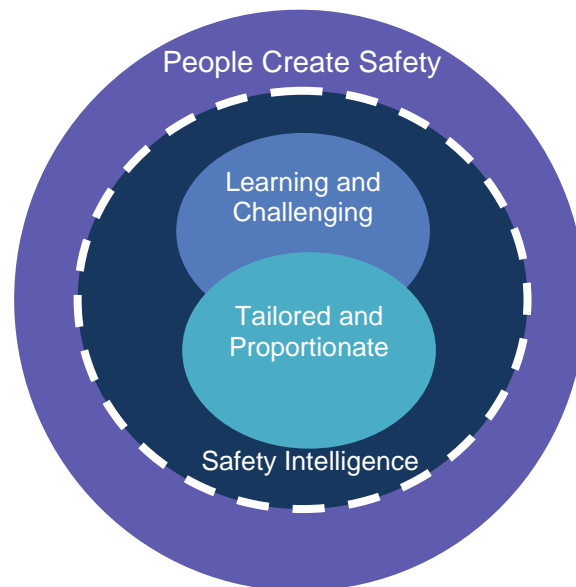
## Tailored and Proportionate

The theme of 'Tailored and Proportionate' recognises that we are resource-constrained and must apply our finite resources where the best safety benefits can be realised. It is about making 'how we do safety' fit for current objectives and future challenges within each ANSP.

The approach to safety management needs to be proportionate to the risk and complexity of the organisation. With limited resources, safety processes are most effective when they are tailored to suit the organisation and integrated in the day-to-day operations and project lifecycles. Fundamentally this is how we adopt an effective business approach to safety where the balance between safety and other business outcomes is optimised.

## Relative Importance of Themes in the Asia Pacific Region

The CANSO APAC Safety Workgroup has assessed the relative importance of the four themes from the Global Strategy for the region (as illustrated in Figure 1 below).



**Figure 1: Relative importance of Global Safety Strategy themes for CANSO APAC Region (importance is proportionate to the size of the circles)**

‘People Create Safety’ has been identified as the most fundamental element for the region and is an enabling factor in implementing the other themes. It recognises that our people play a key role in delivering and assuring the safety of our operations. Considering the safety challenges in the APAC region, near-term initiatives are focused around ‘People Create Safety’, which aims at promoting positive safety culture, strengthening safety accountabilities and developing competencies of our people to understand and manage safety risks effectively.

Implementing ‘Learning and Challenging’ and ‘Tailored and Proportionate’ adopts a two-pronged approach. It is recognised that the ANSPs in the region are constrained by resources. There are ongoing opportunities for sharing and capturing lessons learned across ANSPs, targeting improvement actions proportionate to the safety risks we face, and collaboratively finding common solutions to make our skies safer and seamless for airspace users. It is also about looking into the future of ATM safety and integrating safety risk management practices in change management, embedding SMS into business-as-usual practices, and managing all these proportionate to our respective operations.

Underpinning ‘Learning and Challenging’ and ‘Tailored and Proportionate’ themes are longer-term opportunities for developing the ‘Safety Intelligence’ framework in the region (including defining the concept of ‘Safety Intelligence’). The objectives include aligning metrics and methodologies of assessing safety performance, understanding our changing operational contexts and emerging risks, assessing the performance of our risk controls and benchmarking SMS maturity for continuous improvement.

## 4 Key Safety Priorities

During 2013-2015, the CANSO APAC Safety Workgroup members undertook a number of surveys to provide an understanding and baseline measure of the region's SMS implementation progress, common safety priorities and risk areas. The surveys included topics on SMS maturity, safety culture, fatigue management, change management and runway safety. The survey results, coupled with the common regional safety challenges identified from CANSO Workgroup meetings, have highlighted the following key priorities for safety improvement in the APAC region.

Safety Strategy Themes	Safety Improvement Areas
People Create Safety	<ul style="list-style-type: none"> <li>• Awareness, understanding and practical application of Just Culture</li> <li>• Defining and implementing safety accountabilities and responsibilities</li> <li>• Driving positive safety culture and continuous safety improvement from the leadership</li> <li>• Developing and delivering training, communication and education to equip all staff in the organisation to effectively adopt safety processes, understanding risk and manage change</li> <li>• Understanding human performance and human factors in ATM operations.</li> </ul>
Learning and Challenging	<ul style="list-style-type: none"> <li>• Collaborating and sharing learning across the region to address common safety risks.</li> </ul>
Safety Intelligence	<ul style="list-style-type: none"> <li>• Identification and analysis of operational risk management</li> <li>• Improving safety promotions including systematic sharing of lessons learnt from investigations and other safety assurance activities</li> <li>• Improving the quality of safety reports and analysis</li> <li>• Developing and understanding safety performance measures</li> <li>• Integrating safety risk management practices in change management</li> <li>• Embedding safety risk management system into business-as-usual practices</li> <li>• Moving the focus of safety investigations or analysis to systemic factors (away from individuals).</li> </ul>
Tailored & Proportionate	The ethos of the APAC region is to be cognisant of this theme at all times when working on safety improvement initiatives. Efforts must be proportionate to the resources available to benefit all Members, as far as practicable.

Table 1: CANSO APAC Region Safety Improvement Areas



## 5 Safety Implementation Plans and Progress

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The safety implementation plans aim to address the identified safety risk areas and safety improvement areas.

The safety implementation plans are based around the themes of People Create Safety, Safety Intelligence and Learning and Challenging. There are no specific initiatives for the Tailored and Proportionate theme. The APAC Safety Workgroup intends to conduct all activities in a tailored and proportionate manner, taking into consideration the context, resources and risk of applicable ANSPs.

Table 2 summarises the safety implementation plans that were initially defined in Version 1 of this document, published in March 2016. Through the collaborative work and discussions between members of the CANSO APAC Safety Workgroup, further insight has been gained into the evolving maturity and safety improvement needs of the region. As a result, the safety implementation plans have been redefined to focus the Workgroup's efforts. Some of the historical initiatives have been closed based on the progress of work undertaken, while others have been carried forward. The previous delineation between tactical and strategic implementation plans have been removed for simplicity.

The rationale of consolidating the safety implementation plans is outlined in Table 2, with the resulting changes illustrated in Figure 2. Table 3 summarises the progress against the redefined safety implementation plans as at May 2021.

**Table 2: Safety Implementation Plans in Edition 1 of the Document (March 2016) and Rationale for Consolidation of Activities**

Safety Strategy Themes	Safety Implementation Plans	Consolidation of Activities	Rationale for Consolidation
1.0 People Create Safety	1.1 Develop understanding for safety culture and review step-by-step guide to safety climate surveys.	Closed	Safety culture workshop held during APAC Safety WG in May 2015. There is no further regional requirement for a step-by-step guide, due to sufficient materials available on Global ATM-net.
	1.2 Create awareness and embed Just Culture in investigation and reporting processes, building on existing CANSO guidance material.	Activity commenced and merged into new initiative	Just Culture covered in safety culture workshop during APAC Safety WG in May 2015.
	1.3 Develop and manage repository of safety materials for APAC to develop knowledge base with document links to CANSO materials.	Activity commenced and carried forward	Repository started on Global ATM-net APAC Safety WG pages.
	1.4 Enhance understanding of risk management for operational staff through programmes such as 'PULSE' incorporating a focus on professionalism	Activity commenced and merged into new initiative	Presentations and updates provided by Airways NZ on its experience with PULSE in December 2014, November 2015 and November 2017.
	1.5 Fatigue management in APAC.	Closed	Ops/Safety workshop held on fatigue in May 2015. Materials available on Global ATM-net. ICAO/CANSO/IFATCA <i>Fatigue Management Guide for Air Traffic Service Providers</i> <a href="#">published</a> .
	1.6 Enhance understanding and management of human factors and human performance in ATM operations and investigation.	Closed	Ops/Safety Workshop held May 2017.
	1.7 Strengthen safety mindset from leadership/ top management to the frontline personnel	Activity commenced and merged into new initiative	In May 2017, APAC Safety WG requested guidance material for training senior leadership on Just Culture.

Safety Strategy Themes	Safety Implementation Plans	Consolidation of Activities	Rationale for Consolidation
2.0 Learning and Challenging	2.1 Apply change management for APAC ANSPs.	Activity commenced and merged into new initiative	Ops/Safety workshop on change management held in May 2017.
	2.2 Delivery of Runway Safety initiatives Establishing runway incursion criteria Sharing best practices on runway safety Integrating CANSO runway safety materials with APAC ANSPs.	Activity commenced and merged into new initiative	Some APAC Members are involved in the trialling and implementing the CANSO Runway Safety Survey involving Aerodrome Operators and ANSPs.
	2.3 Industry collaboration and stakeholder engagements. ATC/ pilot risk management seminar.	Closed	SilkAir presented on ATC/pilot risk management at the APAC Safety WG meeting in November 2015.
	2.4 Integrate SMS into the management of change and business operations.	Not yet commenced and merged into new initiative	
	2.5 Develop regional threat and error management framework.	Not yet commenced and merged into new initiative	
	2.6 Adopt whole-of-organisation safety approach.	Not yet commenced and closed*	*Considered as a philosophy rather than a specific initiative.

<b>Safety Strategy Themes</b>	<b>Safety Implementation Plans</b>	<b>Consolidation of Activities</b>	<b>Rationale for Consolidation</b>
3.0 Safety Intelligence	3.1 Identify risks in operations. Implement common safety risk methodologies. Enhance the understanding and management of risk information in ATM operations.	Activity commenced and merged into new initiative	Risk Analysis Tool (RAT) training conducted in November 2016. RAT uptake within the region was discussed in November 2017, including sharing successes and challenges with the tool.
	3.2 Sharing Safety Intelligence across APAC.	Activity commenced and merged into new initiative	Discussed in every APAC Safety WG meeting, with sharing of ANSPs' safety improvement initiatives and available benchmarking information. The Global ATM-net continues to provide a key source of safety intelligence available for the region.
	3.3 Identify emerging safety risks in ATM operations.	Activity commenced and merged into new initiative	Reoccurring agenda item at WG meetings.
	3.4 Implement common framework for risk management, monitoring and analysis.	Activity commenced and merged into new initiative	As per 3.1.
	3.5 Measure leading indicators for SMS.	Activity commenced and merged into new initiative	SEANS-Safety encouraged in the region. Three APAC ANSPs have completed SEANS-Safety assessments. Lead indicators being developed by Future Safety Development WG could be applicable for the region. SEANS-Safety training day held in May 2017.

**Figure 2: Re-defined Safety Implementation Plans (May 2021)**

<p><b>1.0 People Create Safety</b></p> <ul style="list-style-type: none"> <li>1.1. Workshop on Safety Culture and Just Culture for senior leadership roles</li> <li>1.2. Workshop on Threat and Error Management (TEM)</li> <li>1.3. Presentation of de-identified occurrence case studies</li> <li>1.4. Train the trainer courses for: <ul style="list-style-type: none"> <li>- Manager safety awareness</li> <li>- Operational staff risk management and professionalism (e.g. PULSE)</li> <li>- Safety accountability</li> <li>- Safety culture</li> </ul> </li> <li>1.5. Incorporation of human factors considerations into occurrence review and investigations</li> <li>1.6. Human performance</li> </ul>	<p><b>2.0 Learning &amp; Challenging</b></p> <ul style="list-style-type: none"> <li>2.1 Workshop on APAC Runway Safety and sharing of best practices</li> <li>2.2 ATC Ops Safety Change Management Framework</li> <li>2.3 Promotion of SMS courses in region</li> <li>2.4 FRMS implementation – sharing experiences</li> <li>2.5 Discovery of other risk assessment tools/methods</li> </ul>
<p><b>3.0 Safety Intelligence</b></p> <ul style="list-style-type: none"> <li>3.1 Promotion to CEOs/DGs for the uptake of SEANS-Safety in APAC</li> <li>3.2 Encourage the adoption of risk analysis tool (RAT) across region</li> <li>3.3 Encourage participation in identified and de-identified benchmarking activities across region</li> <li>3.4 Review and discuss the APAC contributing factors (from global data)</li> <li>3.5 APAC alignment of occurrence classifications and definitions</li> <li>3.6 Building a safety intelligence picture for the region (Top 3 risks, mitigating measures, risk severity level)</li> <li>3.7 Encourage uptake of leading indicators for SMS</li> </ul>	<p><b>4.0 Reoccurring agenda items/activities at each APAC Safety Workgroup meeting</b></p> <ul style="list-style-type: none"> <li>4.1 Development and management of repository of safety materials on Global ATM-net – safety knowledge base.</li> <li>4.2 Sharing of individual ANSP safety improvement initiatives and experiences across the region.</li> <li>4.3 Identifying emerging safety risks in the region</li> <li>4.4 Determining status of RAT implementation across APAC</li> <li>4.5 Determining status of APAC ANSPs that have undertaken SEANS-Safety assessment</li> </ul>

**Table 3: Re-defined (December 2018) Safety Implementation Plans and their progress (May 2021)**

Safety Strategy Themes	Safety Implementation Plans	Status	Description of Progress
1.0 People Create Safety	1.1 Workshop on Safety Culture and Just Culture targeting senior leadership roles.	Completed	Safety Culture Workshop was held in May 2019 senior leadership as part of the CANSO Asia Pacific Conference in Fukuoka, Japan.
	1.2 Workshop on Threat and Error Management (TEM).	Completed	TEM workshop conducted during the APAC Safety Workgroup meeting on 7 June 2018.
	1.3 Presentation and discussion of de-identified case studies.	Ongoing	Ongoing sharing of safety improvement activities by APAC ANSPs as a standing agenda item of the APAC Safety Workgroup meetings.
	1.4 Train the trainer courses for: <ul style="list-style-type: none"> <li>• Manager safety awareness</li> <li>• Operational staff risk management and professionalism (e.g. PULSE).</li> <li>• Safety accountability</li> <li>• Safety culture.</li> </ul>	Not yet commenced	
	1.5 Incorporating human factors considerations into occurrence review and investigations.	Ongoing	<ul style="list-style-type: none"> <li>• A workshop on fatigue risk management was held in May 2019 (during CANSO Asia Pacific Conference in Fukuoka, Japan) as part of evolving the region's maturity in relation to human performance management (HPM).</li> <li>• CAAS shared the Human Factors Analysis and Classification System (HFACS) framework and its application in determining human factors issues (if any) for post ATC occurrence investigation. This helps to improve the human performance in preventing a recurrence of a similar</li> </ul>

			<p>occurrences.</p> <ul style="list-style-type: none"> <li>• Helios provided an overview of Safety II concept. Compared to Safety I (the traditional safety management) which focuses 'what has gone wrong' (e.g analysing the contributory factors that caused the incident/ accident). Safety II examines "what has gone right". Safety II aims to go beyond hazards and failures to identify how best to develop the ANSP's potential to achieve resilient performance which could comprise of how it controls, responds, monitors, learns and anticipates. In addition, examples were also shared to relate Safety II concepts in helping to control and improve management of safety risks in ensuring aviation safety.</li> </ul>
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Safety Strategy Themes	Safety Implementation Plans	Status	Description of Progress
2.0 Learning and Challenging	2.1 Workshop on APAC Runway Safety and sharing of best practices.	Commenced on APAC Safety Workgroup meeting on 6 December 2018 and to continue into 2019	<ul style="list-style-type: none"> <li>Runway safety workshop conducted during the APAC Safety Workgroup meeting in December 2018 (including key results from a regional runway safety survey).</li> <li>Ongoing promotion of ICAO and CANSO runway safety tools, such as CANSO runway safety checklist.</li> <li>A mini workshop was conducted during Safety Workgroup meeting in May 2019 and shared on the key results from the CANSO/ACI Runway safety survey. The workshop went on to discuss and examine on APAC runway risks, particularly around runway incursion and excursions, and related safety management challenges including identification of the key threats in APAC.</li> <li>Runway Safety Survey for APAC <ul style="list-style-type: none"> <li>Airways New Zealand has volunteered to conduct the Runway Safety survey for APAC region with the help from some APAC ANSPs;</li> <li>Aims to provide APAC ANSPs the Runway safety best practices and safety improvements;</li> </ul> </li> <li>CANSO Safety Programme Manager (Mr Campbell) shared the overview of ICAO Runway Global Reporting Format (GRF) and implementation requirements for awareness.</li> </ul>



	2.2 ATC Operational Safety Change Management Framework.	Commenced	Safety workshop on “Managing Change and Human Factors” conducted during APAC conference on 5 May 2017.
	2.3 Promotion of SMS courses in the region.	Not yet commenced	
	2.4 FRMS implementation – sharing experiences.	Planned for 2019	<ul style="list-style-type: none"> <li>As per 1.5</li> <li>Fatigue management and safety reporting tool survey was conducted during Safety Workgroup meeting in Dec 2019 (Hanoi, Vietnam) <ul style="list-style-type: none"> <li>Conducted a stock-take on the progress and status check on fatigue management implementation;</li> <li>Raised and identified key concerns on the appropriate and adequate training for ATC Managers or Supervisors to manage fatigue on ground, appropriate application including the use of scientific approach and its practicality to help identify fatigue hazards and mitigations;</li> <li>Airservices Australia volunteered to support in consolidating the information exchange among APAC ANSPs on fatigue management. To reach out to APAC ANSPs to provide information to support elements comprising the prescriptive limits, awareness and regulation.</li> </ul> </li> <li>Airservices Australia shared on the importance of continual education and promotion efforts with staff and line leaders within the organisation on fatigue related</li> </ul>

			<p>risks.</p> <ul style="list-style-type: none"> <li>▪ In-depth understanding on the effect of workload on the effect of workload on fatigue and performance was key to recognise that personnel perform their best at optimum level of arousal;</li> <li>▪ In view of the COVID-19 pandemic which had changed the operating environment, threats such as low workload, skill degradation and morale, although not new, were carefully addressed through a framework with mitigating measures.</li> <li>▪ Videos developed by Airservices Australia to educate and remind its staff and leaders on the appropriate steps to manage fatigue related risks.</li> </ul>
	2.5 Discovery of other risk assessment tools/methods.	Not yet commenced	<ul style="list-style-type: none"> <li>• Exposure to other Safety Risk Assessment tools/ methods was held in Dec 2019 safety workgroup meeting in Hanoi, Vietnam.</li> <li>• Various safety assessment tools/ methodologies were shared to help in assessing risk level in occurrences, operational risks and risk associated with changes. These include Bow-tie, Threat and Error Management (TEM), Barrier Model and Risk Analysis Tool including qualitative and quantitative risk assessment.</li> </ul>

Safety Strategy Themes	Safety Implementation Plans	Status	Description of Progress
3.0 Safety Intelligence	3.1 Promotion to CEOs/DGs for the uptake of SEANS-Safety in APAC. 3.2 Encourage the adoption of RAT (risk analysis tool) across region. 3.3 Encourage participation in identified and de-identified benchmarking activities across region. 3.4 Review and discuss the APAC contributing factors (from global data). 3.5 APAC alignment of occurrence classifications and definitions. 3.6 Building a safety intelligence picture for the region (Top 3 risks, mitigating measures, risk severity level). 3.7 Encouraging uptake of leading indicators for SMS.	Commenced	<ul style="list-style-type: none"> <li>Adoption of SEANS-Safety and RAT actively being encouraged in the region.</li> <li>The progress of lead indicators development by the CANSO Future Safety Development WG being monitored to be considered for adoption in the region when available.</li> <li>CANSO Safety Performance Benchmarking and SoE in SMS               <ul style="list-style-type: none"> <li>CANSO Safety Programme Manager (Mr Campbell) encouraged APAC ANSPs to participate through the demonstrating the benefits including ability to identify similar performance to promote collaboration and improve safety.</li> </ul> </li> </ul>
4.0 Reoccurring activities	4.1 Development and management of repository of safety materials on Global ATM-net -safety knowledge base  4.2 Sharing of individual ANSP safety improvement initiatives and experiences across the region.	Ongoing  Ongoing	Migrated to <i>myCANSO</i> portal as of 2020  <ul style="list-style-type: none"> <li>A permanent agenda item was dedicated for Member ANSPs to share practices/ safety enhancement initiatives at the CANSO Asia Pacific Safety Workgroup meeting.</li> <li>The Safety Management Implementation Support Consultant from ICAO Air Navigation Bureau supported and shared on ICAO guidance material on the management of risks related to COVID-19 at the virtual workgroup meeting on 15 June 2020. Key safety management takeaways such as</li> </ul>

		<p>application of risk-based approach and support data-driven decision-making to ensure safe management of risks to achieve the desired outcomes.</p> <ul style="list-style-type: none"> <li>CANSO Safety Programme Manager provided an overview of the guidance on COVID-19 developed by CANSO at the virtual meeting on 15 June 2020. The guide emphasised two key important considerations for ANSPs to consider namely, preventing the infection of essential staff such as ATCOs and maintenance staff, and ensuring business continuity.</li> </ul>
4.3 Identifying emerging safety risks in the region	Ongoing	<ul style="list-style-type: none"> <li>Sharing on unmanned aircraft system (UAS)safety regulations, policy and approach to integrate into Singapore's environment</li> <li>A workshop on Urban Air Mobility (UAM) was conducted during the Dec 2020 meeting and was introduced to emerging trends of UAM including its benefits, challenges and safety considerations.</li> </ul>
4.4 Number of APAC ANSPs which are utilising Risk Analysis Tool (RAT)	Completed	The status of APAC ANSPs utilising RAT was consolidated and reported in May 2019.
4.5 Number of APAC ANSPs undertaken SEANS-Safety assessment	Ongoing	The status of APAC ANSPs' experiences and lessons learned from SEANS-Safety assessments to be reported in 2019.

## 6 Document Review

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This document will be reviewed periodically by the CANSO APAC Safety Workgroup. This is to ensure that the priorities for regional safety improvement and supporting implementation plans continue to adapt to ongoing changes in the regional aviation environment and ensure alignment with the evolution of the CANSO Global Strategy. Updates to the progress on the safety implementation strategies will be made annually.

This document was endorsed by the Asia Pacific CANSO CEO Committee (APC3) prior to publishing.

## 7 Document Amendments

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Date	Detail
March 2016	First edition
December 2018	Second edition Updated the implementation progress to December 2018 Consolidated and refocused initiatives and recurring activities, adapting to the evolving maturity and safety improvement needs of the region.
April 2021	Third edition Updated the implementation progress to April 2021