INTERNATIONAL CIVIL AVIATION ORGANIZATION

REPORT OF THE THIRTEENTH MEETING OF THE ATM SUB-GROUP OF APANPIRG (ATM/SG/13)

SINGAPORE, 25 – 29 AUGUST 2025

The views expressed in this Report should be taken as those of the Meeting and not the Organization

Approved by the Meeting
Published by the ICAO Asia and Pacific Office, Bangkok

CONTENTS

INTRODUCTION i

Meeting i

Attendance i

Officer and Secretariat i

Language and Documentation i

Opening of the Meeting ii

Draft Conclusions, Draft Decisions and Decisions of ATM/SG – Definition ii

List of Draft Conclusions and Decisions ii

REPORT ON AGENDA ITEMS 1

Agenda Item 1: Adoption of Provisional Agenda 1

Agenda Item 2: Review of Related High Level Meetings 1

Agenda Item 3: Performance Frameworks and Metrics 1

Agenda Item 4: Air Navigation Service Deficiencies 11

Agenda Item 5: ATM Systems (Modernization, Seamless ATM, CNS, ATFM) 12

Agenda Item 6: ATM Coordination (Meetings, Route Development, Contingency Planning) 28

Agenda Item 7: AOP, AIM, MET, SAR 36

Agenda Item 8: Update the ATM Task List 42

Agenda Item 9: Any Other Business 45

Agenda Item 10: Date and Venue for the Next Meeting 45

— — — — — — — —

APPENDIXES TO THE REPORT

Appendix A: List of Participants A-1

Appendix B: List of Papers B-1

Appendix C: Corrigendum to the Asia/Pacific Seamless ANS Plan Version 4.0 ..... C-1

Appendix D: ATM/SG Terms of Reference D-1

Appendix E: ATM and Airspace Safety Deficiencies List E-1

Appendix F: ATFM & A-CDM/SG Terms of Reference F-1

Appendix G: APAC FF-ICE Ad-hoc Group Terms of Reference G-1

Appendix H: AAITF Terms of Reference H-1

Appendix I: Asia/Pacific SAR Plan Version 5.0 ..... I-1

Appendix J: Revised Regional SAR Plan Monitoring and Reporting Form J-1

Appendix K: ATM/SG Task List K-1

— — — — — — — —

INTRODUCTION

Meeting

1.1 The Thirteenth Meeting of the Air Traffic Management Sub-Group (ATM/SG/13) of the Asia/Pacific Air Navigation Planning and Implementation Regional Group (APANPIRG) was held from 25 to 29 August 2025 at the Grand Copthorne Waterfront Hotel, Singapore. The Meeting was graciously hosted by the Civil Aviation Authority of Singapore.

Attendance

2.1 The Meeting was attended by 131 registered participants from 24 States, two Special Administrative Regions of China and five International Organizations, including Australia, Bangladesh, Bhutan, Cambodia, China, Hong Kong China, Macao China, Fiji, India, Indonesia, Japan, Lao People's Democratic Republic (PDR), Malaysia, Maldives, Mongolia, Nepal, New Zealand, Pakistan, Philippines, Republic of Korea, Singapore, Sri Lanka, Thailand, the United Kingdom, the United States, Viet Nam, CANSO, IATA, IFALPA, IFATCA and ICAO.

2.2 A list of participants is provided at **Appendix A to the Report**.

Officers and Secretariat

3.1 Mr. Kuah Kong Beng, Director (Special Project), Civil Aviation Authority of Singapore presided over the ATM/SG/13, as Sub-Group Chairperson.

3.2 Mr. Hiroyuki Takata, Regional Officer ATM and Mr. Mior Adli Bin Mior Sallehhuddin, Regional Officer ATM, ICAO Asia and Pacific (APAC) Office, were the Secretaries for the Meeting. They were assisted by Mr. Ying Weng Kit, ATM Officer, Mr. Anony Tak Chuen Chui, AIM/ATM Officer and Dr. Trish Prakayphet Chalayonnawin, Programme Analysis Associate ATM.

3.3 The Meeting was also supported by Ms. Ying Zhang, Deputy Chief, Mr. Manjunath Krishna Nelli, Regional Officer ATM and Mr. Hyuk Jin Kwon, Regional Officer ATM of the ICAO APAC Regional Sub-Office.

Language and Documentation

4.1 The ATM Sub-Group met as a plenary throughout the Meeting. The working language of the meeting was English for all documentation and this Report. A total of 58 Working Papers (WPs), 12 Information Papers (IPs), one Flimsy and eight presentations were considered by the Meeting.

4.2 The List of Working and Information Papers is appended at **Appendix B to the Report** (IP/01).

4.3 **DISCLAIMER:** The presentation of material in this report does not imply the expression of any opinion whatsoever on the part of ICAO, APANPIRG or the ATM Sub-Group of APANPIRG concerning the legal status of any country, territory, city or area of its authorities, or concerning the delimitation of its frontiers or boundaries.

Opening of the Meeting

Chairperson of ATM/SG Sub-Group

5.1 Mr. Kuah Kong Beng welcomed participants to the Meeting.

ICAO Regional Office

5.2 On behalf of Mr. Tao Ma, Regional Director of the ICAO Asia and Pacific Office, Mr. Hiroyuki Takata welcomed all the participants to the Meeting.

Draft Conclusions, Draft Decisions and Decisions of ATM/SG – Definition

6.1 The ATM Sub-Group recorded its actions in the form of Draft Conclusions, Draft Decisions and Decisions within the following definitions:

a) **Draft Conclusions** of the ATM/SG relate to matters that are not just of a purely technical or operational nature, which need to be considered by APANPIRG;

b) **Conclusions** of the ATM/SG relate to matters of a purely technical or operational nature, which APANPIRG had delegated authority to ATM/SG to act upon;

c) **Draft Decisions** relate solely to matters dealing with the internal working arrangements of the ATM/SG, which need to be considered by APANPIRG; and

d) **Decisions** of the ATM/SG that relate solely to matters dealing with the internal working arrangements of the ATM/SG, which APANPIRG had delegated authority to ATM/SG to act upon.

List of Draft Conclusions and Decisions

7.1 List of ATM/SG/13 Draft Conclusions

<table>
<tr><td colspan="3">Draft Conclusion ATM/SG/13-1: Corrigendum to the Asia/Pacific Seamless ANS Plan Version 4.0</td></tr>
<tr><td colspan="2">What: That,
1. the corrigendum to the Asia/Pacific Seamless ANS Plan Version 4.0 at Appendix C to the Report be adopted, and uploaded to the ICAO Asia/Pacific Regional Office webpage to supplement the existing version;
2. the ICAO Secretariat to update the Asia/Pacific Seamless ANS Reporting Tool to reflect these changes; and
3. States are urged to update their national air navigation plan (NANP) to align with the revised Asia/Pacific Seamless ANS Plan Version 4.0.</td><td>Expected impact:
☐ Political / Global
☐ Inter-regional
☐ Economic
☐ Environmental
☒ Ops/Technical</td></tr>
<tr><td>Why: To update and accurately reflect the priorities of ASBU NAVS elements within the Asia/Pacific Seamless ANS Plan.</td><td colspan="2">Follow-up: ☐Required from States</td></tr>
<tr><td>When: 26-Nov-25</td><td colspan="2">Status: Draft to be adopted by PIRG</td></tr>
<tr><td colspan="3">Who: ☒Sub groups ☐APAC States ☒ICAO APAC RO ☐ICAO HQ ☐Other:</td></tr>
</table>

7.2 List of ATM/SG/13 Conclusions

Conclusion ATM/SG/13-3: The Use of Digital Form to Collect Annual Regional ANS-related Monitoring and Reporting Data	
What: That, the digital form (Microsoft Forms) be used as the primary means to collect annual regional ANS-related plans monitoring and reporting forms and data.	Expected impact: ☐ Political / Global ☐ Inter-regional ☐ Economic ☐ Environmental ☒ Ops/Technical
Why: To streamline and enhance efficiency in processing the regional plans' implementation status monitoring.	Follow-up: ☒Required from States
When: 29-Aug-25	Status: Adopted by Subgroup
Who: ☒Sub groups ☒APAC States ☒ICAO APAC RO ☐ICAO HQ ☐Other:	

Conclusion ATM/SG/13-4: Addition Appendix to the Asia/Pacific Regional Framework for Collaborative ATFM	
What: That, the Operational Capacity Guidelines from Republic of Korea to be added as an appendix to the next update Asia/Pacific Regional Framework for Collaborative ATFM.	Expected impact: ☐ Political / Global ☐ Inter-regional ☐ Economic ☐ Environmental ☒ Ops/Technical
Why: To provide sample guidance for regional States/Administration to develop tailored guidance materials in response to specific MET event resulting in capacity disruption.	Follow-up: ☐Required from States
When: 29-Aug-25	Status: Adopted by Subgroup
Who: ☒Sub groups ☒APAC States ☒ICAO APAC RO ☐ICAO HQ ☐Other:	

<table>
<tr><td colspan="3">Conclusion ATM/SG/13-5: Change Process of the FIXM Version Used for Asia/Pacific Cross-Border Operational ATFM System-to-System Information Exchange in SWIM</td></tr>
<tr><td colspan="2">What: That, the change process for the Cross-Border FIXM Operating Version be:
a) submit the proposed change to the FIXM version, in the form of Working Paper, to ATFM/SG for review and assessment of its operational impacts and suitability in supporting regional operational requirements;
b) upon adoption by ATFM/SG, submit the proposal to SWIM TF for review and assessment of its technical implications; and
c) following agreement by SWIM TF, submit a summary of the change proposal to ATM/SG for approval, and subsequently to APANPIRG for endorsement;
and the content of change proposal be:
a) name of State(s) or collaboration group, including the specific names of organizations, proposing the change;
b) proposed FIXM version;
c) reason(s) for the proposed change(s);
d) testing result of the proposed version; and
e) proposed timeframe for the change to take effect (a minimum lead time of 2 years is required);
to be adopted as a regional process for revision of FIXM version for cross-border ATFM information exchange.</td><td>Expected impact:
☐ Political / Global
☐ Inter-regional
☐ Economic
☐ Environmental
☒ Ops/Technical</td></tr>
<tr><td>Why: To ensure effective communication, interoperability, reduced risk of incompatibility among ATFM systems within the Asia/Pacific region, as well as aligned implementations of all stakeholders.</td><td colspan="2">Follow-up: ☐Required from States</td></tr>
<tr><td>When: 29-Aug-25</td><td colspan="2">Status: Adopted by Subgroup</td></tr>
<tr><td colspan="3">Who: ☒Sub groups ☒APAC States ☒ICAO APAC RO ☐ICAO HQ ☒Other: SWIM TF</td></tr>
</table>

<table>
<tr><td colspan="3">Conclusion ATM/SG/13-6: TBO Related Revisions for the Asia/Pacific Seamless ANS Plan</td></tr>
<tr><td colspan="2">What: That, noting the need for harmonized implementation planning of Trajectory-based Operations (TBO) to guide States/Administrations in this region, that:
1. the TBO roadmap (as per ATM/SG/13 WP/22 Appendices A to E) be incorporated into the 2026 revision of the Asia/Pacific Seamless ANS Plan; and
2. a new Phase VI be included in the Asia/Pacific Seamless ANS Plan to enable reference to the TBO levels.</td><td>Expected impact:
☐ Political / Global
☐ Inter-regional
☐ Economic
☐ Environmental
☒ Ops/Technical</td></tr>
<tr><td>Why: To ensure regional harmonization of TBO and guide States/Administrations on implementation planning</td><td colspan="2">Follow-up: ☐Required from States</td></tr>
<tr><td>When: 29-Aug-25</td><td colspan="2">Status: Adopted by Subgroup</td></tr>
<tr><td colspan="3">Who: ☒Sub groups ☒APAC States ☒ICAO APAC RO ☐ICAO HQ ☐Other:</td></tr>
</table>

Conclusion ATM/SG/13-7: Consolidation of the East Asia and North Pacific Contingency Coordination Team POC Details with the ATM Points of Contact List	
What: That, 1. the contact details of the East Asia and North Pacific Contingency Coordination Team POC be consolidated with the ATM Points of Contact List; and 2. concerned States and international organizations ensure that their contact details are current and verified.	Expected impact: ☐ Political / Global ☐ Inter-regional ☐ Economic ☐ Environmental ☒ Ops/Technical
Why: To promote streamlined communication, minimize the risk of missed or duplicated messages, and ensure that the appropriate contacts are reached promptly.	Follow-up: ☒Required from States
When: 29-Aug-25	Status: Adopted by Subgroup
Who: ☒Sub groups ☒APAC States ☒ICAO APAC RO ☐ICAO HQ ☐Other:	

Conclusion ATM/SG/13-8: Removal of Available (Non-Allocated) 5LNCs Starting with 'X' and Release of Block Codes	
What: That, 5LNCs starting with 'X' in the ICARD system that are not registered to any Administrations shall be removed for selection from the ICARD system; and the release of 5LNC block codes to the general pool by 31 December 2025.	Expected impact: ☐ Political / Global ☐ Inter-regional ☐ Economic ☐ Environmental ☒ Ops/Technical
Why: 5LNCs starting with 'X' in the ICARD may pose pronounceability issues to airspace users and Air Traffic Control and the release of Block codes will increase the number of available 5LNCs for all.	Follow-up: ☒Required from States
When: 29-Aug-25	Status: Adopted by Subgroup
Who: ☒Sub groups ☒APAC States ☒ICAO APAC RO ☐ICAO HQ ☐Other:	

Conclusion ATM/SG/13-9: Revised Asia/Pacific SAR Plan	
What: That, 1. the revised *Asia/Pacific SAR Plan* at **Appendix I to the Report** be adopted, and uploaded to the ICAO Asia/Pacific Regional Office eDocuments webpage to replace the existing version; and 2. States are urged to update their national SAR Plans to align with the revised *Asia/Pacific SAR Plan*.	Expected impact: ☐ Political / Global ☐ Inter-regional ☐ Economic ☐ Environmental ☒ Ops/Technical
Why: To conduct the triennial review of the Asia/Pacific SAR Plan.	Follow-up: ☒Required from States
When: 29-Aug-25	Status: Adopted by Subgroup
Who: ☒Sub groups ☒APAC States ☒ICAO APAC RO ☐ICAO HQ ☐Other:	

<table>
<tr><td colspan="3">Conclusion ATM/SG/13-10: Proposal Annual Submission of Asia/Pacific Search and Rescue Unit (SRU) Capability</td></tr>
<tr><td colspan="2">What: That,
1. States and Administrations to submit update of their SRU capability information (template to be included in the revised Asia/Pacific SAR Plan Appendix 2) to the ICAO Asia/Pacific Regional Office annually, no later than 28 February. The ICAO Secretariat would compile the data and present it as a working paper at the APSAR/WG meeting, include it as an appendix to the meeting report, and subsequently publish it on the ICAO Asia/Pacific Regional Office eDocuments webpage; and
2. the Asia/Pacific SAR Plan and the corresponding SAR Performance Indicator in the Regional SAR Plan Monitoring and Reporting Form be amended (Appendix J to the Report) to support the States/Administrations' submission of Asia/Pacific SRU Capability information and be uploaded to the ICAO Asia/Pacific Regional Office website to replace the existing version.</td><td>Expected impact:
☐ Political / Global
☐ Inter-regional
☐ Economic
☐ Environmental
☒ Ops/Technical</td></tr>
<tr><td>Why: To enhance RCC situational awareness of SRUs outside their own SRR to better identify potential SRUs in another State that they could request to assist during SAR response.</td><td colspan="2">Follow-up: ☒Required from States</td></tr>
<tr><td>When: 29-Aug-25</td><td colspan="2">Status: Adopted by Subgroup</td></tr>
<tr><td colspan="3">Who: ☒Sub groups ☒APAC States ☒ICAO APAC RO ☐ICAO HQ ☐Other:</td></tr>
</table>

<table>
<tr><td colspan="3">Conclusion ATM/SG/13-14: Normalization of Asia/Pacific Regional A-CDM Monitoring and Reporting Scheme</td></tr>
<tr><td colspan="2">What: That, the trial Asia/Pacific Regional A-CDM Monitoring and Reporting Scheme to be normalized and adopted as part of the annual reporting framework.</td><td>Expected impact:
☐ Political / Global
☐ Inter-regional
☐ Economic
☐ Environmental
☒ Ops/Technical</td></tr>
<tr><td>Why: To gather A-CDM implementation and operational status within the Asia/Pacific region for enhancement of common understanding of operational capability and enhancement to ATFM measures.</td><td colspan="2">Follow-up: ☒Required from States</td></tr>
<tr><td>When: 29-Aug-25</td><td colspan="2">Status: Adopted by Subgroup</td></tr>
<tr><td colspan="3">Who: ☒Sub groups ☒APAC States ☒ICAO APAC RO ☐ICAO HQ ☐Other:</td></tr>
</table>

7.3 List of ATM/SG/13 Draft Decisions

Draft Decision ATM/SG/13-2: Update Air Traffic Management Sub-Group of APANPIRG (ATM/SG) Terms of Reference		
What: That, the updated ATM/SG Terms of Reference at **Appendix D to the Report** be adopted.		Expected impact: ☐ Political / Global ☐ Inter-regional ☐ Economic ☐ Environmental ☒ Ops/Technical
Why: To update the TOR to revise references to the Asia/Pacific Seamless ANS Plan.	Follow-up:	☐Required from States
When: 26-Nov-25	Status:	Draft to be adopted by PIRG
Who: ☒Sub groups ☒APAC States ☒ICAO APAC RO ☐ICAO HQ ☐Other:		

Draft Decision ATM/SG/13-11: Modification of Name of ATFM Steering Group (ATFM/SG) to ATFM and A-CDM Steering Group (ATFM & A-CDM/SG)		
What: That, 1. the name of the ICAO Asia/Pacific Air Traffic Flow Management Steering Group (ATFM/SG) changed to the ICAO Asia/Pacific Air Traffic Flow Management and Airport Collaborative Decision Making Steering Group (ATFM & A-CDM/SG); and 2. the Terms of Reference (TOR) be amended to reflect the Steering Group name change (**Appendix F to the Report**).		Expected impact: ☐ Political / Global ☐ Inter-regional ☐ Economic ☐ Environmental ☒ Ops/Technical
Why: To encourage participation of appropriate individuals with operational experience of Airport and A-CDM operations from States and Administrations	Follow-up:	☒Required from States
When: 26-Nov-25	Status:	Draft to be adopted by PIRG
Who: ☒Sub groups ☒APAC States ☒ICAO APAC RO ☐ICAO HQ ☐Other:		

Draft Decision ATM/SG/13-12: Update AAITF Terms of Reference (TOR)		
What: That, the updated AAITF Terms of Reference at **Appendix H to the report**, be adopted.		Expected impact: ☐ Political / Global ☐ Inter-regional ☐ Economic ☐ Environmental ☒ Ops/Technical
Why: The first edition of the Manual on System-Wide Information Management (SWIM) Implementation was published in 2024 as ICAO Doc 10203, as well as PANS-IM (Doc 10199).	Follow-up:	☐Required from States
When: 26-Nov-25	Status:	Draft to be adopted by PIRG
Who: ☒Sub groups ☒APAC States ☒ICAO APAC RO ☐ICAO HQ ☐Other:		

Draft Decision ATM/SG/13-13: Establishment of APAC Project 30/10 Task Force	
What: That, the APAC Project 30/10 Task Force be established under the ATM/SG to develop the Asia/Pacific regional roadmap that include, but not limited to, the following tasks: a) a further comprehensive analysis of the current separation minima applied within the Asia/Pacific Administrations and between adjacent FIRs; b) the identification of technical and operational enablers necessary for the successful implementation of Project 30/10, including reviewing and updating regional documents; c) collaboration with adjacent regions to achieve harmonized implementation of Project 30/10; and d) an assessment of training needs for controllers to effectively apply more efficient separation minima.	Expected impact: ☒ Political / Global ☒ Inter-regional ☐ Economic ☐ Environmental ☒ Ops/Technical
Why: To provide the regional roadmap for the implementation of more efficient separation minimum in the Asia/Pacific Region, in accordance with AN-Conf/14 Recommendation 3.1/1.	Follow-up: ☒Required from States
When: 26-Nov-25	Status: Draft to be adopted by PIRG
Who: ☒Sub groups ☒APAC States ☒ICAO APAC RO ☐ICAO HQ ☐Other:	

7.4 List of ATM/SG/13 Decision

Decision ATM/SG/13-15: Adoption of APAC FF-ICE Ad-hoc Group Terms of Reference	
What: That, the APAC FF-ICE Ad-hoc Group Terms of Reference at **Appendix G to the Report** be adopted.	Expected impact: ☐ Political / Global ☐ Inter-regional ☐ Economic ☐ Environmental ☒ Ops/Technical
Why: To support the Ad-hoc Group in meeting its established objectives.	Follow-up: ☐Required from States
When: 29-Aug-25	Status: Adopted by Subgroup
Who: ☒Sub groups ☒APAC States ☒ICAO APAC RO ☐ICAO HQ ☐Other:	

REPORT ON AGENDA ITEMS

Agenda Item 1: Adoption of Provisional Agenda

Provision Agenda (WP/01)

1.1 The provision agenda (WP/01) was adopted by the Meeting.

Agenda Item 2: Review of Related High Level Meetings

ATM/SG/12 and APANPIRG/35 (WP/02)

2.1 The Meeting was reminded of the outcomes of the Twelfth Meeting of the Air Traffic Management Sub-Group (ATM/SG/12) of APANPIRG, held in Bangkok, Thailand, from 23 to 27 September 2024 and informed of the relevant outcomes from the Thirty-Fifth Meeting of the Asia/Pacific Air Navigation Planning and Implementation Regional Group (APANPIRG/35), held in Bangkok, Thailand, from 25 to 27 November 2024.

2.2 The Secretariat informed the Meeting that relevant regional and guidance documents agreed at ATM/SG/12 and APANPIRG/35 had been uploaded to ICAO APAC Office eDocuments webpage.

Agenda Item 3: Performance Frameworks and Metrics

ANS USOAP Update (WP/03)

3.1 The Secretariat provided information on the ICAO Universal Safety Oversight Audit Programme (USOAP) Continuous Monitoring Approach (CMA). The paper provided update of the 2024 edition of the USOAP CMA Protocol Questions (PQs), and annual update of the regional USOAP Air Navigation Services (ANS) implementation status.

3.2 A comparison of the PQs in the 2020 and 2024 editions and number of changes for the ANS audit area were shown in the **Table 1**.

Table 1: A Comparison of the PQs in the 2020 and 2024 Editions and Changes in ANS Audit Area

<table>
<tr><th></th><th>Area</th><th>Number of 2020 PQs</th><th colspan="3">Number of 2024 PQs</th></tr>
<tr><td>1</td><td>LEG</td><td>23</td><td colspan="3">23</td></tr>
<tr><td>2</td><td>ORG</td><td>13</td><td colspan="3">13</td></tr>
<tr><td>3</td><td>PEL</td><td>93</td><td colspan="3">100</td></tr>
<tr><td>4</td><td>OPS</td><td>126</td><td colspan="3">136</td></tr>
<tr><td>5</td><td>AIR</td><td>186</td><td colspan="3">198</td></tr>
<tr><td>6</td><td>AIG</td><td>84</td><td colspan="3">84</td></tr>
<tr><td rowspan="4">7</td><td rowspan="4">ANS</td><td rowspan="4">122</td><td rowspan="4">128</td><td>New</td><td>11</td></tr>
<tr><td>Deleted</td><td>5</td></tr>
<tr><td>Revised</td><td>108</td></tr>
<tr><td>Merged</td><td>0</td></tr>
</table>

	Area	Number of 2020 PQs	Number of 2024 PQs	
			No Change	9
8	AGA	143	153	
9	SSP	0	16	
Total		**790**	**851**	

3.3 The Meeting confirmed that the APAC region EI (65.40%) was lower than the global average (66.44%) according to the summary of the global average level of ANS-related EI for the 187 States that had been audited or received a USOAP activity, as of 31 July 2025. **Figure 1** illustrated the EI scores for ANS-related PQs of the 37 APAC States that had been audited or received USOAP activity:

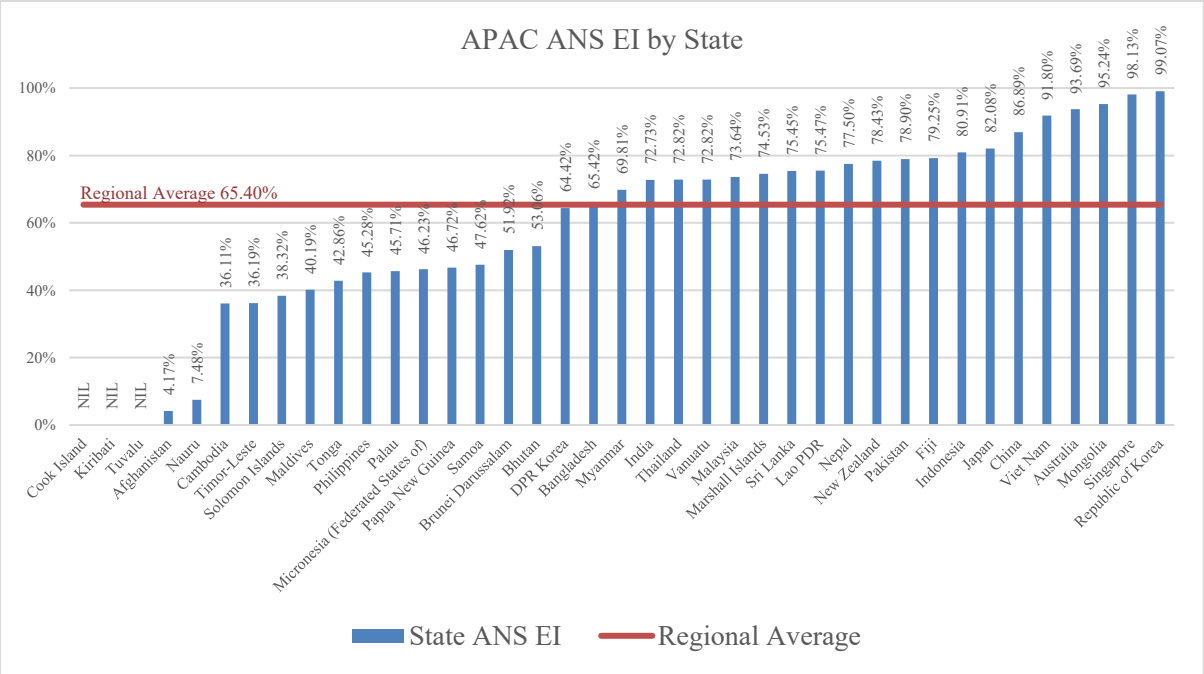

Figure 1: USOAP ANS EI Comparisons by State (September 2024)

3.4 States were encouraged to participate in the USOAP CMA Workshop, which would be conducted at the ICAO APAC Office, from 11 to 13 November 2025. The workshop would provide States with updated information on the programme and provide hands-on training on the USOAP CMA OLF.

Asia/Pacific Seamless ANS Plan Update (WP/04)

3.5 This paper presented proposal for amendments to the implementation priority of the Navigation Systems (NAVS) Block 0 elements in the *Asia/Pacific Seamless ANS Plan Version 4.0* and update on the Asia/Pacific Seamless ANS Reporting Tool.

3.6 The *Asia/Pacific Seamless ANS Plan* had assigned Priority 2 to NAVS-B0/1 to B0/4 Aviation System Block Upgrades (ASBU) elements, whereas *CNS-related ASBU Review Ad-hoc Group for the Next Edition of the Seamless ANS Plan* had recommended Priority 1 to the NAVS-B0/1 to B0/4 elements. Recognizing the existence of discrepancies in the prioritization of NAVS Block 0 elements within the published *Asia/Pacific Seamless ANS Plan Version 4.0*, compared to the priority approved by the Communications, Navigation and Surveillance Sub-group (CNS SG) of APANPIRG, the ICAO Secretariat presented this matter at the Seventh Meeting of the Asia/Pacific GBAS/SBAS Implementation Task Force (GBAS/SBAS ITF/7, Bangkok, Thailand, 14 – 16 May 2025).

3.7 Following the consensus reached at the GBAS/SBAS ITF/7, ICAO Secretariat subsequently presented a Working Paper at the Twenty-Ninth Meeting of the Communications, Navigation and Surveillance Sub-group of APANPIRG (CNS SG/29, Bangkok, Thailand, 16 – 20 June 2025), for CNS SG further review and consideration. CNS SG/29 agreed to the following proposed amendments (**Table 2**):

Table 2: Amendment Proposal from CNS SG/29

Functional Category	Element	Description	Priority	Responsibility for Review
Technology	NAVS-B0/1	GBAS	2	CNS SG
	NAVS-B0/2	SBAS	2	
	NAVS-B0/3	ABAS	1	
	NAVS- B0/4	Nav. MON	1	

3.8 The ATM/SG discussed and adopted the following Draft Conclusion:

Draft Conclusion ATM/SG/13-1: Corrigendum to the *Asia/Pacific Seamless ANS Plan Version 4.0*

That,

1. the corrigendum to the *Asia/Pacific Seamless ANS Plan Version 4.0* at **Appendix C to the Report** be adopted, and uploaded to the ICAO Asia/Pacific Regional Office webpage to supplement the existing version;
2. the ICAO Secretariat to update the Asia/Pacific Seamless ANS Reporting Tool to reflect these changes; and
3. States are urged to update their national air navigation plan (NANP) to align with the revised *Asia/Pacific Seamless ANS Plan Version 4.0*.

3.9 ICAO Secretariat would present the corrigendum at the APANPIRG/36 for endorsement. Upon endorsement, the corrigendum would be published on the ICAO APAC Office eDocuments webpage, and the Asia/Pacific Seamless ANS Reporting Tool would be updated accordingly to reflect these changes.

3.10 It was recalled that during the review of the Asia/Pacific Seamless "ATM" Plan in 2019, it was agreed that the more accurate terminology should be "Air Navigation Service (ANS)", as the Plan also covered non-ATM areas such as aerodromes, meteorology and search and rescue (SAR). Additionally, this was aligned with the ICAO HQ terminology for the State – level plan (National Air Navigation Plan).

3.11 The Meeting was informed that the Thirtieth Meeting of the Asia/Pacific Air Navigation Planning and Implementation Regional Group (APANPIRG/30, Bangkok, Thailand, 4 – 6 November 2019) had adopted ***Conclusion APANPIRG/30-5: Asia/Pacific Seamless ANS Plan***.

3.12 In this regard, ICAO proposed an update to the Terms of Reference (TOR) of the ATM/SG, to reflect the current Plan name, for review and approval by the ATM/SG. The text proposed to be removed has been strike through and the text to be inserted is highlighted in grey.

3.13 The ATM/SG discussed and adopted the following Draft Decision:

Draft Decision ATM/SG/13-2: Update Air Traffic Management Sub-Group of APANPIRG (ATM/SG) Terms of Reference

That, the updated ATM/SG Terms of Reference at **Appendix D to the Report** be adopted.

3.14 ICAO Secretariat presented an update on the status of *Asia/Pacific Seamless ANS Plan* implementation using the online reporting tool. As of 1 August 2025, a total of 20 States/Administrations, i.e. 48.8% of the APAC States/Administrations, submitted some form of reporting on the Asia/Pacific Seamless ANS Reporting Tool, for 2024. Among those 20 States/Administrations, 14 submitted a comprehensive report. Hence there was not enough information to conduct effective evaluation on the implementation progress.

3.15 After the approval and endorsement of *Asia/Pacific Seamless ANS Plan Version 4.0* by APANPIRG/35 in November 2024, the Asia/Pacific Seamless ANS Reporting Tool was being updated to reflect the changes. ICAO had taken note of the feedback provided by States/Administrations regarding the Asia/Pacific Seamless ANS Reporting Tool.

3.16 The updated Asia/Pacific Seamless ANS Reporting Tool would be available for online reporting by States/Administrations, by December 2025. States/Administrations would be informed of the same by a State Letter. States/Administrations were requested to utilize the updated Asia/Pacific Seamless ANS Plan Reporting Tool and submit the implementation status by 28 February, effective from 2026.

3.17 Bangladesh expressed their difficulties on reporting through the online reporting tool, and in response to inquiries, ICAO indicated the possibility of organizing an online webinar to demonstrate the updated Asia/Pacific Seamless ANS Plan Reporting Tool.

FIT-Asia and RASMAG Outcomes (WP/05)

FIT-Asia/15 Meeting Outcomes

3.18 The Fifteenth Meeting of the FANS Interoperability Team-Asia (FIT-Asia/15) and the Thirtieth Meeting of the Regional Airspace Safety Monitoring Advisory Group (RASMAG/30) were held in Bangkok, Thailand, from 24 to 27 June 2025 and 14 to 17 July 2025 respectively.

3.19 The FIT-Asia/15 was provided with updated information of data link performance reports by various States and was reminded that the revised colour key code for "yellow – acceptable performance" had been discussed at FIT-Asia/14, and that RASMAG/29, ***Conclusion RASMAG/29-1: Revised colour key codes for Asia/Pacific PBCS reporting templates*** referred. States were urged to use the latest template to ensure accurate data collection and analysis; therefore, all future submissions should align with the updated format.

3.20 The FIT-Asia/15 recalled that the current version of Doc 9869 specified only DM0 WILCO for use in PORT data analysis and noted that the next version was expected to include additional downlink message (DM) responses for this purpose. As Doc 9869 was a guidance document, the meeting further noted that some Air Navigation Service Providers (ANSPs) had chosen to include other DMs such as DM1 UNABLE, DM2 STANDBY, DM3 ROGER, DM4 AFFIRM, and DM5 NEGATIVE in their PORT data analysis.

Asia/Pacific Region Combined PBCS Monitoring Report

3.21 Indonesia and Malaysia presented the aggregated data link performance monitoring report for the APAC region, prepared with support from Japan. For the combined data for Required Surveillance Performance (RSP) across all media types in 2024, the 95% criteria were achieved in all Flight Information Regions (FIRs). None of the FIRs met the 99.9% criteria, but all FIRs except Chennai and Kolkata achieved a clearance rate of 99.0%.

3.22 The Required Communication Performance (RCP) 240 performance in the APAC region was generally robust in 2024, with most FIRs meeting or exceeding the 95% criteria for Actual Communication Performance (ACP) and Actual Communication Technical Performance (ACTP). However, performance against the 99.9% criteria showed greater variability, with several FIRs, including Kolkata, Kuala Lumpur and Manila, underperforming in at least one half of the year.

Progress on Issues Related to the Central Reporting Agency (CRA)

3.23 The FIT-Asia/15 noted the key roles and responsibilities of the CRA as outlined in Doc 9869, which include managing and analyzing Problem Reports (PRs), coordinating with relevant stakeholders, and supporting both regional and global monitoring activities. The CRA was also tasked with identifying performance deficiencies, issuing recommendations and maintaining a centralized database to ensure continued compliance with performance-based separation minima and the effectiveness of data link operations.

3.24 It was recalled that APANPIRG/34 had urged States to establish formal service agreements with APANPIRG-recognized CRAs, in accordance with Annexes 6 and 11. During FIT-Asia/14, discussions were held on the possibility of expanding the existing CRA service contract used in the Informal Pacific ATC Coordinating Group (IPACG), Informal South Pacific Air Traffic Services Coordinating Group (ISPACG), and North Atlantic (NAT) regions to include FIT-Asia States lacking formal CRA agreements. However, this initiative could not proceed due to unforeseen administrative changes, despite prior coordination, thereby impacting other States that had anticipated inclusion under the expanded arrangement.

3.25 In light of this, the FIT-Asia/15 acknowledged the need for affected States to engage directly with APANPIRG-recognized CRAs to fulfil performance monitoring requirements. Boeing, as FIT-Asia CRA, was encouraged to remain flexible and provide support throughout this coordination process. Several FIT-Asia member States that had not yet established a formal service agreement with the CRA took the opportunity to hold side meetings with Boeing to discuss potential formal service agreement.

Air Navigation Deficiencies Relating to Data Link Performance Monitoring and Analysis

3.26 Given that India had submitted the data link performance report for all the three FIRs, including Mumbai FIR, and completed annual *Survey of the Status of Current and Planned Implementation of Performance-Based Horizontal Separation Minima* form for 2025, the FIT-Asia/15 meeting agreed to the proposal to remove India from the APANPIRG ATM and Airspace Deficiencies list in the Data Link field, which would be proposed to RASMAG for further consideration.

RASMAG/30 Meeting Outcomes

3.27 The Monitoring Agency for the Asian Region (MAAR) presented a combined summary of the safety analysis results for the APAC region, on behalf of the Asia/Pacific Regional Monitoring Agencies (RMAs) and Enroute Monitoring Agencies (EMAs). The report was divided into the Pacific (PAC) area and Asia area. The full APAC Consolidated Safety Report could be found in **ATM/SG/13 WP/05 Appendix A.**

3.28 The estimated vertical collision risk for 2024 for the PAC area did not meet the Target Level of Safety (TLS) (**Table 3**).

Table 3: Pacific Area Vertical Collision Risk 2024

Pacific Area – annual flying hours = 3,727,882			
Source of Risk	**Risk Estimation**	**TLS**	**Remarks**
Vertical Technical Risk	0.22×10^{-9}	2.5×10^{-9}	Below Technical TLS
Vertical Operational Risk	15.33×10^{-9}	-	-
2024 Vertical Overall Risk	**15.53×10^{-9}**	5.0×10^{-9}	**Above TLS**

3.29 There was a total of 139 Large Height Deviations (LHDs) in PAC area, in 2024 (increased from 134 in 2023), with a total duration of 1,129 minutes and 75 levels crossed. 38 of the occurrences were Category[1] A, B or C (27%), 66 were Category D, E or F (47%), two were Category G or H (1%), 15 in Category I (11%), 17 were Category J or K (12%), and two were Category L or M (1%).

3.30 The estimated vertical collision risk for 2024 for the Asia area met TLS (**Table 4**). The overall risk continued to decline since 2017 due to various safety improvement initiatives and was below the TLS. There was a total of 763 LHDs reported in the Asia area in 2024 (decreased compared to 824 in 2023), with a total duration of 210 minutes and 225.2 levels crossed.

Table 4: Asia Area Vertical Collision Risk 2024

Asia Area – annual flying hours = 11,413,712 hours			
Source of Risk	**Risk Estimation**	**TLS**	**Remarks**
Vertical Technical Risk	0.70×10^{-9}	2.5×10^{-9}	Below Technical TLS
Vertical Operational Risk	1.29×10^{-9}	-	-
2024 Vertical Overall Risk	**1.99×10^{-9}**	5.0×10^{-9}	**Below TLS**

Hot Spots for RASMAG

3.31 RASMAG/30 agreed to classified three hotspots D1 (Fukuoka/Manila), D8 (Manila/Ujung Pandang) and J (Jakarta/Kota Kinabalu/Singapore) as potential non-hotspot due to decreasing risk and mitigation implemented. No new hotspots were proposed.

[1] Categories of LHD events as recognised by RMAs were:
Category A: Flight crew fails to climb or descent the aircraft as cleared;
Category B: Flight crew climbing or descending without ATC clearance;
Category C: Incorrect operation or interpretation of airborne equipment;
Category D: ATC system loop error;
Category E: Coordination errors in ATC-to-ATC transfer of control responsibility as a result of human factors issues;
Category F: ATC transfer of control coordination errors due to technical issues;
Category G: Aircraft contingency leading to sudden inability to maintain level;
Category H: Airborne equipment failure and unintentional or undetected level change;
Category I: Turbulence or other weather-related cause leading to unintentional or undetected change of flight level;
Category J: TCAS RA – flight crew correctly climb or descend following the RA;
Category K: TCAS RA – flight crew incorrectly climb or descend following the RA;
Category L: An aircraft being provided with RVSM separation is not approved;
Category M: Others.

Classification and Reporting for Non-Reduced Vertical Separation Minimum (RVSM) Approved Aircraft Operating in RVSM Airspace and Occurrences Caused by GNSS Radio Frequency Interference

3.32 MAAR provided some guidance to clarify the classification and reporting for both non-RVSM approved aircraft operating in RVSM airspace and occurrences caused by Global Navigation Satellite System (GNSS) Radio Frequency Interference (RFI).

3.33 LHD Category L scenarios involved situations where an aircraft was provided with RVSM separation despite not being RVSM approved. The possible scenarios that should be reported as LHD Category L. Several scenarios were provided and a mapping to the current LHD/Large Longitudinal Error (LLE)/Large Lateral Deviation (LLD) category was proposed.

3.34 However, after discussion, RASMAG/30 agreed to formation of a new LHD/LLE/LLD category for the classification of GNSS RFI occurrences leading to LHD/LLE/LLD. RASMAG/30 agreed to ***Conclusion RASMAG/30-1: New LHD/LLE/LLD Category 'R' for GNSS RFI occurrences in Asia and Pacific Region***.

3.35 RASMAG discussed the proposed revision of LLD reporting criteria in the Asia and Pacific Region, specifically considering the reduction of the current 10 NM threshold. Two previously proposed approaches: a 5 NM reporting threshold presented by Japan Airspace Safety Monitoring Agency (JASMA) and the comprehensive deviation reporting (all lateral deviations regardless of deviation magnitude) suggested by Pacific Approvals Registry and Monitoring Organization (PARMO).

3.36 Both methodologies presented valuable perspectives for consideration. In conclusion, the adoption of a 5 NM threshold for LLD reporting would align with existing ICAO standards while maintaining operational efficiency. As a result of discussions, RASMAG agreed that the criteria could be flexible, and agreed to ***Conclusion RASMAG/30-2: Large Lateral Deviation Reporting Criteria in Asia and Pacific Region***.

ATM and Airspace Safety Deficiencies List

3.37 RASMAG reviewed the APANPIRG ATM and Airspace Safety Deficiency List and agreed to make the following recommendation to APANPIRG/36, as recorded in Appendix E to the RASMAG/30 Report. The meeting was informed that the deadline for submission of information on the reduction of the remaining monitoring burden must reach MAAR and ICAO by 24 October 2025 in order to be processed in time for APANPIRG/36.

a) to be retained in the Deficiencies list:

<u>Safety Reporting Deficiencies</u>

- **Afghanistan** (Failure to submit Kabul FIR Large Height Deviation (LHD) data and traffic sample date (TSD)).

<u>Long Term Height Monitoring Requirement Deficiencies</u>

- **Afghanistan** (Remaining monitoring burden of 50%, RASMAG/30).
- **India** (Remaining monitoring burden of 46%, RASMAG/30).
- **Nepal** (Remaining monitoring burden of 45%, RASMAG/30).

b) removal of Deficiency:

Long Term Height Monitoring Requirement Deficiencies

- **Philippines** (Remaining monitoring burden of 22%, RASMAG/30).

Air Traffic Services (ATS) Datalink Deficiencies

- **India:** Post implementation monitoring not implemented (insufficient data/evidence). India had submitted the data link performance report for all the three FIRs, including Mumbai FIR in 2025.

c) add new Deficiency:

Safety Reporting Deficiencies

- **India** (Failure to confirm RVSM approval status and RVSM Approval Annual snapshot).
- **Nepal** (Failure to submit annual TSD on time and in correct format.

Long Term Height Monitoring Requirement Deficiencies

- **Democratic People's Republic of Korea** (Remaining monitoring burden of 100%, RASMAG/30).
- **Malaysia** (Remaining monitoring burden of 31%, RASMAG/30).

3.38 The Meeting was informed that the deadline for submission of information on the reduction of the remaining monitoring burden must reach MAAR by 24 October 2025, in order to be processed in time for APANPIRG/36. The Meeting noted that this recommendation reflects the current status as of RASMAG/30 and confirmed that, should accurate updates be provided by the deadline, ICAO would exclude such items from the recommendations to APANPIRG. Accordingly, relevant States/Administrations/Agencies were encouraged to submit any necessary updates by the specified deadline.

3.39 In response to a query regarding the changes arising from the two RASMAG Conclusions, ICAO clarified that the respective reporting forms would be updated.

3.40 IFALPA offered some suggestions to improve safety and efficiency that coordination amongst States and also with airspace users would be required for any reduction of lateral or longitudinal separation. In addition, introduction of new ATS routes would require the support of appropriate ATM technology.

3.41 Noting the challenges in establishing a formal service agreement with CRA, ICAO would assist in exploring options, including Boeing CRA, to mitigate the issues faced by India and other States/Administrations.

3.42 ICAO noted Pakistan's suggestion to include the new LHD/LLE/LLD Category 'R' for GNSS RFI occurrences in the Asia and Pacific Region in future RASMAG Safety Bulletins.

Application of ATC Separation Minimum (WP/06)

3.43 The Secretariat provided information on the Seamless ATM survey conducted to determine which Air Traffic Control (ATC) separation minima were being applied within the APAC region. The survey measured the minimum horizontal separation standard within State/Administration's FIR namely Category R, Category S and Category T airspace. The responses to the latest survey had increased slightly from 16 to 18 (compared to last reporting period).

3.44 The analysis of Q1 of the survey were presented separately for the three categories of airspaces namely Category R, Category S and Category T. The criteria used for the analysis of Q1 were as follows:

a) Category R – Acceptable standard: ≤ 50 NM

b) Category S – Acceptable standard: 5 NM

c) Category T – Acceptable standard: 5 NM

3.45 In the analysis, there were 11 States that utilised more than 5 NM in Category S airspace and three States that utilised more than 5 NM in Category T airspace.

3.46 The analysis of Q2 of the survey looked at three categories of separations at inbound FIR Transfer of Control (TOC) points shown below. The criteria used for the analysis of Q2 were as follows:

a) Category R/S → R TOC – Acceptable standard: ≤ 50 NM

b) Category R → S TOC – Acceptable standard: ≤ 50 NM

c) Category S → S TOC – Acceptable standard: ≤ 10 NM

3.47 The highest non-compliant TOC points, belong to Category S → Category S TOC points. Even with surveillance coverage, the separation minimum of more than 10 NM was currently implemented predominantly at TOC points in the APAC region.

Use of Digital Form for Status and Implementation Progress Report (WP/07)

3.48 The Meeting noted that the implementation status of ANS-related plans was reported using Microsoft Excel sheets (i.e. *Regional AIM Plan Monitoring and Reporting Form*, *Regional ATFM Plan Monitoring and Reporting Form*, *Regional ATM Contingency Plan Monitoring and Reporting Form* and *Regional SAR Plan Monitoring and Reporting Form*).

3.49 These reports were submitted via email for data collection. Upon the annual dateline of 28 February, tremendous work for ICAO was required to consolidate all the data. During the process, the data would be prone to human errors, such as duplicate entries, inconsistent formatting and data entry mistakes which could affect the accuracy of the subsequent analysis.

3.50 To streamline data collection and improve the efficiency of monitoring, analysis, and reporting processes, the Secretariat presented a proposal to replace traditional paper forms or Microsoft Excel sheets with digital forms at relevant meetings. Subsequently, these meetings formulated Draft Conclusions for consideration by ATM/SG/13:

a) the Fifteenth Meeting of the Air Traffic Flow Management Steering Group (ATFM/SG/15, Bangkok, Thailand, from 28 April to 2 May 2025) agreed on ***Draft Conclusion ATFM/SG/15-4: The Use of Digital Form to Collect Annual Regional ATFM plan Monitoring and Reporting Form and Regional A-CDM Monitoring and Reporting Scheme***;

b) the Tenth Meeting of the Asia/Pacific Search and Rescue Workgroup (APSAR/WG/10, Siem Reap, Cambodia, from 27 to 30 May 2025) agreed on ***Draft Conclusion APSAR/WG/10-3: The Use of Digital Form to Collect Annual Regional SAR Plan Monitoring and Reporting Data***; and

c) the Twentieth Meeting of the ICAO Aeronautical Information Services (AIS) – Aeronautical Information Management (AIM) Implementation Task Force (AAITF/20, Chitose, Japan, from 9 to 13 June 2025) agreed on ***Draft Conclusion AAITF/20-2: The Use of Digital Form to Collect Annual Regional AIM Monitoring and Reporting Data***.

3.51 The ATM/SG agreed to the following Conclusion:

Conclusion ATM/SG/13-3: The Use of Digital Form to Collect Annual Regional ANS-related Monitoring and Reporting Data

That, the digital form (Microsoft Forms) be used as the primary means to collect annual regional ANS-related plans monitoring and reporting forms and data.

3.52 The relevant reporting files available in the ICAO APAC Office eDocuments webpage would be revised accordingly.

Progress of the APAC Data Analytics Ad-Hoc Group (WP/08)

3.53 The Data Analytics Group (DAG) presented its second report to the ATM/SG covering the analysis for annual performance data from 18 airports across eight States/Administration and focused on eight KPIs as detailed below.

Table 5: Airports Participated in Data Analysis Exercise

State/Administrations	Participating Aerodromes
Australia	Brisbane Airport (YBBN) Melbourne Airport (YMML) Perth Airport (YPPH) Sydney Kingsford Smith Airport (YSSY)
China	Guangzhou Baiyun International Airport (ZGGG) Shanghai Pudong International Airport (ZSPD)
Hong Kong China	Hong Kong International Airport (VHHH)
Indonesia	Jakarta Soekarno–Hatta International Airport (WIII)
Philippines	Ninoy Aquino International Airport (RPLL)
Singapore	Singapore Changi Airport (WSSS)
Thailand	Bangkok Suvarnabhumi International Airport (VTBS)
United States	New York JFK Airport (KJFK) Chicago O'Hare International Airport (KORD) Dallas Fort Worth International Airport (KDFW) Houston George Bush Intercontinental Airport (KIAH) San Francisco International Airport (KSFO) Los Angeles International Airport (KLAX)

Table 6: 8 KPIs Reported by DAG

KPA	KPI	Variant	GANP KPI Code
Capacity	Airport peak capacity	Departure	KPI09-D
		Arrival	KPI09-A
Capacity	Airport peak throughput	Departure	KPI10-1D
		Arrival	KPI10-1A
Efficiency	Additional taxi-out time	Advanced	KPI02-2
Efficiency	Additional taxi-in time	Advanced	KPI13-2
Predictability	Departure punctuality	± 15 mins	KPI01-2A
Predictability	Arrival punctuality	± 15 mins	KPI14-2A

3.54 The analysis revealed that performance was highly correlated to the infrastructure and operating environment of each airport. Analysis across Key Performance Areas (KPAs) also revealed notable patterns and interdependencies. Such findings underscored the need for a balanced optimization approach, where improvements in one performance area were aligned with and supported outcomes in others.

3.55 To advance data analysis and performance measurement in the region, the DAG would expand performance measurement to include three additional GANP KPIs, i.e. KPI08 – Additional Time in Terminal Airspace; KPI11 – Airport Throughput Efficiency and KPI16 – Additional Fuel Burn. These metrics represented a progression beyond the initial eight basic KPIs. The DAG would discuss and refine the methodology for these three KPIs before starting measurement in 2026.

3.56 The DAG would broaden its focus beyond performance measurement to perform joint studies of cross-boundary nature. The DAG encouraged States/Administrations to participate in the work of DAG, and to share challenges and best practices to enhance the overall ATM performance in the region.

3.57 The Chairperson praised the DAG members for their efforts and accomplishments to date, and encouraged States/Administrations that had not yet joined the DAG to participate actively in its work and share best practices, aimed at developing data-driven solutions to improve overall ATM performance in the region.

Agenda Item 4: Air Navigation Service Deficiencies

Air Navigation Service Deficiencies List (WP/09)

4.1 ICAO presented the list of APANPIRG Air Navigation Deficiencies in the ATM and Airspace Safety fields. The Meeting agreed to the following change proposals for consideration by APANPIRG/36 and recorded in **Appendix E to the Report**, which also included RASMAG/30 recommendations.

a) non-compliance with Annex 2 requirements for designation of restricted areas:

   i) Australia's Deficiency deleted.

4.2 The Chairperson congratulated the States that had successfully completed their corrective action plans (CAPs), thus qualifying for removal from the APANPIRG Air Navigation Deficiencies list.

4.3 China informed the Meeting that they were currently working towards the removal of the deficiency related to the non-implementation of airspace classification requirements of Annex 11 Chapter 2 (ATM/SG/12 IP/09 referred). China also stated that they would provide further updates to ICAO regarding the progress of the CAPs.

4.4 ICAO informed the Meeting that email coordination with the Maldives was ongoing to resolve the deficiency related to the Aeronautical Information Services (AIS) Quality Management System (QMS). Further discussions were anticipated at the next Aeronautical Information Services – Aeronautical Information Management Implementation Task Force (AAITF) meeting, in 2026.

4.5 Regarding the deficiency recorded against Maldives for non-compliance with procedures specified in ICAO *Procedures for Air Navigation Services – Air Traffic Management* (PANS-ATM, Doc 4444) Section 11.4, it was reported that ATFM/SG/15 concluded that additional data was required to review the existing deficiency concerning missing departure (DEP) messages for Maldives. ICAO Secretariat also indicated that another data collection would be carried out later this year, and the results would be presented at the next ATFM/SG meeting in 2026.

4.6 The Meeting noted that India would provide the CAPs for non-compliance with Annex 2 requirements related to the designation of restricted areas to ICAO in due course, to support the removal of the deficiency.

4.7 Bangladesh highlighted a discrepancy in the reference to the relevant ICAO Annex concerning non-compliance with the aeronautical data area of responsibility requirements specified in **ATM/SG/13 WP/09 Appendix A**. ICAO would update the Appendix A to accurately reflect the correct reference to Annex 15.

Agenda Item 5: ATM Systems (Modernization, Seamless ATM, CNS, ATFM)

Regional Air Navigation Plan Update (WP/10)

5.1 The Secretariat presented an update on the progress of incorporating coordinate data for APAC FIRs and Search and Rescue Regions (SRRs) in the Regional Air Navigation Plan (ANP) Volume I. States should note that Doc 9673 did not provide a legal description of the FIRs in the first place, therefore, it was very important for States to understand that this process of checking, alignment and validation is crucial if they would like a formal basis for their FIRs.

5.2 The exercise to review the ANP with FIR and SSR coordinates should be based on ICAO historical records and not new proposal for changes. The Proposal for Amendments (PfA) process for FIRs and SRRs was now the same process of approval in the ANP Volume I (approval of the Council). Some States had submitted major amendments to their FIRs during the review process. These would only be considered if it was change that only affected the national airspace and not the neighbouring airspace or if all parties agreed with the change proposal before submission to ICAO.

5.3 The Meeting noted 30 FIRs and 15 SRRs PfAs were approved by the President of the Council and incorporated in the ATM Table I-1 of the ANP Volume I, and that there were issues in some areas affecting the resolution of FIRs/SRRs affecting progress and urged States/Administrations to provide updates of any bilateral/trilateral discussion of unresolved FIR boundaries.

5.4 Republic of Korea reiterated that the review of the FIR was based on ICAO historical records and not new proposal which echoed the essence of ATM/SG/13 WP/10 paragraph 2.6. It was highlighted that there was some discrepancy with the information concerning Incheon SRR data in the **ATM/SG/13 WP/10 Appendix C**. ICAO would update the Working Paper with the information consistent with APSAR/WG/10.

5.5 The United States updated that work was in progress to harmonize the four SRRs PfA with the existing two FIRs and would be resubmitted in due course.

5.6 In response to Pakistan's query concerning Lahore FIR PfA, India would review and reply accordingly.

5.7 China provided comments on the historical records of Chinese FIRs such as absence of China at the First Regional Air Navigation Meeting (RAN/1, 1973) and information in RAN/1 did not fully reflect China's statement and the PfA submitted by CAAC for Shanghai and Taibei FIRs was not a new proposal. The Republic of Korea commented that there was no proposal to change the east boundary of the Shanghai FIR during the RAN/2 in 1983. ICAO appraised the Meeting that the similar discussion was conducted in ATM/SG/11 and referred the Meeting to paragraph 5.6 and 5.7 of ATM/SG/11 report, which requested supporting evidence to be submitted to ICAO.

Implementation of Project 30/10 in Asia/Pacific Region (WP/11)

5.8 The Secretariat presented a proposal for the regional adoption of Project 30/10 in the APAC region, aimed to improve ATM by using more efficient longitudinal separation minimum between aircraft, in accordance with a ***AN-Conf/14 Recommendation 3.1/1: Project 30/10 – Optimized implementation of longitudinal separation minima***.

5.9 Acknowledging that further progress was needed to fully realize the objectives of Project 30/10 in the APAC region, the Meeting concurred on the necessity of developing regional action plans harmonized with adjacent regions. The Meeting subsequently endorsed the following Draft Decision:

Draft Decision ATM/SG/13-13: Establishment of APAC Project 30/10 Task Force

That, the APAC Project 30/10 Task Force be established to develop the Asia/Pacific regional roadmap that include, but not limited to, the following tasks:

a) a further comprehensive analysis of the current separation minima applied within the Asia/Pacific Administrations and between adjacent FIRs;

b) the identification of technical and operational enablers necessary for the successful implementation of Project 30/10, including reviewing and updating regional documents;

c) collaboration with adjacent regions to achieve harmonized implementation of Project 30/10; and

d) an assessment of training needs for controllers to effectively apply more efficient separation minima.

5.10 In response to a query, the Chairperson clarified that this Task Force would be responsible for developing the regional roadmap for implementing Project 30/10 in the APAC region. This roadmap would serve as the primary reference document for APAC States/Administrations, as well as the SAIOSEACG, BOBTFRG and SCSTFRG.

5.11 The draft TOR of the Task Force was included in **ATM/SG/13 WP/11 Appendix A**, and would be further discussed at the Task Force's inaugural meeting. The Meeting noted Thailand's suggestion that the TOR should include coordination and collaboration with other related APANPIRG contributory bodies.

5.12 China expressed support for the establishment of the Task Force and committed to contributing to its work. China also emphasized the importance of developing a comprehensive regional roadmap for the implementation of Project 30/10, including a review of ATM automation systems capabilities, fleet equipage for Performance-based Navigation (PBN) and Performance-based Communication and Surveillance (PBCS), and ATC training, as well as the airspace structure, complexity and traffic density.

Outcomes of CNS SG/29 (WP/12)

5.13 ICAO provided an update on the main outcomes from the CNS SG/29. CNS SG/29 had endorsed ***Draft Decision CNS SG/29/06 (SWIM TF/10/02) – Adoption of APAC Common SWIM Information Services, v1.0*** and ***Draft Conclusion CNS SG/29/07 (SWIM/TF/10/03) – Asia/Pacific Regional FIXM version 4.3 Extension*** formulated by SWIM TF/10 for APANPIRG/36 adoption.

5.14 The Meeting was presented with the relevant review of APAC Common SWIM Aeronautical Information Services, relevant services review would be tasked to the APAC Common SWIM Aeronautical Information Services Ad-hoc Group, and would accordingly share the review results with SWIM TF.

5.15 The Meeting agreed to task the APAC Common SWIM Aeronautical Information Services Ad-hoc Group, APAC FF-ICE Ad-hoc Group and ATFM/SG, to establish mechanism to conduct regular review of the APAC Common SWIM Information Services document, and notify the SWIM TF of any changes to existing business requirements identified in the document or the introduction of new ones related to ATM/SG.

5.16 The Meeting tasked the APAC Common SWIM Aeronautical Information Services Ad-hoc Group and APAC FF-ICE Ad-hoc Group to establish a regional migration strategy and timeline for transitioning to the ATM information exchange via SWIM, with the support from ATFM/SG.

5.17 The Meeting noted the suggestion made by CNS SG/29 for improvement of the ICAO Asia/Pacific Seamless ANS Reporting Tool.

5.18 CNS SG/29 discussed the recommendation on the management and implementation of cybersecurity provisions and endorsed the ***Decision CNS SG/29/14 – Creation of ANS Information Assurance Task Force (ANSIA TF)*** aimed to ensure consistent implementation of the requirements of ANS information security in the APAC region.

5.19 The Meeting was informed on the List of Recommendations curated during the ICAO APAC Radio Navigation Symposium (New Delhi, India, 07 – 09 April 2025) with the objectives of identifying gaps and offering insights to address the evolving challenges posed by GNSS RFI in terms of technological, procedural and human-centric aspects of mitigation and would refer the corresponding relevant items for the Procedures for GNSS and Data Link Disruption Ad-hoc Group for further discussion.

Air Traffic Flow Management Steering Group Outcomes (WP/13)

5.20 The ATFM/SG Chairperson and Secretariat presented the outcomes of the Fifteenth Meeting of the Air Traffic Flow Management Steering Group (ATFM/SG/15, Bangkok, Thailand, 28 April – 2 May 2025) and sub-regional cross-border ATFM programs and subsequent updates after the ATFM/SG/15.

5.21 The Meeting noted the ATFM Implementation Status 2025, that nine States/Administration, viz., Australia, Cambodia, China, Hong Kong China, Japan, Republic of Korea, Singapore, Thailand and the United States were assessed as having "Robust" implementation. Australia, after ATFM/SG/15, had changed the ATFM implementation status from Tier A to Tier B as they would no longer implement cross-border ATFM.

5.22 The Meeting noted the progress update of the Asia/Pacific Cross-Border Multi-Nodal ATFM Collaboration (AMNAC) sub-regional ATFM program and the developments in the collaboration process of North Asia Regional ATFM Harmonization Group (NARAHG), and the developments regarding reactivation of Bay of Bengal Cooperative ATFM System (BOBCAT) to address traffic congestion issues arising from Kabul FIR contingency.

5.23 The Meeting noted the information about operational capacity assessment guidelines for proactive ATFM at Incheon International Airport during snowfall and the ATM/SG adopted the following Conclusion:

Conclusion ATM/SG/13-4: Addition of Appendix to the Asia/Pacific Regional Framework for Collaborative ATFM

That, the Operational Capacity Guidelines from Republic of Korea to be added as an appendix to the next update Asia/Pacific Regional Framework for Collaborative ATFM.

5.24 The Meeting noted the trial reporting of A-CDM implementation status. The ATFM/SG/15 agreed to normalize the trial reporting form to be adopted as the *Asia/Pacific Regional A-CDM Monitoring and Reporting Scheme* into the annual reporting framework. The Meeting adopted the following Conclusion:

Conclusion ATM/SG/13-14: **Normalization of Asia/Pacific Regional A-CDM Monitoring and Reporting Scheme**

That, the trial Asia/Pacific Regional A-CDM Monitoring and Reporting Scheme to be normalized as part of the annual reporting framework.

5.25 The Meeting noted the ***Draft Conclusion ATFM/SG/15-2*** regarding adoption of AFTN/AMHS based Interface Control Document (ICD) Version 2.0 for collaborative ATFM. The Meeting was informed that ICAO Secretariat would submit the draft conclusion to Aeronautical Communication Services Implementation Coordination Group (ACSICG) in 2026, for consideration and subsequent approval by CNS SG.

5.26 The ATFM/SG/15 noted the updates on FIXM version 4.3 Extension development to support cross-border ATFM operations, A-CDM, ATFM/A-CDM integration, and traffic synchronization in the APAC region. The ATFM/SG/15 acknowledged that upon successful validation, the Regional FIXM version 4.3 Extension would be proposed for adoption by SWIM TF.

5.27 The ATFM/SG/15 was informed on the recommendations for the change process of the FIXM version used for cross-border ATFM information exchange in a SWIM environment as assigned by ATFM/SG/14. The ATFM/SG/15 endorsed the proposed change process of the FIXM version, and subsequently the SWIM TF/10 meeting in May 2025 shared its agreement to the draft change management process.

5.28 The ATM/SG adopted the following Conclusion:

Conclusion ATM/SG/13-5: **Change Process of the FIXM Version Used for Asia/Pacific Cross-Border Operational ATFM System-to-System Information Exchange in SWIM**

That, the change process for the Cross-Border FIXM Operating Version be:

a) submit the proposed change to the FIXM version, in the form of Working Paper, to ATFM/SG for review and assessment of its operational impacts and suitability in supporting regional operational requirements;

b) upon adoption by ATFM/SG, submit the proposal to SWIM TF for review and assessment of its technical implications; and

c) following agreement by SWIM TF, submit a summary of the change proposal to ATM/SG for approval, and subsequently to APANPIRG for endorsement;

and the content of change proposal be:

a) name of State(s) or collaboration group, including the specific names of organizations, proposing the change;

b) proposed FIXM version;

c) reason(s) for the proposed change(s);

d) testing result of the proposed version; and

e) proposed timeframe for the change to take effect (a minimum lead time of 2 years is required);

to be adopted as a regional process for revision of FIXM version for cross-border ATFM information exchange.

5.29 The Meeting noted the discussions regarding review of *Regional ATFM Concept of Operations* and the ***Decision ATFM/SG/15-6*** on the establishment of APAC ATFM Concept Design Ad-hoc Group. The Meeting was informed that subsequent to ATFM/SG/15, APAC ATFM Concept Ad-hoc Group was established with membership nominated from 11 States/Administration, CANSO, IATA and IFATCA. The Ad-hoc Group was expected to deliver a draft revised *Regional ATFM Concept of Operations* for adoption by ATFM/SG/17 in 2027.

5.30 ICAO Secretariat presented details of the business functionality of APAC Common SWIM Information Services proposed by SWIM TF. ATFM/SG was asked to provide comment and input to the portion of APAC Common SWIM Flight Information Services, specifically the "ATFM/A-CDM integrated service" and "Traffic flow status service". The Meeting noted that subsequently, ICAO shared the feedback received from States to the SWIM TF/10 in May 2025.

Proposal for Modification of Name of ATFM Steering Group to ATFM & A-CDM Steering Group (WP/14)

5.31 The Meeting was informed that Asia/Pacific Airport Collaborative Decision Making Task Force (APA-CDM/TF) was functioned from 2017 to 2020. The Task Force developed the *Asia/Pacific A-CDM Implementation Roadmap* in 2020. Noting that the APA-CDM/TF had achieved its objectives and accomplished most of the tasks assigned under its TOR, APANPIRG/32 adopted ***Decision APANPIRG/32/1 (AOP/SG/5-4): Dissolution of the APA-CDM/TF***. Any further work in the A-CDM field be undertaken by the ATFM/SG, and the revised ATFM/SG TOR was subsequently adopted.

5.32 The Meeting was informed that it had been observed that the participation of experts from airport operators and A-CDM had not been encouraging in the ATFM/SG meetings. To encourage participation of appropriate individuals with operational experience of airport and A-CDM operations from States/Administrations, it was proposed to change the name of the ATFM/SG to ICAO Asia/Pacific ATFM and A-CDM Steering Group (ATFM & A-CDM/SG). The Meeting was informed that the proposal for name change had been discussed among ATFM Points of Contact (POCs) from APAC States/Administrations and had full agreement.

5.33 The ATM/SG discussed and adopted the following Draft Decision:

Draft Decision ATM/SG/13-11: Modification of Name of ATFM Steering Group (ATFM/SG) to ATFM and A-CDM Steering Group (ATFM & A-CDM/SG)

That,

1. the name of the ICAO Asia/Pacific Air Traffic Flow Management Steering Group (ATFM/SG) changed to the ICAO Asia/Pacific Air Traffic Flow Management and Airport Collaborative Decision Making Steering Group (ATFM & A-CDM/SG); and

2. the Terms of Reference (TOR) be amended to reflect the Steering Group name change (**Appendix F to the Report**).

5.34 The Chairperson urged States/Administrations to actively encourage their airport operators and A-CDM experts to participate in upcoming ATFM & A-CDM/SG meetings.

Initiative on Establishing a Collaborative Operational Mechanism for Regional Air Traffic Flow Management in the Asia/Pacific Region (WP/15)

5.35 China, on behalf of contributing States and Administrations, presented details of an initiative to establish a collaborative operational mechanism for regional ATFM. The mechanism aimed to operate within the *Asia/Pacific Regional Framework for Collaborative Air Traffic Flow Management* and seeks to mitigate challenges including information latency and coordination deficiencies.

5.36 The Meeting was informed about the discussion on the subject in AAC/3 and AAC/4 meetings and noted the operational objectives and operating principles of the collaborative operational mechanism. The Meeting also noted the components and contents of the collaborative mechanism via regular and ad-hoc web conferences. The Meeting was informed about the ATFM coordination calls and plans for operationalization by September 2025. The Meeting also took note of the research initiative to deep dive into long-term regional ATFM needs, review principles and rules.

5.37 It was noted that the objectives and initial steps for collaboration are similar to the ongoing sub-regional ATFM programs such as AMNAC and NARAHG.

5.38 The Meeting appreciated the initiative and supported participation of service providers and airspace users in the initiative. However, the Meeting expressed concerns about duplication of efforts and utilization of scarce operational resources among different sub-regional ATFM programs. It was commented that it was necessary to ensure that the initiative complements the ongoing regional ATFM programs such as bi-weekly MS Teams meeting and provides valuable inputs to effective regional ATFM harmonization.

5.39 China clarified that the initiative was a result of the AAC/3 and AAC/4 meetings, and the participation in the initiative was voluntary. The initiative aimed to focus the collaborative efforts towards the less addressed regions for ATFM.

5.40 The Meeting recommended that the participating States/Administrations share the details of the mechanism in the Sixteenth Meeting of ATFM Steering Group (ATFM/SG/16), which was the appropriate forum for discussion on such subject. The Chairperson also recommended that the contributing States report the discussion to ATM/SG/14.

Different Approaches for Cross-Border Air Traffic Management (IP/02)

5.41 The paper presented an overview of operational structures and challenges in cross-border ATFM, including a select set of examples of existing organizations for, and categories of, cross-border ATFM as implemented in States/Administrations around the globe. The paper notes the different levels of ATFM organizations such as Hierarchical ATFM Organization, Centralized ATFM Organization and Collaborative ATFM Organization. The paper also explores the major categories of cross-border ATFM and associated practices.

5.42 The information was part of the I APAC ATFM Concept Design Ad-hoc Group's efforts to update the current *Asia/Pacific Regional ATFM Concept of Operations*.

A-CDM in Australia (IP/03)

5.43 The Meeting was informed that Airservices, in partnership with major airline and airport customers on behalf of industry, is midway through the implementation of A-CDM at Australia's four busiest ports – Brisbane, Perth, Sydney, Melbourne. The Meeting noted that A-CDM would be delivered through a staged rollout, one airport at a time, with all four airports expected to be operational by late 2025.

5.44 The paper presented the experience of A-CDM implementation in Australia at two airports, Brisbane and Perth. The paper noted the approach to A-CDM, implementation challenges, performance and compliance achieved so far, early benefits and future development.

Outcomes of ICAO APAC Airport and Airspace Capacity Assessment Workshop (WP/16)

5.45 The ICAO APAC Airport and Airspace Capacity Assessment Workshop was hosted by AirNav Indonesia at the Yogyakarta, Indonesia, from 02 to 05 June 2025, and attended by 87 participants from 12 APAC States/Administrations and four international organizations. The workshop information, presentations and Q&A were available on ICAO APAC Office website at https://www2023.icao.int/APAC/Meetings/Pages/2025-Capacity-Assessment-WS.aspx.

5.46 The Meeting noted that participants of the workshop had appreciated the valuable insights gained from the workshop and had invited ICAO to organize more events aimed at supporting APAC States/Administrations in the development and implementation of airport and airspace capacity assessments.

5.47 The Meeting also noted that ICAO had presented a draft *Regional Guidance for Assessment of Airport Capacity and Airspace Capacity* to support States/Administrations in conducting airport and airspace capacity assessments, during the workshop.

5.48 The Meeting was informed that the draft regional guidance document would be further developed in consultation with the ATFM POCs of APAC States/Administrations. The updated draft regional guidance document would be presented and discussed at ATFM/SG/16 in April 2026.

Challenges Arising from Airspace Restructuring in Japan and their Solutions (WP/17)

5.49 The Meeting was presented with Japan's challenges in its airspace restructuring project in Fukuoka FIR from 2020 to 2025. After transition, Fukuoka FIR was sectorized into high-altitude airspace (above FL335) to be responsible by Fukuoka Area Control Centre (ACC); low-altitude airspace for eastern Japan to be responsible by Tokyo ACC; and the low-altitude airspace for western Japan to be responsible by Kobe ACC.

5.50 Fukuoka FIR experienced more than expected delays and flow control issues in its upper airspace sectors since its restructuring into high and low altitude sectors. These issues stemmed from an increase in the number of flights and the amount of time aircraft spent in the upper sectors, driven by airlines using smaller, more frequent aircraft and improved aircraft performance allowing for faster climbs and higher cruising altitudes. To address the situation, a simulation was conducted to determine a new ceiling altitude for the lower sectors. The results showed that by raising the ceiling altitude to FL415, flow control in the upper sectors would no longer be necessary.

5.51 As a result of the ceiling change, despite the daily traffic volume in the high- and low-altitude sectors in Fukuoka FIR increased, the number of flights subject to flow control and the total delay time decreased significantly. This highlighted how changes in air traffic demand, such as the increased use of smaller aircraft and improved aircraft performance, could lead to traffic imbalances.

5.52 Japan expressed the plan to introduce dynamic sectorization in line with the Collaborative Actions for Renovation of Air Traffic Systems (CARATS) 2040 plan, which would involve ceiling altitude changes, horizontal shape changes of airspace and Dynamic Airspace Configurations (DAC).

5.53 The Chairperson congratulated Japan on its initiatives to enhance airspace capacity and efficiency, and subsequently encouraged States/Administrations planning airspace restructuring to approach Japan for sharing experiences, best practices and lessons learned. The Republic of Korea invited Japan to share its lessons learnt as the Republic of Korea was planning for airspace restructuring.

Update of National Air Navigation Plan and Governance Plan for the Organization (IP/04)

5.54 Japan provided information regarding the updated version of the national air traffic plan, CARATS 2040 to meet the evolving traffic demands of the aviation industry and modern society with goals set in six areas: safety and security, airspace utilization, convenience, operational efficiency and environment, stability and reliability and international.

5.55 Japan also introduced on the Domain Identity of ANSP Management Over the Next Decades 2040 (DIAMOND 2040) plan to review and strengthen organizational structures and systems for better human resources development and more attractive workplace in conjunction with CARATS initiatives.

Preparation for ATC Operation of the Fifth Runway at Guangzhou Baiyun International Airport (WP/18)

5.56 China presented on the final stage of expansion project of Guangzhou Baiyun International Airport which consisted of the construction of the fifth runway and new Terminal 3. Guangzhou Airport was scheduled for five-runway operations in October 2025.

5.57 China presented on the new runway allocation methodologies to ensure surface movement efficiency. Stand-Based Strategy would allocate runway that was close to the parking stand reducing the taxi distance; and Transfer Point-Based Strategy would allocate runway that was close to the transfer point in the air reducing airborne traffic conflicts.

5.58 China was coordinating with Guangzhou Airport to explore the feasibility of optimizing the Instrument Landing System (ILS) protected area and holding positions exploring ways to narrow down the ILS protected area and optimize Type B runway holding positions within the regulatory framework, which aimed to shorten the taxi distance and to reduce operational risks by preventing undesirable entry into the protected area.

5.59 China also presented on the prospected runway operation modes for Guangzhou Airport. After commissioning, the new fifth runway would be used for both landing and take-off. Three runways for take-off and three for landing would be one of the operational modes during five parallel runway operations, which might lay the foundation for enhancing capacity and efficiency.

5.60 The Chairperson commended China’s efforts and recommended China to share the experience of this project and operational procedures to other APANPIRG contributory bodies.

5.61 Hong Kong China appreciated China’s presentation and invited China to share experience especially on mode of runway operations and terminal airspace operations with multiple runway operation.

5.62 IFALPA raised the concern on potentially overly complicated arrival and departure procedures, which might create confusion for pilots. China responded that measures had been taken to ensure possibility of confusion to be kept minimum.

Introduction to China Civil Aviation Administration's Work on Preventing Runway Incursion (IP/05)

5.63 Noting critical aviation safety risk of runway incursions, China presented their proactive efforts in preventing runway incursion by implementing comprehensive strategies through the development of extensive regulatory guidance materials, establishment of runway incursion prevention capability assessment system and promotion of new technological application in various ATC tower units.

5.64 China also shared experience in reinforcing awareness through a safety education campaign, including the distribution of safety posters to all control tower units to keep prevention efforts top-of-mind within the workforce.

Terms of Reference and Progress Update of the ICAO Asia/Pacific Flight and Flow Information for a Collaborative Environment (FF-ICE) Ad-hoc Group (WP/19)

5.65 This paper presented the draft TOR for the Asia/Pacific Flight and Flow Information for a Collaborative Environment (APAC FF-ICE) Ad-hoc Group and its progress update, including outcomes from its second workshop conducted in March 2025 and the development of the *Asia/Pacific Regional FF-ICE/R1 Implementation Framework*.

5.66 Since its establishment in 2023, the Ad-hoc Group had conducted activities to raise the region's understanding of FF-ICE and discuss implementation topics. To support the Ad-hoc Group in meeting its established objectives, ATM/SG agreed to the TOR for the APAC FF-ICE Ad-hoc Group.

Decision ATM/SG/13-15: Adoption of APAC FF-ICE Ad-hoc Group Terms of Reference

That**,** the APAC FF-ICE Ad-hoc Group Terms of Reference at **Appendix G to the Report** be adopted.

5.67 The Ad-hoc Group held its second workshop at the ICAO APAC Office in Bangkok, Thailand from 18 to 20 March 2025, and a proposed regional implementation framework to address FF-ICE/R1 implementation issues, including technical and operational aspects specific to the APAC region scope for the framework was discussed. Key topics included the six FF-ICE/R1 services, mixed-mode environment, re-evaluation process, implementation monitoring, framework update cycle and post-implementation process.

5.68 Selected topics were further discussed to achieve consensus on the details for inclusion within the implementation framework covering the following:

a) Three FF-ICE/R1 Services to Support FPL2012 Sunset;

b) Flight Plan Submission and Dissemination;

c) Translation Services;

d) Filing Status under Filing Service;

e) Implementation Timeline; and

f) Implementation Monitoring.

5.69 The Third workshop of the APAC FF-ICE Ad-hoc Group was planned to be conducted at ICAO APAC Office in Q4 2025. The workshop would focus on reviewing and discussing the draft regional implementation framework content. Following the endorsement of the regional implementation framework, the Ad-hoc Group could be dissolved and replaced with an APAC FF-ICE/R1 Implementation Task Force, to support FF-ICE/R1 implementation efforts in the region.

5.70 In response to a query, ICAO assured that the third workshop of the FF-ICE Ad-hoc Group would review the draft regional implementation framework, but did not imply that the Ad-hoc Group would be dissolved following the completion of the workshop.

Progress of the Asia-Pacific Trajectory-Based Operations Pathfinder Project (WP/20)

5.71 The Meeting was appraised of the progress the Asia-Pacific (APAC) Trajectory-Based Operations (TBO) Pathfinder Project ("Pathfinder"). Pathfinder project involved the ANSPs of China, Hong Kong China, Indonesia, Japan, New Zealand, Philippines, Singapore, Thailand, the United States and Viet Nam, along with CANSO and IATA.

5.72 Three workgroups (WGs) were formed, namely (WG1 – Learning and Advocacy, WG2 – TBO Trials and Capabilities Built-up and WG3 – Benefit Analysis and TBO Roadmap) to focus on specific goals and deliverables, and the key progress were reported.

5.73 In conclusion, for TBO to succeed and to deliver its anticipated benefits, all the parts of TBO would need to interact effectively. TBO must be defined, developed and deployed in a harmonized manner, with a roadmap that serves as a pathway for the region. These activities and outcomes undertaken by the three WGs of the Pathfinder project would be shared at ICAO and other international forums to support the definition, development and deployment of TBO in the region.

TBO Validation Achievements of China (WP/21)

5.74 After the successful completion of the first Initial 4D Trajectory (i4D) trial flight in the APAC region in March 2019, China conducted a series of initial TBO validations in 2022, within the Shanghai Terminal Maneuvering Area (TMA). The validation focused on three key aspects based on existing onboard avionics capabilities and data link infrastructure: precise time control through integrated air-ground coordination, intent sharing and runway misalignment prevention and data link ATC services.

5.75 The results covered three areas:

a) avionic systems;

b) air-ground data link communication network; and

c) ATC information system.

5.76 A dual-aircraft TBO simulation platform was built in a lab setting in 2024. This new platform integrated flight simulators with ATC automation systems, trajectory visualization guidance on the crew side, and data link airport systems, and it could simulate the full process of the Urumqi–Beijing Daxing dual-aircraft TBO validation. A validation was conducted on 30 December 2024, and the results validated the technical feasibility of TBO application using existing avionics capabilities on commercial flights.

5.77 In terms of TBO application strategy, the operational phase covered the entire flight cycle, with specific TBO strategies proposed for each ATC task. During the transition phase, a hybrid model combining TBO and non-TBO operations had been proposed, which were supported by technical policies and feasibility validations based on existing avionics and air-ground data link networks.

5.78 In response to queries, China explained that the TBO operations could be conducted with current airborne systems such as Controller-Pilot Data Link Communications (CPDLC) via Aircraft Communications Addressing and Reporting System (ACARS), and an upgrade would be required for future developments. China was also requested to present and share these achievements to a wider audience including the appropriate ICAO fora.

Development of Trajectory-Based Operations (TBO) Roadmap for Inclusion into the APAC Seamless ANS Plan in support of a Harmonised Implementation in APAC (WP/22)

5.79 This paper proposed an Asia-Pacific (APAC) TBO roadmap for inclusion into the *Asia/Pacific Seamless ANS Plan* that would provide guidance for States/Administrations in the region with a pathway towards the implementation of TBO.

5.80 The primary objective of the TBO roadmap was to guide States/Administration to progress incrementally towards the future of having a fully implemented TBO environment. The content of the proposed TBO roadmap took references from the work done at the global level through the relevant ICAO Technical Panels of the Air Navigation Commission (ANC) to ensure interoperability with other regions. The roadmap also considered the relevant progress made on enablers for TBO in the APAC region, such as SWIM and FF-ICE, taking into account the work of the APANPIRG contributory bodies.

5.81 Adopting from the framework developed by ICAO ATM Requirements and Performance Panel (ATMRPP), the APAC TBO roadmap would focus on Levels 1 and 2 for now, using similar descriptions of the detailed capabilities and relevant use cases for this region. It provided guidance by identifying relevant ASBU elements and implementation timelines for each TBO capability level.

5.82 The proposed TBO Roadmap could be incorporated into the *Asia/Pacific Seamless ANS Plan* in a new chapter between Chapter 6 *Current Situation* and Chapter 7 *Performance Improvement Plan*. In order to guide States/Administrations with the planning of TBO implementation, the required ASBU elements to achieve the various TBO levels should be reflected within the current Chapter 7 *Performance Improvement Plan* as well.

5.83 The target implementation timeline considered the milestones of the two key building blocks to enable TBO, i.e. SWIM and FF-ICE, that coincided with the capabilities required for TBO Level 1. To accommodate the TBO implementation blocks, aligning with the regional SWIM implementation target of 2030 and the regional FF-ICE/R1 implementation target of 2032, it would be necessary to extend the Performance Improvement Plan within the *Asia/Pacific Seamless ANS Plan* by adding Phase VI (November 2031), maintaining the regular three-year duration from the previous phases. Further phases (beyond Phase VI) could be included in the future.

5.84 With the proposal for the new chapter and the addition of Phase VI, there would be consequential amendments to other sections of the *Asia/Pacific Seamless ANS Plan* to ensure consistency, such as amendments due to the addition of Phase VI, amendments pertaining to ASBU elements and the removal of references to TBO Thread and TBO Tree.

5.85 With the global developments on the TBO Capability Level Framework, and the regional progress on related building blocks such as SWIM and FF-ICE, it was timely for the APAC region to have a TBO roadmap to provide a harmonized pathway to guide States/Administrations on the implementation of TBO. The roadmap would ensure interoperability within the region and with other regions as it would align the global developments.

5.86 The Meeting agreed to the following Conclusion:

Conclusion ATM/SG/13-6: **TBO Related Revisions for the Asia/Pacific Seamless ANS Plan**

That, noting the need for harmonized implementation planning of Trajectory-based Operations (TBO) to guide States/Administrations in this region, that

1. the TBO roadmap (as per ATM/SG/13 WP/22 Appendices A to E) be incorporated into the 2026 revision of the *Asia/Pacific Seamless ANS Plan*; and

2. a new Phase VI be included in the *Asia/Pacific Seamless ANS Plan* to enable reference to the TBO levels.

Mitigation Measures to Avoid Confusing Callsigns in Indian Airspace (WP/23)

5.87 India highlighted the causes and impacts of call sign confusion in this paper and shared some initiatives to mitigate this matter in India. The paper further called for ANSPs in the APAC region to:

a) explore the possibility of upgrading ATM automation systems to enable the handling and display of alphanumeric callsigns in all relevant operational positions;

b) promote regional and global coordination initiatives to harmonize the recognition and use of alphanumeric call signs, especially for cross-border traffic;

c) explore the possibility of using Artificial Intelligence (AI) and/or Machine Learning (ML)-based automated tools to proactively detect and resolve similar/confusing call signs before flight plan approvals and during tactical operations;

d) implement reporting mechanisms for callsign confusion incidents; and

e) conduct regular training and awareness programs for controllers, flow management personnel, and relevant CNS/ATM/Operations (Slot Allocation) teams on the safety criticalities and mitigation of call sign confusion.

5.88 Airlines, ACI, CANSO, IATA and other relevant international bodies were recommended to adopt clear, easy-to-pronounce alphanumeric call signs to reduce radio congestion. They would also use AI tools to prevent call sign conflicts and provide training to flight crews on communication clarity and reporting issues.

5.89 The Meeting expressed strong support for this paper given that many APAC States/Administrations also experienced the same issue, and this paper would assist to mitigate the hazard.

5.90 In response to a query, India clarified that the current ATC system could only detect same call sign, instead of similar call sign, and could display an alert to the controllers.

5.91 Other mitigations were shared by Philippines and Viet Nam, such as the use of suffix to differentiate the similar call signs, call sign numbering for local airlines was determined by the direction of flight and the development of in-house system to detect similar call signs.

5.92 ICAO reminded the meeting of ***Conclusion APANPIRG/31/11: Alphanumeric Call Sign Initiative*** endorsed by ATM/SG/8 and AOP/SG/4, which was still valid. This Conclusion called for leading ANSPs and aerodrome operators, in coordination with CANSO and ACI, were urged to consider a trial to identify and overcome any barriers for the implementation of alphanumeric call signs, with a view to developing a project for the APAC region. In addition, there was a current mechanism for APANPIRG and APAC Regional Aviation Safety Group (RASG) to coordinate on various matters including alphanumeric call sign similarities.

5.93 IFALPA suggested that pronounceability of call sign would also be a factor to be considered and offer that the pilot community would be ready to participate in the discussion of initiatives relating to this matter. The Chairperson encouraged relevant stakeholders to consider organizing a workshop for alphanumeric call sign initiative for the benefit of the region.

Improving the Effectiveness of Pilot – Controller Communication by Collaboration between the Operators and ANSPs (WP/24)

5.94 In past few years, IATA and Air Traffic Management Bureau (ATMB) of Civil Aviation Administration of China (CAAC) had carried out a series of activities addressing the issue of 'pilot-controller communication', such as an operator survey on ATM operations during thunderstorms and a review meeting of the phraseologies in ATM Emergency Response Procedures.

5.95 In addition, an in-person workshop was delivered from 14 to 15 November 2024, at IATA Beijing Office. The workshop covered different operational topics and scenarios including Operation during Thunderstorms, Aircraft Emergency Response and Communications, Flexible Use of Airspace, Runway Safety and Ground Operations and Operational Efficiency and Technology.

5.96 IATA and CAAC/ATMB planned to renew the memorandum of understanding (MOU) between the two parties on technical cooperation in 2025, aimed at strengthening the cooperation and collaboration between the international pilots and Chinese controllers on the operator survey and annual conversations, workshops, etc.

5.97 There was a request for sharing more details of the operator survey, content of the workshop and to open the invitation of future workshops to controllers of other APAC States/Administrations.

Importance of ATC Readback and Hearback (IP/06)

5.98 Pakistan emphasized on the importance of proper ATC readback and hearback to ensure safe and effective communication. Pakistan enacted Annex 11 by integrating the standards into national regulations and developed a guidance material for the ANSP through an Air Safety Circular.

5.99 To verify compliance and improve safety, Pakistan developed a system including a checklist for ANSPs to randomly assess controller and pilot readback performance, as well as a separate checklist for ANS Inspectors. These tools were being used to check for discrepancies by listening to recorded radiotelephony in various control units to promote adherence to readback and hearback protocols.

Spectrum Resilience: Balancing Spectrum Efficiency with Aviation Safety (WP/25)

5.100 IATA presented the challenges posed by new telecommunication technologies like 5G and 6G, which threaten to interfere with critical aircraft systems such as radio altimeters. It was emphasised that interference-free access to the aeronautical frequency spectrum be crucial asset for flight safety and operational efficiency. It highlighted the disparity between the rapid innovation cycle of the telecommunications industry and the slower development of new avionic systems, which must be addressed proactively.

5.101 It was noted that more resilient equipment would not be widely available for years, creating a critical gap. The international nature of aviation posing inconsistent national regulations were not an effective long-term solution, as they could compromise both safety and efficiency across borders.

5.102 IATA informed the Meeting that global strategy to engage on minimising impacts of telecommunications utilizing bandwidth adjacent to aviation frequencies was being developed. A key message would underline the economic value of aviation to relevant governing bodies.

5.103 IATA requested ICAO to continue organizing interactive workshops with the support of States, aviation organizations, and industry, with special attention given to the continued protection of aeronautical safety services.

5.104 Singapore commented the issues related to spectrum resilience often spanned across multi-domains other than aviation, with spectrum-related decisions often made in forums such as World Radiocommunication Conference where aviation's needs might not be comprehensively considered. India concurred with the comment and expressed that different States would have different mitigation methods, expecting the issues would be on-going as spectrum resources are limited. The Secretariat supplemented that after consulting with the CNS Section of the ICAO APAC Office, States/Administrations subject matter experts (SMEs) were encouraged to participate in the relevant ICAO fora, including the upcoming Assembly, Frequency Spectrum Management Panel (FSMP) and ICAO Asia/Pacific Spectrum Review Working Group meetings, as well as the International Telecommunication Unions (ITU) meetings, to raise global and multidomain awareness.

Trial Operation of Data Link ATC Services in Middle-South Regional Air Traffic Management Bureau of CAAC (WP/26)

5.105 China presented the trial operation of data link ATC services to alleviate communication congestion and boost operational safety and efficiency in the Middle-South Region of China. Since 2019, multiple trial operations had been conducted on various information services such as Landing Runway and Arrival Procedure information for Guangzhou Baiyun International Airport and Weather Deviation Information in Adverse Weather Conditions for Zhengzhou ACC.

5.106 The purpose of the trial operation was to ensure the datalink communication being reliable and stable, as well as to validate the latency being acceptable.

5.107 China commented the air-ground data link ATC services been well-received by airlines with a total of over 70,000 minutes voice communication time saved by over 450,000 data link messages. IFALPA commented that the response time for air crew and ATC should also be taken into account in assessing the efficiency of data link usage especially on CPDLC.

5.108 Through the trial, China shared the challenges of data link latency issue and the limited equipage of next-generation onboard communication technologies like CPDLC would hinder the further application. Thailand shared that the data communication costs might impede utilization of data link communications regardless of the aircraft equipage.

GNSS Radio Frequency Interference (RFI) (WP/27)

5.109 IATA informed the Meeting of the increasing safety and operational risks caused by GNSS RFI. It was observed that interference, particularly in geopolitically unstable regions, had become more frequent and widespread, threatening navigation accuracy, situational awareness, and air traffic management. The Meeting recognized that GNSS outages had led to diversions, re-routes, and increased workload for pilots, controllers, and airline operations centres. It was emphasized that the heavy reliance on GNSS complicated contingency planning and magnified the consequences of interference.

5.110 The Meeting further noted IATA's call for a coordinated, multi-faceted approach to mitigate GNSS RFI. This included enhanced monitoring and reporting, international cooperation on source identification, stricter regulation of jamming devices, strengthened spectrum management, and development of more resilient avionics. The importance of contingency planning, pilot and ATC training, and investment in alternative positioning, navigation, and timing (APNT) technologies was also underlined. The Meeting was invited to endorse these measures and to urge States/Administrations to accelerate national and international initiatives to address GNSS RFI.

5.111 The Meeting noted the sustained efforts of ICAO expert groups to address GNSS RFI. It was recalled that the ATM/SG had established an ad-hoc group in 2024 to collect data on GNSS and data link disruptions in the APAC region, and to develop related procedures, including reporting by airspace users and information-sharing among stakeholders. Regional guidance for States would be developed. The absence of civil-military coordination mechanisms was acknowledged, and the need for closer cooperation with military bodies was recognized, with further discussion anticipated.

5.112 Hong Kong China shared their works on infrastructure assessment on alternative procedures using DME/DME/IRU, and called for practical, regionally implementable solutions, prioritizing safety and the optimization of cross-border conventional navigation aids to ensure resilience during outages. Reference was made to leveraging proven international models to support regional coordination.

5.113 CANSO published guidance on the Minimum Operational Network (MON) approach, providing contingency capability but not intended as a replacement for GNSS. Collaboration between neighbouring ANSPs, including bilateral agreements under the ICAO framework, was recognized as essential for cost-effective implementation and shared use of navigation aids.

Impact Assessment of GNSS RFI (WP/28)

5.114 Pakistan informed the Meeting of the importance of assessing the impact of GNSS RFI at both aerodrome and airspace levels. Pakistan reported on the need for operators and ANSPs to evaluate existing infrastructure, conduct gap analyses, and identify mitigation measures using assessment tools. A case study was presented using Karachi aerodrome to illustrate how existing CNS infrastructure could support resilience against GNSS interference.

5.115 The Meeting acknowledged that such impact assessments allowed States/Administrations and ANSPs to evaluate the robustness of MON, identify requirements for additional procedures, and strengthen resilience through conventional navigational aids. While impact assessments could not replace formal safety risk assessments, they provided valuable opportunities to anticipate risks and introduce mitigation measures. The Meeting was invited to share best practices, support regional workshops, and requested ICAO to provide further guidance on conducting impact and safety assessments related to GNSS RFI.

5.116 The Meeting noted that a related seminar had been conducted in April 2025. Further workshop proposed by ATM/SG could be considered in consultation with the CNS Section. It was suggested that such a workshop might be held in conjunction with ATM/SG following the completion of the Procedures for GNSS and Data Link Disruption Ad-hoc Group's work, with outcomes to be shared.

Progress of the Procedures for GNSS and Data Link Disruption Ad-hoc Group (WP/29)

5.117 The Meeting recalled the establishment of the Procedures for GNSS and Data Link Disruption Ad-hoc Group during ATM/SG/12. The Ad-hoc Group was tasked with collecting data on disruptions, developing procedures, and establishing reporting and information-sharing mechanisms. SMEs from ten States and three international organizations had been nominated, and preparatory meetings had produced a draft TOR. However, due to unforeseen circumstances, the nominated Rapporteur was unable to continue, thus the first plenary meeting was cancelled. Following consultations, Singapore agreed to assume the role of Rapporteur to lead the Ad-hoc Group.

5.118 The Meeting further noted that GNSS and data link disruptions continued to present significant regional concerns, requiring the work of the Ad-hoc Group to be accelerated. It was highlighted that agreement was needed on the modalities, meeting frequency, and a detailed schedule leading up to ATM/SG/14 in 2026.

5.119 The Meeting agreed to accelerate the work and encouraged other interested States/ Administrations to join and contribute to the Ad-hoc Group.

Requirement to Amend Transition Altitude Establishment Criteria in PANS-OPS Volume III (Doc 8168) (WP/30)

5.120 Pakistan informed the Meeting of the requirement to review the criteria for establishing transition altitude in PANS-OPS (Doc 8168), noting that the existing provisions dated from the 1960s. It was observed that many States in the APAC region had adopted medium transition altitudes significantly higher than 3,000 ft above aerodrome elevation, reflecting operational, safety, and efficiency considerations.

5.121 Pakistan expressed that low transition altitudes posed risks in terrain clearance, added cockpit workload during critical phases of flight, and constrained airspace management in busy terminal areas. It was emphasized that higher transition altitudes provided improved safety margins, supported continuous climb and descent operations under PBN, and enhanced overall efficiency.

5.122 It was further observed that harmonization of transition altitudes at national and regional levels was increasingly practised, with several States aligning transition altitudes across their entire airspace. Pilot forums had also expressed preference for higher transition altitudes to reduce unnecessary workload. The Meeting noted that more than half of APAC States/Administrations implemented medium-level transition altitudes.

5.123 The Meeting noted India's observation that PANS-OPS did not mandate a transition altitude of 3,000 feet and that States/Administrations could determine levels based on local conditions. India also raised concerns about safety implications for aircraft overflying aerodromes in close proximity with differing QNH values. Pakistan clarified that Doc 8168 required the transition altitude to be as low as possible, but not less than 3,000 feet, and emphasized that harmonization of transition altitudes and the application of regional QNH were recommended to ensure safety.

5.124 The Meeting agreed to formally refer this matter to ICAO HQ for further deliberation.

Higher Airspace Operations (HAO) (IP/12)

5.125 India provided information regarding the increasing development of HAO globally, especially in Europe and the United States. It was noted that there was a growing need for HAO regulations due to technological advancements and a rise in the number of vehicles using higher airspace for commercial services. It also covered challenges related to the vertical limit of the higher airspace and the integration of air traffic and space traffic management. A collaborative effort would be necessary to evolve relevant standards and guidance material on complex HAO operations in the coming years.

Agenda Item 6: ATM Coordination (Meetings, Route Development, Contingency Planning)

SAIOSEACG Meeting Outcomes (WP/31)

6.1 The Meeting reviewed the outcomes of the Fourth Meeting of the South Asia, Indian Ocean and Southeast Asia ATM Coordination Group (SAIOSEACG/4, Bangkok, Thailand, 18 – 21 March 2025), highlighting progress on key regional ATM priorities. These included Project 30/10 for longitudinal separation reduction, the advancement of Free Route Airspace (FRA), readiness for FF-ICE implementation, TBO, regional contingency planning, and addressing GNSS RFI. ICAO also presented the plan to reactivate the BOBCAT in response to increasing demand on South Asia–Europe routes, and ongoing operational challenges and possible mitigation strategies in the Kabul FIR.

6.2 ICAO provided updates on the latest activities and achievements of the South China Sea Traffic Flow Review Group (SCSTFRG) and Bay of Bengal Traffic Flow Review Group (BOBTFRG). Within the SCS region, efforts to implement reduced longitudinal separation on ATS routes such as A1, A202, L642, and M771 were acknowledged, along with proposals for parallel routes. In the BOB region, similar efforts were noted for routes such as L510, P574, P628, and N571. Additional progress included the implementation of PBCS and space-based ADS-B trials, and the ongoing activities were discussed. In addition, India and Malaysia had been progressing their operational experiences and highlighted challenges due to uneven automation across FIRs, underscoring the need for improved cross-border coordination and procedural harmonization.

6.3 Member States were encouraged to continue supporting route enhancement initiatives and strengthening operational coordination. ICAO reaffirmed its commitment to facilitating regional cooperation for ATM improvements.

6.4 The Meeting also noted updates and comments from States on **ATM/SG/13 WP/31 Appendix A**. ICAO would review the information and upload the revised version on the meeting website. In addition, India requested ICAO's assistance to address the issue with increased longitudinal separation with Yangon FIR interface.

Data-Driven and Performance-based Case Study on Improving Airspace Efficiency and Capacity (WP/32)

6.5 This paper presented the ongoing project and case study led by IATA focused on improving airspace efficiency and capacity through data-driven analysis. The project aimed to develop a methodology for comparing existing airspace structures with proposed optimizations, highlighting key metrics related to flight efficiency and environmental impact. The current case study concentrated on the Europe-Asia interface FIRs, which were significantly impacted by rapid traffic growth, geopolitical tensions and airspace constraints.

6.6 The project involved several key steps, including real data collection and analysis, statistical modelling, interviews with key stakeholders (airspace users, ANSPs, airport operators, CAAs), and technical visits to key facilities. A white paper would be drafted, incorporating findings from these activities and utilizing industry-recognized metrics, such as ICAO GANP KPIs, to measure the benefits of proposed solutions. Industry review and validation workshops would be conducted to gather feedback and to refine the recommendations. The Meeting noted the timeline as provided in the Working Paper.

6.7 The Meeting noted that IATA would continue discussions with States/Administrations and ANSPs in the APAC region and would keep stakeholders informed of the project's progress through upcoming meetings and workshops.

Regional ATM Contingency Planning and Contingency Operations Update (WP/33)

6.8 The Secretariat presented information on ATM contingency planning in the APAC region, including an update of State-reported implementation of the performance expectations of the *Asia/Pacific Region ATM Contingency Plan*. A brief outline of ATM contingency operations in the APAC region since the last report to ATM/SG/12 was also provided.

6.9 The Meeting noted that, according to ICAO analysis of information provided by APAC States/Administrations, only nine reported a "Robust" implementation status of the *Asia/Pacific Region ATM Contingency Plan*, while another nine reported a "Marginal" implementation. Additionally, 17 States had not submitted any implementation status reports to the ICAO APAC Office.

6.10 The Meeting recalled that the East Asia and North Pacific Contingency Coordination Team (CCT) was established in 2007 as a coordination mechanism involving States and international organizations in the event of a major disruptions or emergencies that might affect the safety of civil air navigation operations within the relevant airspace.

6.11 Currently, the POC List for the East Asia and North Pacific CCT was maintained separately from the consolidated ATM Points of Contact List (**ATM/SG/13 WP/55** referred). To promote streamlined communication, minimize the risk of missed or duplicated messages, and ensure that the appropriate contacts were reached promptly, ATM/SG agreed to the following Conclusion:

Conclusion ATM/SG/13-7: Consolidation of the East Asia and North Pacific Contingency Coordination Team POC Details with the ATM Points of Contact List

That,

1. the contact details of the East Asia and North Pacific Contingency Coordination Team POC be consolidated with the ATM Points of Contact List; and
2. concerned States and international organizations ensure that their contact details are current and verified.

6.12 The Secretariat presented the status updates on Kabul FIR Contingency Operations. Recognizing the need to enhance the airspace capacity to accommodate increased in traffic operating through Kabul FIR, the Kabul FIR CCT had agreed on a phased implementation of the revised Kabul FIR contingency arrangement.

6.13 **Figure 2** illustrated the comparison of flight levels arrangements before and after the implementation of Phase 1 of the revised Kabul FIR contingency arrangement, which took effect on 11 August 2025.

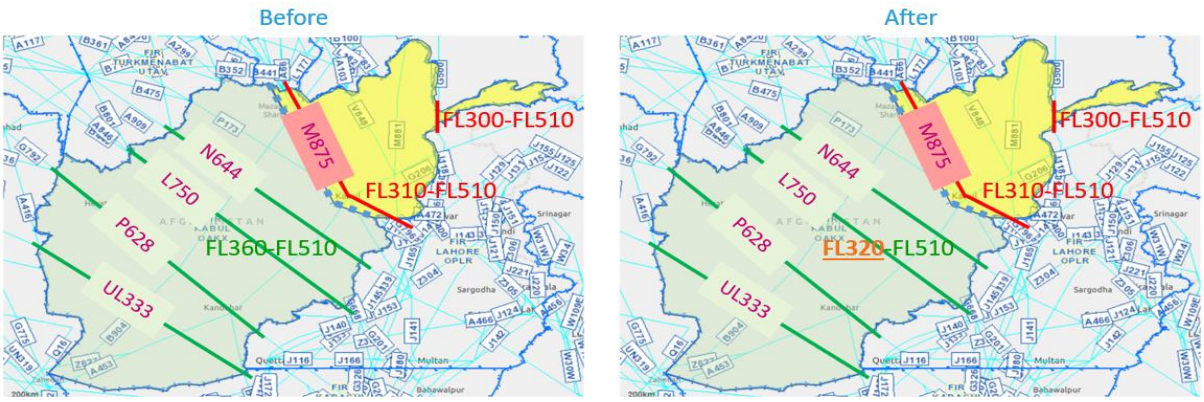

Figure 2: Revised Kabul FIR Contingency Arrangements – Phase 1 Implementation

6.14 The Meeting was informed about the planned resumption of the BOBCAT ATFM procedures to support the Kabul FIR contingency arrangement. Effective from 4 September 2025, all westbound flights intended to enter the Kabul FIR between 2000 UTC and 2359 UTC daily on affected ATS routes and flight levels shall comply with the BOBCAT ATFM procedures contained in relevant States' AIP.

India-Pakistan Airspace CCT – Lessons Learnt

6.15 The Meeting was informed that a CCT was established by the ICAO APAC Office for closure of ATS route segments within the Indian and Pakistan airspaces due to military exchanges, affecting around 250 daily flights. Key lessons learnt highlighted the importance of maintaining regular communication with ICAO, sharing current information for effective contingency planning, and ensuring civil and military authorities understand their international obligations to coordinate hazardous activities, and provide contingency services as needed, in accordance with ICAO standards to mitigate risks and ensure safe, efficient air traffic.

6.16 The Chairperson highlighted that many States/Administrations had not met the performance expectations of the *Asia/Pacific Region ATM Contingency Plan* and urged States/Administrations to take necessary actions. This included reporting the status of their implementation of the plan's performance expectations at least once annually, no later than 28 February each year.

6.17 In response to an inquiry regarding deficiencies being raised to States/Administrations for non-compliance with ICAO standards on ATM Contingency Planning (Annex 11, section 2.32), ICAO commented that this matter would be considered at the next ATM/SG meeting.

Proposal for the Development of a Level 2 ATM Contingency Plan in the Northeast Asia (WP/34)

6.18 The Republic of Korea presented a proposal regarding the development of a Level 2 ATM Contingency Plan in the Northeast Asia region. The plan was intended for implementation in the event of disruption, or potential disruption, to ATS and associated support services within the affected airspace.

6.19 This initiative was aligned with paragraph 7.8 of the *Asia/Pacific Region ATM Contingency Plan Version 3.0*, which stipulated that Level 2 contingency arrangements should be formalized for all cases where the pre-activation or activation of a Level 1 ATM Contingency Plan would impact upon ATS within the area of responsibility of a neighbouring State. This requirement underscored the necessity of bilateral and/or multilateral coordination to ensure a harmonized and timely response to potential disruptions.

6.20 The Meeting was also presented with the proposed contingency routes structures for the Incheon FIR, which provided segregated entry and exit points at the FIR boundaries to ensure safety and efficiency during contingency situations. These proposed structures were expected to facilitate further discussions on the development of a Level 2 ATM Contingency Plan in the Northeast Asia region.

6.21 Japan provided support to collaborate on developing a Level 2 ATM Contingency Plan for Northeast Asia region.

6.22 China informed the Meeting that they had been actively working on establishing Level 2 Contingency Plan with neighbouring States and Administrations, in accordance with the ICAO provisions. China recommended that discussions on specific details be continued either under the framework of the AAC or through the China-ROK ATM/CNS bilateral meetings. This approach aimed to jointly develop a harmonized plan that aligns with actual operational scenarios.

6.23 IFALPA suggested all concerned States to implement harmonized contingency arrangements to create safe and efficient operational environment. IFALPA also encouraged all the concerned States to conduct multilateral meetings in a collaborative manner.

6.24 The Chairperson concluded by thanking the concerned States for their productive discussions and encouraged continued collaboration, including consultations with international organizations, in the development of the Level 2 ATM Contingency Plan.

Enhancing Operational Continuity: Jakarta ACC AMHS Disruption, Mitigation Measures, and Path Forward (WP/35)

6.25 This paper presented the recent disruption of the Automatic Message Handling Service (AMHS) at Jakarta ACC, which impacted the international exchange of ATS messages. Immediate mitigation measures were taken by Indonesia in coordination with regional ATS units, including Brisbane and Singapore ACCs, ensuring continued ATS message distribution through alternate methods. This event highlighted the importance of a robust contingency plan and collaborative measures to ensure operational continuity and regional interoperability in similar situations.

6.26 To enhance system resilience and reduce the risk of single points of failure, Indonesia was establishing a secondary international AMHS connection via Ujung Pandang ACC. Indonesia planned to update its Letter of Coordination Agreement with Singapore and Brisbane ACCs to include provisions for managing system disruptions and high-latency message distribution.

6.27 The event underscored the important lesson that States/Administrations should consider including such provisions when updating their respective Letters of Agreement, to ensure continued system integrity and communication effectiveness.

Tropical Cyclone Alfred – Contingency Activation (WP/36)

6.28 The Meeting was presented on the Tropical Cyclone Alfred which had significantly impacted air traffic operations in the Brisbane and Gold Coast regions of Australia. The cyclone prompted the activation of contingency plans and preparations for a possible full evacuation of air traffic control facilities. The storm caused considerable damage to southeast Queensland and northeastern New South Wales.

6.29 In response to the impending threat, the Crisis Management Team (CMT) was established and met multiple times daily to coordinate information flow between various stakeholders, including meteorology, network operations, and technical services. Contingency plans were enacted, with some enroute and TMA sectors being affected on multiple occasions. Efforts were made to inform neighbouring ANSPs, re-route international flights and prepare for a potential relocation of Brisbane ATS capabilities to Melbourne. While evacuation was not required for Brisbane facilities, the Gold Coast Tower was evacuated due to strong winds.

6.30 The Meeting thanked Australia for sharing its valuable lessons, emphasizing the critical need for robust and adaptable ATM contingency plans to maintain safe and efficient air navigation during any disruption to ATS, including MET-related events.

6.31 The Chairperson encouraged all States/Administrations to prioritize establishing, regularly updating, and disseminating comprehensive ATM contingency plans for effectively managing aircraft operations during contingency events.

Enhancing Collaborative Contingency Planning – Lessons from Lewotobi Volcano Eruption Response in Indonesia (WP/37)

6.32 Indonesia presented their experience in managing the Lewotobi Volcano eruption's impact in early 2025. The eruption produced volcanic ash plumes that reached FL642, affecting several flight paths to and from airports in the region. The event highlighted the significant threat volcanic eruptions pose to aviation safety and operational continuity in the APAC region.

6.33 The response to the Lewotobi eruption was coordinated through multi-agency collaboration. Key actions included the issuance of SIGMETs and volcanic ash advisories by the Darwin Volcanic Ash Advisory Centre (VAAC Darwin), temporary airport closures, and airspace re-routing. The Directorate General of Civil Aviation (DGCA) issued safety directives and liaised with the ICAO APAC Office. AirNav Indonesia implemented dynamic airspace management, re-routing plans and coordinated NOTAMs. Daily virtual coordination meetings ensured shared situational awareness and timely decision-making.

6.34 The paper provided key lessons learnt from the response, including the importance of early detection and warning through real-time monitoring, rapid dissemination of advisories, integrated operational decision-making based on CDM principles, and pre-existing contingency arrangements. It also underscored the need for enhanced inter-agency and cross-border collaboration, as volcanic ash did not respect national boundaries.

6.35 India acknowledged the importance of the ATM contingency plan, cross-border ATFM and CDM, in ensuring operational continuity and flight safety during disruptions. India shared information about the aerodrome emergency plan, similar type of exercises could be considered for airspace contingencies to ensure preparedness for actual disruptions.

Enhanced Civil Military Cooperation in ATM for the Safe and Optimal Use of Airspace (WP/38)

6.36 The Secretariat reminded the Meeting that Civil-Military Cooperation in ATM (CMAC), particularly the Flexible Use of Airspace (FUA) was one of the key elements of GANP for the enhancement of airspace capacity, operational efficiency and environmental sustainability. Given that the APAC region was expecting rapid growth in the coming years, while at the same time the region had not achieved a mature level of CMAC, the subject remained one of the highest priorities in the *Asia/Pacific Seamless ANS Plan* and *Delhi Declaration*. Continuous efforts devoted by both the States/Administrations and ICAO to this area were considered essential.

6.37 Despite the major challenges confronted, accumulated experiences and progress had been achieved by APAC States/Administrations. ICAO provided implementation support through regional workshops/seminars on CMAC/FUA and would continue the efforts.

6.38 To better understand the progress on CMAC and FUA implementation in the region with reference to relevant ICAO framework, a survey on CMAC/FUA implementation would be circulated via a State Letter in due course. The outcomes of this survey would constitute a solid foundation for the States/Administrations to conduct further gap analysis and for ICAO to better understand the needs of the region, and provide effective support to strengthen the implementation.

6.39 An inter-regional workshop on enhanced CMAC and FUA implementation would be held in Bangkok, Thailand, from 19 to 23 January 2026, co-hosted by ICAO APAC Regional Sub-Office (RSO) and EUR/NAT Office. Designed as an in-person event to foster active participation and interactive discussions, it would offer practical guidance through tabletop exercises and case studies, addressing key regional concerns such as high-level frameworks, joint civil-military coordination, FUA airspace design, safety assessments, performance evaluation, and system interoperability. Civil and military personnel from APAC States/Administrations were encouraged to attend and share their experiences. For more details, contact Ms. Ying Zhang at yingzhang@icao.int.

6.40 The Chairperson emphasized the key role of CMAC and FUA in GANP in terms of airspace capacity, operational efficiency and environmental sustainability. The Chairperson encouraged States/Administrations to complete the upcoming ICAO survey on CMAC/FUA implementation and to support the workshop and facilitate military counterparts' participation.

6.41 IATA expressed their willingness for continuous support of the workshop and would facilitate participation from member airlines to provide inputs on CMAC including the upsurging GNSS RFI concern. The Chairperson praised IATA's support for the event and encouraged States/Administrations to ensure participation of their military counterparts.

6.42 The Chairperson also advised States/Administrations who require a tailored workshop should contact ICAO APAC RSO, at apac-rso@icao.int, for more information.

Collaborative Efforts to Manage Danger Area over High Seas (WP/39)

6.43 The Republic of Korea informed the Meeting of the establishment of the danger area ZS(D)006 across the boundary of the Incheon and Shanghai FIRs. According to China AIP, the area was designated for ground-to-air firing and activated by NOTAM. The Republic of Korea highlighted such establishment had not been shared in advance and suggested that earlier coordination in line with ICAO Annexes 11 and 15 would be beneficial for ensuring the safety of civil aviation operations.

6.44 The Meeting noted that the Republic of Korea had implemented monitoring measures, though no NOTAMs on activation had been received since the area's establishment, raising concerns over safety risks for civil aviation.

6.45 The Meeting further noted the Republic of Korea's commitment to fulfilling its ICAO responsibilities in managing the Incheon FIR, and its call for bilateral discussions with China to resolve the issue. It was emphasized that uncoordinated establishment of danger areas over high seas undermined aviation safety and contravened Annexes 11 and 15. The Meeting recognized the need for greater international cooperation to ensure that danger areas over high seas were only established through proper coordination and agreement among the concerned States.

6.46 China informed the Meeting that the Working Paper had been uploaded late and that the danger area concerned had never been used, remained inactive, and would be notified through NOTAM if to be activated. China suggested to discuss the matter bilaterally with the Republic of Korea.

6.47 The Republic of Korea further explained that the danger area published by China overlapped with danger areas published by the Republic of Korea over the same area since 2023. Therefore, the Republic of Korea requested for the danger area ZS(D)006 to be removed from Incheon FIR in accordance with the paragraph 2.1.2 of Annex 15. The Republic of Korea commented that they were continuously monitoring the status of ZS(D)006 to ensure the safety of civil aviation.

6.48 India and IFALPA expressed concerns over the lack of prior notice and urged corrective measures in line with international standards. India emphasized the need for remedies and cooperation to prevent uncoordinated danger areas.

6.49 The Meeting further noted ongoing efforts to address complex airspace issues and its consideration of future deficiency, while acknowledging the deep concern of airspace users. There was general consensus on the critical need for coordination and collaboration when establishing danger areas over the high seas, in consultation with international organizations to assess potential impacts.

6.50 China indicated its willingness to engage in further discussions with the Republic of Korea on this issue through their ATM/CNS bilateral meetings.

Rocket Launch Danger Area Coordinates Mismatch (WP/40)

6.51 IATA informed the Meeting of observed mismatched rocket launch danger area coordinates between adjacent FIRs. Such discrepancies often arose during coordination of airspace closures and the publication of NOTAMs, creating operational confusion and ambiguity for pilots and dispatchers. The Meeting observed that this situation increased workload and introduced potential risks of misinterpretation across FIR boundaries.

6.52 The Meeting further noted that mismatches had been partly caused by some ANSPs unilaterally added supplementary buffer areas to danger zones as a precaution. While the intent to enhance safety was acknowledged, it was emphasized that the Launching State bore the responsibility for defining danger areas through comprehensive risk assessments, which already included safety margins. Unilateral modifications might undermine clarity and consistency.

6.53 The Meeting recognized the importance of strengthened pre-launch coordination and harmonized publication of danger areas to ensure clarity and reduced risk. It noted India and the Philippines' concerns on the additional buffer zone added by some States while initiating the NOTAM. India commented that the content in the Working Paper conveyed the intent appropriately and that the Launching State, in accordance with established international practices, be responsible for ensuring the adequacy of the defined danger areas.

6.54 The Meeting further noted the availability of ICAO and regional guidance, including ***Conclusion ATM/SG/9-4: Management of Danger Areas situated over the High Seas***, and encouraged States to implement these materials.

6.55 It was agreed that ICAO would coordinate the agenda and timing of future workshops, with hosting left open to volunteer States.

Asia Pacific Region ATS Route Catalogue (WP/41)

6.56 ICAO provided the latest updates of the *Asia/Pacific Region ATS Route Catalogue*. It had been continuously reviewed since 2004, helping track current and future regional air traffic needs. The latest update (Version 24.4) integrated recent feedback and coordination outcomes from BOBTFRG/6, SAIOSEACG/4, and SCSTFRG/13, aimed at improving operational efficiency, environmental performance, and cross-regional connectivity.

6.57 ICAO shared the key updates included revised or new proposals for ATS routes such as MEKONG 01–03, SCS11, SEA12, and BOB03, alongside ongoing coordination for EUR–APAC interface routes. China and Viet Nam reaffirmed the A1 parallel route as a priority, while new technical meetings were planned between China, Lao PDR and Thailand. Proposals involving cross-border coordination were also emphasized due to increasing traffic and evolving technical requirements.

6.58 IATA noted a significant traffic increase in certain FIRs between EUR and APAC, and proposed new ATS routes accordingly. Progress was acknowledged on RNAV 2 or RNAV 10 routes in the Bay of Bengal while technical assessments are ongoing to address operational constraints such as danger-area proximity and navigation specifications.

Update on South-East Asia-Oceanic Implementation of Free Route Operations (FRTO) Project (WP/42)

6.59 This paper presented an update on the operational trials conducted by the South-East Asia-Oceanic Implementation of Free Route Operations (SEA-O FRTO) project team under the AAC Workstream 4. This project involved four ANSPs and four airlines.

6.60 The trial combined several existing and emerging User Preferred Routes (UPRs) programs and enhanced their potential efficiencies primarily through cooperation of neighbouring ANSPs to create a larger volume of access and remove constraints of tracking points at FIR boundaries. Effectively 'connecting' the FIRs of the ANSPs provided opportunity for UPR flights to be planned for maximum distance with minimal restriction between 37 agreed city-pairs.

6.61 Early progress update of benefits had included positive feedback, particularly for flights Manila-Sydney and Manila-Brisbane. It was noted that flights to/from Indonesia had the least opportunity to benefit, and even some Singapore services didn't show significant benefit due to seasonal wind patterns, whereas the overflying traffic could take full advantage. There were significant savings were reported for HKG city-pair.

6.62 The data results and lessons learnt from the trial would be utilized by the project team to develop future guidance material to encourage and support other ANSPs to transition to FRTO environment in the future, thus supporting regional expansion of the capability. The guidance material would be developed for targeted endorsement by the AAC in 2026.

Measures to Enhance Safety and Efficiency on A593 within Incheon FIR (WP/43)

6.63 Republic of Korea presented to the Meeting the measures to enhance airspace safety and efficiency in the SADLI-LAMEN segment of ATS route A593. Measures were proposed to mitigate the LHD occurrences and continued growth of traffic volume on A593 including adjustment of transfer of control points (TCPs) and the measures of Phase 2 of A593 Normalization Plan, which were the establishment of ATS Inter-facility Data Communication (AIDC), establishment of triple routes and reduction of longitudinal separation, etc.

6.64 The Republic of Korea delegated a portion of airspace between SADLI and LAMEN of A593 to China and Shanghai ACC was providing ATS for that airspace. According to Annex 11, the Republic of Korea was responsible for the oversight to the delegated airspace. The Republic of Korea had sent correspondence to China to discuss this issue in January 2022. China expressed its expectation to improve safety and efficiency of air navigation services through cooperation in its response in October 2022. However, no further response afterwards.

6.65 In April 2025, there was an agreement on the LHD event sharing mechanism between China and the Republic of Korea. There was an improvement on safety monitoring over the delegated airspace. However, it was not sufficient to oversee overall airspace safety, as it is limited to the LHD events.

6.66 In this regard, it was proposed for China to share safety oversight information on the delegated airspace, such as reports on the non-compliance to ICAO provisions, safety performance analysis, safety risks and hazards with the Republic of Korea.

Suggestions for Enhancing the Safety and Efficiency of FUKUE-AKARA Corridor Operations (WP/44)

6.67 In October 2018, the ICAO Council facilitated the establishment of the AKARA Corridor Technical Working Group (TWG) during the Thirteenth ICAO Air Navigation Conference (AN-Conf/13). Through five TWG meetings and multiple bilateral/trilateral, China, Japan and the Republic of Korea reached consensus on the two-phase Corridor optimization.

6.68 Phase 1 was implemented on 25 March 2021, which the airspace structure, operational methods and procedures west of the 125°E longitude line in the Corridor remained unchanged. Shanghai ACC established coordination procedures with Incheon ACC and continued to apply radar vectoring for eastbound flights to provide lateral separation. The Phase 2 optimization for the Corridor, previously scheduled for implementation in June 2021, was not carried out due to multiple reasons, such as the COVID-19 pandemic.

6.69 In light of continued growth trend of east-west flight flows, some suggestions were proposed including removing operational altitude restrictions in the Corridor and advancing airspace structure optimization of the Corridor. The Meeting noted China's non-acceptance for the westward shift of the TCPs which was inconsistent with the consensus reached.

6.70 China expressed that at current stage the AIDC implementation conditions were not met. Only after the route structure and operational optimization were finalized, both States could further consider conducting AIDC testing and reducing longitudinal separation.

6.71 Discussions for WP/43 and WP/44 were batched together as follows:

a) Japan opined that discussion to reduce longitudinal separation would require further discussions and was ready to support the implementation of Phase 2 as agreed by consensus. In addition, Japan was also ready to support FLAS removal and triple routes and thus requested for more details of the status and future plans;

b) In response to a query, the Republic of Korea explained that the removal of the FLAS would be conducted only after Phase 2 implementation according to the agreement signed in 2020;

c) China clarified that the Phase 2 would contain parallel routes and would provide more details to Japan;

d) China and the Republic of Korea would maintain an open and cooperative approach, ready to continue advancing Phase 2 implementation with bilateral/multilateral meetings; and

e) China and the Republic of Korea agreed to the Chairperson's suggestion to present a joint paper of the progress of Phase 2 implementation to ATM/SG next year.

Agenda Item 7: AOP, AIM, MET, SAR

AOP Subgroup Outcomes (WP/45)

7.1 The Secretariat informed the Meeting of the outcomes of the Ninth Meeting of the Aerodrome Operations and Planning Sub-Group (AOP/SG/9, Bangkok, Thailand, 30 June – 4 July 2025). The Meeting noted that the AOP/SG had reviewed the recommendations of the APAC Common SWIM Aeronautical Information Services Ad-hoc Group, including the adoption of Aeronautical Information Exchange Model (AIXM) 5.1.1 and dual exchange patterns. Several States expressed interest in joining the Ad-hoc Group, and the Secretariat was to follow up on the nomination of SMEs.

7.2 The Meeting also noted discussions on the publication of the status of aerodrome certification in AIP AD 1.5, in accordance with Annex 14, *Procedures for Air Navigation Services - Aerodromes* (PANS-Aerodromes, Doc 9981) and the *Procedures for Air Navigation Services—Aeronautical Information Management* (PANS-AIM, Doc 10066) provisions. It was observed that several States had yet to comply fully, while few States had published the information in different sections of the AIP. States/Administrations were encouraged to align with the recommended template.

7.3 The Meeting acknowledged progress on the implementation of the Global Reporting Format (GRF) for runway surface condition assessment and reporting. 18 States/Administrations published relevant procedures in their AIPs, with four additional States had done so since AOP/SG/8. ICAO's recent State Letter on proposed amendments to Annex 14 and PANS-AIM was highlighted, and States/Administrative were invited to ensure consistency by publishing GRF procedures in AIP AD 1.2.2.

7.4 The Meeting was invited to note the outcomes of AOP/SG/9, encourage further compliance with aerodrome certification and GRF reporting requirements, and support the harmonization of regional practices.

7.5 In response to questions from Bangladesh and Fiji, the Meeting noted the need for the procedure to be published, with the expectation that it would appear in AD 1.2.2. Reference was made to PANS-AIM and Annex 15 to confirm publication requirements, and it was recalled that the matter had previously been discussed at the AAITF. States not experiencing snow conditions might indicate that the 'snow plan' was not applicable to them.

7.6 The Meeting further noted that "SNOWTAM" was relevant not only to snow conditions but also to standing water (more than 3 mm in depth) on runways, thereby affecting all APAC States. It was agreed to review previous discussions and provide follow-up information.

AIS – AIM Implementation Task Force Outcomes (WP/46)

7.7 The Secretariat informed the Meeting of the outcomes of the Twentieth Meeting of the Aeronautical Information Services – Aeronautical Information Management Implementation Task Force (AAITF/20, Chitose, Japan, 9 – 13 June 2025). The Meeting reviewed deficiencies identified in the APAC region, noting particular concern over weak quality management of aeronautical information. States/Administrations were urged to report their AIM performance implementation status annually, though progress remained limited, with only Singapore having completed all Phase II elements.

7.8 The Meeting also reviewed NOTAM proliferation, where outdated and long-duration notices continued to pose safety and efficiency concerns. IATA shared airline feedback highlighting issues of formatting, relevance, and overload, stressing the need for timely incorporation of information into the AIP. Japan and other States presented training initiatives for originators to improve data quality, while the United States introduced progress on replacing NOTAMs with the Digital Operational Reporting Information Service (DORIS).

7.9 The Secretariat presented developments in five-letter name-code (5LNC) and five-character alphanumeric code (5ANNC) management. Multiple States/Administrations supported forming an APAC 5LNC Ad-hoc Group to address shortages and duplication. The meeting further noted progress of the APAC Common SWIM Aeronautical Information Services Ad-hoc Group, which endorsed AIXM 5.1.1 and agreed on initial service specifications. In addition, proposals on digital sub-datasets, electronic charts and the use of Microsoft Forms for AIM monitoring were discussed.

7.10 The Meeting agreed to the following Draft Decision and Conclusion:

Draft Decision ATM/SG/13-12: Update AAITF Terms of Reference (TOR)

That, the updated AAITF Terms of Reference at **Appendix H to the report**, be adopted.

Conclusion ATM/SG/13-8: Removal of Available (Non-Allocated) 5LNCS Starting with 'X' and Release of Block Codes

That, 5LNCs starting with 'X' in the ICARD system that are not registered to any Administrations shall be removed for selection from the ICARD system; and the release of 5LNC block codes to the general pool by 31 December 2025.

7.11 The Meeting noted New Zealand's concerns regarding prolonged processing period, the rejection of 5LNC due to similarity, and the adequacy of the 500 NM sound-like proximity check radius. China and Thailand supported reducing the radius to 300 NM to provide greater flexibility, while Nepal proposed an even lower radius for terminal waypoints, with Bangladesh expressing support for this proposal.

7.12 India highlighted the concern of the proposal to reduced radius for sound-like proximity check, noting the varied airspace sizes across the APAC region. Pakistan requested that ICARD filter searches include a proximity check option so that results would already reflect verification.

7.13 ICAO explained the process for handling 5LNC-related proposals and noted that the high volume of requests was the main cause of extensive processing time. The Meeting agreed to conduct a careful study, including a safety assessment, on the possible reduction of the sound-like proximity check radius, and this task was included in the draft TOR of the Ad-hoc Group.

Enhancing AIS to AIM Phase II and III Implementation in Indonesia through Data Digitalization and AIM Automation Upgrade (WP/47)

7.14 Indonesia informed the Meeting of its ongoing initiatives to accelerate the transition from AIS to AIM Phase II and III. It was reported that these efforts included comprehensive digitalization of aeronautical data, covering aerodrome, en-route, terminal, and instrument flight procedure datasets in AIXM-compliant formats. The Meeting noted that such initiatives supported structured and interoperable data exchange, consistent with ICAO's global roadmap for a digital and data-centric aeronautical information environment.

7.15 The Meeting further noted that AirNav Indonesia was upgrading its AIM automation system to support fully data-centric processes, digital information products compliant with Annex 15 and PANS-AIM, and integration with meteorological and airspace management systems. It was highlighted that these measures were expected to improve data quality, accuracy, and timeliness, and to strengthen readiness for full SWIM integration. The Meeting was invited to note Indonesia's progress, share experiences and exchange best practices in accelerating AIS to AIM transition.

Outcomes from MET SG/29 Relevant to ATM/SG (WP/48)

7.16 ICAO provided an update on the main outcomes from the Twenty-ninth Meeting of the ICAO Asia/Pacific Meteorology Sub-group (MET SG/29, Bangkok, Thailand, 16 – 20 June 2025). ATM-related Draft Conclusions, Conclusions and Decisions were presented.

7.17 Discussion items related to IWXXM update notification process, turbulence reporting, MET-related Air Navigation Deficiencies, volcanic ash activity information, updates to MET-related guidance document on the ICAO APAC Office website, capacity building initiatives and other additional outcomes from previous MET SG meetings were briefed.

7.18 The Meeting supported the following Draft Conclusions formulated during the MET SG/29:

a) ***Draft Conclusion MET SG/29-01 – Publishing MET Seminar Presentation Recordings***;

b) ***Draft Conclusion MET SG/29-02 – Management of obsolete planning and implementation guidance documents on the ICAO APAC Office website***;

c) ***Draft Conclusion MET SG/29-03 – IWXXM update notification process***;

d) ***Draft Conclusion MET SG/29-05 – Sharing of Turbulence Reports with Meteorological Service Providers***;

e) ***Draft Conclusion MET SG/29-08 – Establishment of a Group to Address Long-Standing Air Navigation Deficiencies***; and

f) ***Draft Conclusion MET SG/29-15 – Enabling the use of QVA by airlines***.

7.19 In reference to ***Draft Conclusion MET SG/29-08***, to enhance clarity and prevent future confusion, ATM/SG proposed that the MET SG consider amending it to "Establishment of a Group to Address Long-Standing Air Navigation Deficiencies in the MET Field".

7.20 The Meeting agreed to the MET SG Action Item 29/28, for the collaboration on the topic related to space weather impacts on aviation. Thailand commented that such impact would often affect CNS equipment, thus CNS SG's participation would be needed.

7.21 The Meeting acknowledged the importance of integrating meteorological service requirements particularly en-route MET information and would incorporate relevant information together with the new GANP requirement into the future updates of *Asia/Pacific Seamless ANS Plan*.

7.22 The Meeting noted the importance of contingency planning for geophysical hazards such as earthquakes and tsunamis and would incorporate the relevant integrated procedures and planning into the *Asia/Pacific Region ATM Contingency Plan* to strengthen multi-hazard preparedness across ATM and airport operations.

Final Draft Report – 2021 ICAO APAC Regional Survey on the Provision of Meteorological Services to Support ATM and ATFM (IP/11)

7.23 The ICAO APAC Office conducted a regional survey in late 2021 to assess the provision of MET services supporting ATM and ATFM. The survey aimed to understand the current status of MET-ATM integration across APAC States/Administrations incorporating feedback from MET SG/28 and a joint plenary of MET/R WG/14 and ATFM/SG/15, was provided in **ATM/SG/13 IP/11 Appendix A**.

Deep Convection Notification Service for Demand Capacity Balancing at the Hong Kong International Airport (WP/49)

7.24 Hong Kong China shared the experience of its collaboration between the ANSP and meteorological agency for initiation of appropriate ATFM measures in the event of forecasted Deep Convection event to maximize operational efficiency and minimize traffic delay.

7.25 Deep Convection meteorological phenomenon would often lead to intense and localized thunderstorms, heavy rainfall or even microburst which is hazardous to fight safety and airport capacity. The Hong Kong Observatory would detect and predict the development of deep convection event and would issue bulletins up to 72 hours in advance. Such proactive approach enabled better preparedness and curation of relevant response strategies.

7.26 Hong Kong China encouraged States/Administration to share their experience in collaboration between ANSP and meteorological agency for capacity assessment, to advocate proactive approach for enhanced operational safety and efficiency.

7.27 Australia commented MET information had been an important component to Australia's CDM process and shared as **ATM/SG/13 Flimsy/01**, for the Meeting's information.

Asia/Pacific Search and Rescue Update (WP/50)

7.28 The Tenth Meeting of the Asia/Pacific Search and Rescue Workgroup (APSAR/WG/10) was held in Siem Reap, Cambodia, from 27 to 30 May 2025.

7.29 APSAR/WG/10 was informed of the proposed amendments to the International Aeronautical and Maritime Search and Rescue (IAMSAR) Manual, including the naming convention for rescue coordination centres (RCCs) and rescue sub-centres (RSCs). These centres should be named geographically, based on the name of cities or ports, or, if there was only one RCC within a State, it could be named after that State. The type of RCC facility should be identified as aeronautical rescue coordination centre (ARCC), maritime rescue coordination centre (MRCC), or joint rescue coordination centre (JRCC), as appropriate. The format should be the type of facility followed by geographical name (city or port or State), e.g. MRCC Buenos Aires or JRCC Australia.

7.30 The Meeting noted that the majority of APAC Administrations were not fully ready for the implementation of the ADT applicability, and would need to step up efforts to conduct the various actions required for ADT implementation such as incorporating ADT considerations in procedures and manuals for safety oversight and procedures for response to ADT notification of ANSPs, SAR service providers and aircraft operators; and train relevant personnel to understand ADT notifications and ELT(DT) alerts, and to execute procedures accordingly.

7.31 APSAR/WG/10 noted that, based on the 2024 edition of the USOAP CMA PQs, the total number of SAR-related PQs remained at 16. An analysis of these 16 USOAP SAR-related PQs in April 2025 indicated a slight increase in the overall EI for SAR (55%) when compared to the previous year's assessment (54%).

7.32 **Figure 3** illustrated the implementation status of the performance expectations of the *Asia/Pacific SAR Plan*, as of 30 April 2025. Only 14 States/Administration had reported implementation of 90% (Robust).

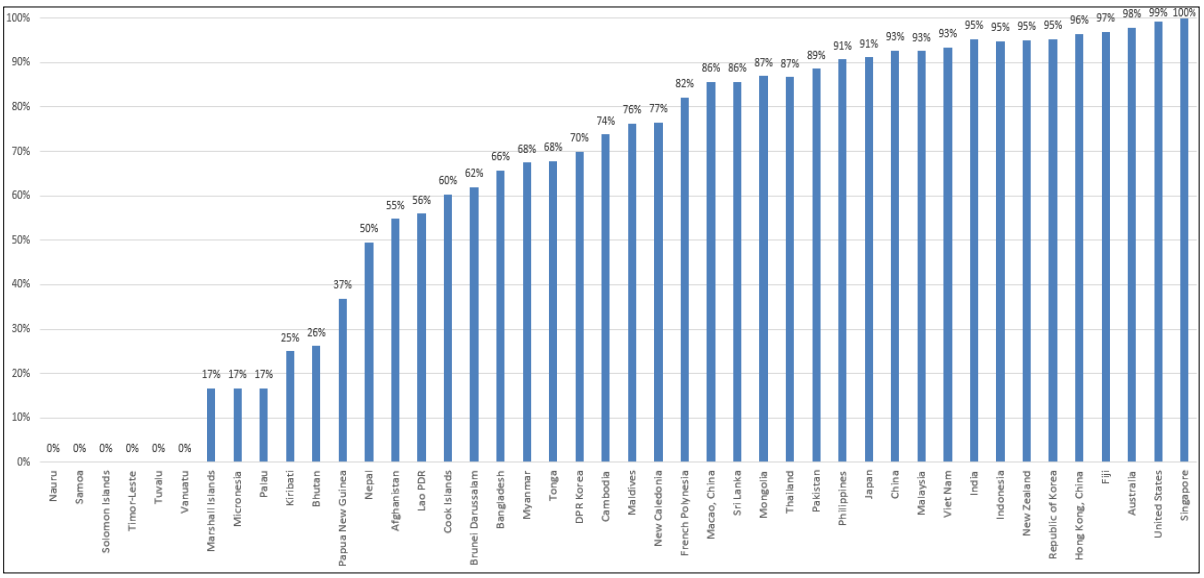

Figure 3: 42-Element Assessment of the Asia/Pacific SAR Plan Implementation

7.33 Australia presented the outcomes of work conducted by a small intersessional group tasked by APSAR/WG/9 to review and develop proposed amendments for the update of *Asia/Pacific SAR Plan*. A summary of the main proposed amendments from the previous version was provided in **ATM/SG/13 WP/50 Attachment D**.

7.34 ATM/SG/13 reviewed the draft *Asia/Pacific SAR Plan Version 5.0* and agreed to the following Conclusion:

Conclusion ATM/SG/13-9: Revised Asia/Pacific SAR Plan

That,

1. the revised *Asia/Pacific SAR Plan* at **Appendix I to the Report** be adopted, and uploaded to the ICAO Asia/Pacific Regional Office eDocuments webpage to replace the existing version; and
2. States are urged to update their national SAR Plans to align with the revised *Asia/Pacific SAR Plan*.

7.35 The Meeting discussed Australia's proposal to review and amend the term "SAR capability" within the *Asia/Pacific SAR Plan* to a more defined "SRU capability" and for APAC Administrations report their SRU capability to APSAR/WG as an alternative to exchanging SRU information annually with neighbouring States.

7.36 While acknowledging that accessible SRU capability information enables RCCs to make better-informed decisions during SAR incidents thus improving response efficiency and potentially saving lives, the submission of such capabilities could pose challenges for some Administrations due to the involvement of military assets, which could be sensitive for public disclosure. Consequently, APSAR/WG/10 agreed that the submission of such information was not mandatory and did not constitute a commitment to providing such capabilities in the event of a SAR operation. The Meeting also agreed that Administrations only need to provide information on SRUs that had the capability and necessary approvals to operate in neighbouring SRRs.

7.37 ATM/SG/13 agreed to the following Conclusion:

Conclusion ATM/SG/13-10: Proposal Annual Submission of Asia/Pacific Search and Rescue Unit (SRU) Capability

That,

1. States and Administrations to submit update of their SRU capability information (template to be included in the revised *Asia/Pacific SAR Plan* Appendix 2) to the ICAO Asia/Pacific Regional Office annually, no later than 28 February. The ICAO Secretariat will compile the data and present it as a working paper at the APSAR/WG meeting, include it as an appendix to the meeting report, and subsequently publish it on the ICAO Asia/Pacific Regional Office eDocuments webpage; and
2. the *Asia/Pacific SAR Plan* and the corresponding SAR Performance Indicator in the *Regional SAR Plan Monitoring and Reporting Form* be amended (**Appendix J to the Report**) to support the States/Administrations' submission of Asia/Pacific SRU Capability information and be uploaded to the ICAO Asia/Pacific Regional Office website to replace the existing version.

7.38 Recognizing the concerns raised during APSAR/WG/10 regarding the limited understanding and expertise within the SAR community regarding SWIM implementation and its impact on SAR services, as well as acknowledging that most APAC Administrations were not yet fully prepared for ADT applicability, States/Administrations were encouraged to participate in the SAR workshop planned to be held in conjunction with APSAR/WG/11 in May 2026.

Agenda Item 8: Any Other Business

Inclusion of ATFM-related Phraseologies Contained in ICAO Doc 9971 into ICAO Doc 4444 (WP/51)

8.1 The Meeting noted the efforts by India to harmonize ATS procedures by including ATFM provisions in the Manual of ATS Procedures. Such harmonization is aimed to facilitate enhanced common situational awareness of controllers about flow constraints, readily available relevant ATFM provision as ATS instruction and its effective application through appropriate phraseologies.

8.2 The Meeting was made aware that Doc 4444 stipulated that Start-up time procedures should be implemented when warranted by ATFM regulations and when an aircraft was subject to ATFM regulations, it should be advised to start up in accordance with its allocated slot time. However, Doc 4444 did not outline the phraseology to be used for communication between the ATC unit and pilots on ATFM operations, but those were contained in the *Manual on Collaborative Air Traffic Flow Management* (Doc 9971).

8.3 Other harmonization was expected to improve situation awareness with the intention to mandate the inclusion of ATFM measures on the controllers' flight progress strips to ensure Calculated Take-Off Time (CTOT) compliance.

8.4 It was pointed out that normally, the stakeholders such as controllers and airspace users (operational crew), directly involved in the compliance of flow restrictions such as CTOTs and Calculated Time Overs (CTOs), might not actively refer the Doc 9971, whereas Doc 4444 was expected to be referred to by all such stakeholders.

8.5 India recommended the inclusion of phraseology contained in Doc 9971 regarding ATFM communication at suitable place in Doc 4444.

8.6 Thailand commented that the ICAO State Letter regarding PfA to Annex 11 and PANS-ATM related to ATFM would be circulated in due course. India could either respond to the ICAO State Letter and/or propose ATM/SG draft decision for adoption by APANPIRG for delivery to ICAO Air Navigation Commission, for further action by ICAO Air Traffic Management Operations Panel (ATMOPSP) and/or propose the amendments through the Member nominated by India to ICAO ATMOPSP, at the ICAO ATMOPSP.

Adherence to the ICAO Principles and Recommendations for Setting Air Navigation Service Charges and Processing Overflight Approvals (WP/52)

8.7 IATA presented the key principles and recommendations from *ICAO's Policies on Charges for Airports and Air Navigation Services* (Doc 9082) and *Manual on Air Navigation Services Economics* (Doc 9161) regarding ANS charges, especially the importance of consulting with airspace users. This paper emphasized that consultation with airspace users was a key charging principle and should occur before changes to charging systems or levels of charges were introduced. Consultation aimed to ensure providers delivered adequate information to users and consider their views.

8.8 This paper also discussed challenges related to overflight approvals and air defence clearances. Operators encounter issues due to varying information requirements, submission processes and FIRs that were not always aligned with the Air Defence Identification Zone (ADIZ). The lack of automated approval processes and limitations of support services were also noted. It was recommended that States/Administrations adopt advanced methods, such as approving overflight and air defense clearances through flight plan submission acceptance, or implementing standardized, automatically generated approvals via online portals or dedicated email addresses.

8.9 The Meeting was reminded that one of the basic principles of Article 15 of the *Convention on International Civil Aviation* (Doc 7300) was that a State should not charge solely for granting an authorization for a flight into, out of or over its territory.

8.10 The Meeting encouraged States/Administrations to ensure that a clearly defined, regular consultation process with airspace users was established by provider, to ensure timely and adequate consultations were conducted prior to implementing changes to ANS charges. The Meeting noted timely settlement of fees by airspace users should also be considered essential for ensuring the financial stability of service providers.

Shaping the Future of Airspace – Airspace Asia Pacific 2025 (WP/53)

8.11 This paper presented the significance and features of the CANSO Airspace Asia Pacific 2025 event, scheduled to be held, in Hong Kong, China, from 9 to 11 December 2025. The event was designed to be a forum for airspace modernization and ATM innovation, exploring future technologies in these areas. It aimed to gather industry leaders, decision-makers, experts, and technology solution providers to foster collaboration and discussion on shaping the future of airspace.

8.12 States/Administrations were encouraged to participate in the CANSO APAC Conference 2025 and Airspace Asia Pacific 2025, share information about these events with interested organizations/companies and academia/research institutions, and invite their attendance and/or exhibiting in the event. For details, please refer to the event website: https://airspaceasiapacific.com.

Free Route Airspace Implementation Webinar (WP/54)

8.13 ICAO provided information on the upcoming ICAO Free Route Airspace (FRA) Implementation Webinar for Member States/Administrations in the APAC Region, aimed at providing both basic and advanced insights into FRA, focusing on real implementation steps and challenges.

8.14 States/Administrations/International Organizations were encouraged to nominate speakers and participate in the webinar to share best practices. Interested speakers were invited to contact Mr. Kwon Hyuk Jin, Regional Officer ATM, ICAO APAC RSO, via email at hykwon@icao.int for further information.

8.15 India, Singapore and IATA volunteered to participate as speakers for the webinar. India suggested to schedule a briefing about the topics covered in previous two workshops, as the third workshop had been planned as a follow-up to the previous workshops. The Chairperson encouraged States/Administrations to nominate SMEs to present in the webinar.

ATM Points of Contact (WP/55)

8.16 The ATM Points of Contact list was circulated to all registered ATM/SG/13 participants for review and update.

8.17 In response to a query, ICAO clarified that the ATM Points of Contact List contained sensitive information and was therefore not made publicly available. States/Administrations requiring the POC information could contact the ICAO APAC Office. Additionally, ICAO would consider providing the ATM Points of Contact List through the ICAO Secure Portal.

Asia/Pacific Regional Points of Contact List for Space Object Launch and Re-entry Activities Coordination (WP/56)

8.18 The Meeting noted that the title had been revised from *Points of Contact List for Space Vehicle Launch and Re-Entry Coordination* to *Asia/Pacific Regional Points of Contact List for Space Object Launch and Re-entry Activities Coordination*, in accordance with ***Conclusion APANPIRG/35/5: Regional Guidance for Space Object Launch and Re-Entry Coordination***. The *Asia/Pacific Regional Guidance for Space Object Launch and Re-entry Activities Coordination* could be found at the ICAO APAC Office eDocuments webpage.

8.19 The Points of Contact List was circulated to all registered ATM/SG/13 participants for review and update. With reference to ***Conclusion ATM/SG/10-7: Points of Contact List for Space Vehicle Launch and Re-Entry Coordination***, the *Asia/Pacific Regional Points of Contact List for Space Object Launch and Re-entry Activities Coordination* would be published on the ICAO APAC Office eDocuments webpage.

Improvement Strategies for Fatigue Detection and Management of Controller (IP/07)

8.20 The Meeting noted China's presentation on strategies for detecting and managing fatigue among controllers. It was observed that fatigue posed significant safety risks, including impaired judgement and delayed reactions, particularly in complex or high-density operational environments. China reported on research into multi-modal detection methods combining speech, facial, and physiological data, as well as proposals to optimize controller duty schedules to ensure adequate rest periods. The importance of enhancing joint situational awareness between controllers and pilots was also highlighted, with a model developed to predict potential conflicts and strengthen collaborative decision-making.

8.21 The Meeting noted India's holistic approach to fatigue management, distinguishing controller fatigue from pilot duty limitations and recognizing global trends towards covering all aviation personnel. India emphasized shared responsibility across the ANSP, supervisors, controllers, and the State, focusing on supportive policies and environments rather than micromanagement, and presented its methodology in a Working Paper for further discussion. Malaysia acknowledged India's contribution and underlined the value of sharing progress with relevant groups.

Introduction to English Level Testing for Non-Native English-Speaking Countries' Air Traffic Controllers (IP/08)

8.22 The Meeting noted China's presentation on the Air Traffic Controller English Testing Service (AETS), developed to meet Annex 1 requirements. The system, supported by a professional task force, included computer-based testing, customized question banks, and operationally relevant scenarios. It had been implemented nationwide, promoted internationally, and contributed to improved language proficiency assessment and harmonization with ICAO standards.

Introduction to the Joint Simulator Training for Controllers and Pilots (IP/09)

8.23 China introduced the innovative practice of joint simulator training for controllers and pilots carried out by the Southwest Regional Air Traffic Management Bureau of China (SW-ATMB). The Training Center of SW-ATMB was equipped with 52 radar simulators, five tower simulators, and one Airbus A320 flight simulator. All these simulators could achieve interconnection and intercommunication, providing solid technical support for full-process air-ground joint training for ATC for joint training, aiming to promote the synchronous improvement of emergency response capabilities of both controllers and pilots, significantly improving realism and providing practical experience for the construction of industry air-ground coordination mechanisms.

Training Performance Improvement Based on Air Traffic Control Simulator with AI Pilot (IP/10)

8.24 This paper presented the progress and benefits of the AI Pilot Intelligent Control Simulator that addressed challenges in traditional ATC training concerning limited scenarios and low interactivity. The AI simulator could generate dynamic simulations, deliver stable command outputs, and adapt training programs to meet evolving industry needs. By efficiently creating realistic scenarios and enabling precise training, it significantly enhanced instructional efficiency. The ATMB had made notable progress in this field, including the development of new simulators and advancements in speech recognition technology. Going forward, efforts would focus on refining standards, upgrading technologies, optimizing speech recognition applications and enhancing training methodologies to support talent development across the global aviation sector.

Election of Chairperson

8.25 Mr. Vincent Hwa, Director of Air Traffic Services, Civil Aviation Authority of Singapore, was elected as the succeeding Chairperson of the ATM Sub-Group of APANPIRG with unanimous support.

Agenda Item 9: ATM/SG Task List Update

Update for the Guidance of Visual Approach for Parallel Runways (WP/57)

9.1 In response to *ATM/SG/12 Action Item 12/3 – Coordinate with ICAO ANB on guidance document for visual approach for parallel runways*. The Secretariat provided an update of the current situation with ICAO Separation and Airspace Safety Panel (SASP) Work Programme regarding visual approach for parallel runways.

9.2 To progress this matter, SASP Secretariat would submit a Working Paper (referencing ATM/SG/12 WP/31) to SASP WG/42, scheduled from 3 to 7 November 2025.

9.3 In addition, a Working Paper could also be submitted by China during SASP WG/42, to invite SASP to consider the creation of a new Work Programme Element (WPE) regarding visual approach for parallel runways.

APANPIRG ATM Sub-Group Terms of Reference and Task List (WP/58)

9.4 The Secretariat presented the ATM/SG TOR for review by the Meeting.

9.5 The ATM/SG Task List as updated by the Meeting was provided in **Appendix K to the Report**.

Agenda Item 10: Date and Venue for the Next Meeting

ATM/SG/14

10.1 ATM/SG/14 would be tentatively held in August/September 2026 in Bangkok, Thailand.

Closing of the Meeting

11.1 In closing the Meeting, the Chairperson thanked and congratulated the efforts made by the participants for their contributions to the Meeting.

11.2 ICAO expressed appreciations to Mr. Kuah Kong Beng for his relentless support and contributions to the ATM/SG. His exemplary leadership to ATM/SG had laid a remarkable cornerstone to the development of aviation industry for the APAC region. The Meeting wished Mr. Kuah all the best in his next chapter of wonderful life.

— — — — — — — — —

LIST OF PARTICIPANTS

	STATE/NAME		TITLE/ORGANIZATION
1.	**AUSTRALIA (1)**		
	1.	Mr. James Eason	Senior ATS Specialist Airservices Australia **AUSTRALIA**
2.	**BANGLADESH (3)**		
	2.	Ms. Mst. Shakila Pervin	Senior Assistant Secretary Ministry of Civil Aviation and Tourism of **BANGLADESH**
	3.	Ms. Sabera Rahman	Deputy Director (ATM) Civil Aviation Authority of Bangladesh **BANGLADESH**
	4.	Mr. Iqbal Hossain	Assistant Director (ATM) Civil Aviation Authority of Bangladesh **BANGLADESH**
3.	**BHUTAN (2)**		
	5.	Mr. Sangay Tenzin	Head of Air Traffic Management Air Navigation Services Department of Air Transport Ministry of Infrastructure and Transport **BHUTAN**

	STATE/NAME		TITLE/ORGANIZATION
	6.	Mr. Karma Gayley	Senior ANS Officer Bhutan Civil Aviation Authority **BHUTAN**
4.	**CAMBODIA (4)**		
	7.	Ms. Tith Phoumith	Deputy Director of ANS Department State Secretariat of Civil Aviation **CAMBODIA**
	8.	Mr. Saichon Pingsakul	Executive Advisor of Managing Director State Secretariat of Civil Aviation **CAMBODIA**
	9.	Mr. San Sreynoch	AIMC Supervisor Cambodia Air Traffic Services **CAMBODIA**
	10.	Mr. Ngel Damrong	ATM Development Supervisor Cambodia Air Traffic Services **CAMBODIA**
5.	**CHINA (7)**		
	11.	Mr. Long Meng	Assistant of ATC Division Air Traffic Management Bureau Civil Aviation Administration of China **CHINA**

	STATE/NAME		TITLE/ORGANIZATION
	12.	Mr. Hang Zhou	Director of ATFM Division of OMC Air Traffic Management Bureau Civil Aviation Administration of China **CHINA**
	13.	Mr. Yongyue Chen	Engineer of China RMA Air Traffic Management Bureau Civil Aviation Administration of China **CHINA**
	14.	Mr. Bing Jiang	Deputy Director of ATC Division of East Air Traffic Management Bureau Civil Aviation Administration of China **CHINA**
	15.	Ms. Huiling Hu	Director of ATC Division of Middle-South Air Traffic Management Bureau Civil Aviation Administration of China **CHINA**
	16.	Mr. Zhifeng Xu	Assistant of ATC Division of West-South Air Traffic Management Bureau Civil Aviation Administration of China **CHINA**
	17.	Mr. Zhiyuan Shen	Vice Dean of ATD of Nanjing University of Aeronautics and Astronautics **CHINA**

	STATE/NAME		TITLE/ORGANIZATION
6.	**HONG KONG, CHINA (3)**		
	18.	Mr. Alexander HONIG	Atg. Chief (Training & Safety) Civil Aviation Department, Hong Kong **HONG KONG, CHINA**
	19.	Ms. Alice KONG	Senior Evaluation Officer Civil Aviation Department, Hong Kong **HONG KONG, CHINA**
	20.	Ms. Michelle SIU	Electronics Engineer Civil Aviation Department, Hong Kong **HONG KONG, CHINA**
7.	**MACAO, CHINA (2)**		
	21.	Mr. LAO Weng Kin, Tony	Assistant Safety Officer Civil Aviation Authority - Macao, China **MACAO, CHINA**
	22.	Ms. CHEONG Kit Meng, Pricilla	Advisor to Head of ATS Division Macau International Airport Co. Ltd. **MACAO, CHINA**
8.	**FIJI (2)**		
	23.	Mr. Makiti Raratabu	Senior Air Navigation Services Inspector Civil Aviation Authority of Fiji (CAAF) **FIJI**

	STATE/NAME		TITLE/ORGANIZATION
	24.	Mr. Ivan Alfred Wong	Head of Operations Air Traffic Management Fiji Airports Limited **FIJI**
9.	**INDIA (7)**		
	25.	Mr. SLV Santhosh David	Deputy Director DGCA **INDIA**
	26.	Mr. Moosa Thudhathifanuge	Executive Director (ATM-ASM) Airports Authority of India **INDIA**
	27.	Mr. Naresh Kumar Chaudhary	GM (ATM-ASM) Airports Authority of India **INDIA**
	28.	Mr. Ajay Bhaskar Joshi	General Manager (Air Traffic Management) Airports Authority of India **INDIA**
	29.	Ms. Kala P. Nair`	General Manager (Air Traffic Management) Airports Authority of India **INDIA**
	30.	Ms. Mahua Bhattacharya Adhikary	General Manager (Air Traffic Management) Airports Authority of India **INDIA**

	STATE/NAME		TITLE/ORGANIZATION
	31.	Ms. Sangeet Kaur Saluja	Assistant Section Officer Ministry of Civil Aviation **INDIA**
10.	**INDONESIA (3)**		
	32.	Mr. Tian Kusdinar	Deputy Director of Air Navigation Operation Directorate General Civil Aviation **INDONESIA**
	33.	Mr. Suryadi Joko Wiratmo	EVP of Air Navigation Service Planning AirNav Indonesia **INDONESIA**
	34.	Mr. Mohamad Romy	Vice President of Flow Management Center Perum LPPNPI (AirNav Indonesia) **INDONESIA**
11.	**JAPAN (3)**		
	35.	Ms. Kyoko Sato	Special Assistant of the Director, Air Navigation Services Planning Office, Air Traffic International Affairs Office, Air Navigation Services Planning Division, Air Navigation Services Department, Civil Aviation Bureau Ministry of Land, Infrastructure, Transport and Tourism, Government of Japan **JAPAN**

	STATE/NAME		TITLE/ORGANIZATION
	36.	Mr. Ryu Yonaha	Special Assistant to the Director Japan Civil Aviation Bureau **JAPAN**
	37.	Mr. Takahiro Shibutani	Special Assistant to the Director Japan Civil Aviation Bureau **JAPAN**
12.	**LAO PDR (5)**		
	38.	Mr. Sohnsacksit Khamkeo	Director of Air Navigation Standards Division Department of Civil Aviation of Lao People's Democratic Republic **LAO PDR**
	39.	Mr. Vixay Vorlachit	ATM and SAR officer Department of Civil Aviation of Lao People's Democratic Republic **LAO PDR**
	40.	Mr. Manasavanh Kounlath	Deputy General Director Lao Air Navigation Services of Lao PDR **LAO PDR**
	41.	Mr. Xaygnasith Xouymanivong	Deputy Director of Air Traffic Service Office Lao Air Navigation Services of Lao PDR **LAO PDR**

	STATE/NAME		TITLE/ORGANIZATION
	42.	Mr. Neekhom Kanhavong	ATC Supervisor of Aerodrome Control Tower Lao Air Navigation Services of Lao PDR **LAO PDR**
13.	**MALAYSIA (4)**		
	43.	Mr. Mohd Rashidi Bin Abdul Rahim	Director Air Navigation Services Training Division Civil Aviation Authority of Malaysia **MALAYSIA**
	44.	Mrs. Hajijah Binti Mohd Bujang	Director Sarawak Regional Office Civil Aviation Authority of Malaysia **MALAYSIA**
	45.	Mr. Raja Amsyar Hillman Bin Raja Badrul Hisham	Deputy Director Air Navigation Services and Aerodrome Division Civil Aviation Authority of Malaysia **MALAYSIA**
	46.	Mr. Muhammad Nazirul Izzat Bin Mahat	Principal Assistant Director Air Navigation Services and Aerodrome Division Civil Aviation Authority of Malaysia **MALAYSIA**

		STATE/NAME	TITLE/ORGANIZATION
14.		**MALDIVES (1)**	
	47.	Mr. Hussain Didi	Chief Operating Officer Maldives National Air Traffic Services **MALDIVES**
15.		**MONGOLIA (1)**	
	48.	Mr. Puntsag Ganbaatar	Head of Air Navigation Services Oversight Division Civil Aviation Authority of Mongolia **MONGOLIA**
16.		**NEPAL (4)**	
	49.	Mr. Basudev Bhattarai	Director Civil Aviation Authority of Nepal **NEPAL**
	50.	Mr. Devendra Prasad Shrestha	Deputy Director Civil Aviation Authority of Nepal **NEPAL**
	51.	Mr. Puspa Raj Ratala	Deputy Director Civil Aviation Authority of Nepal **NEPAL**

	STATE/NAME		TITLE/ORGANIZATION
	52.	Mr. Milan Kaji Shakya	Deputy Director Civil Aviation Authority of Nepal **NEPAL**
17.	**NEW ZEALAND (1)**		
	53.	Mr. Edmund Heng	Senior Technical Specialist Aeronautical Services Civil Aviation Authority of New Zealand **NEW ZEALAND**
18.	**PAKISTAN (3)**		
	54.	Mr. Muhammad Asif	Joint Director (ATM AANS-DAAR) HQCAA Pakistan Civil Aviation Authority **PAKISTAN**
	55.	Mr. Muhammad Imran	Sr. Joint Director (ATS) Airspace and PBN Pakistan Airports Authority **PAKISTAN**
	56.	Mr. Abdul Musawwer	Sr. Deputy Director ATM Pakistan Airports Authority **PAKISTAN**

	STATE/NAME		TITLE/ORGANIZATION
19.	**PHILIPPINES (5)**		
	57.	Ms. Marlene I. Singson	Chief Air Traffic Service Civil Aviation Authority of the Philippines **PHILIPPINES**
	58.	Ms. Melba S. Acurantes	Department Manager III, ATPPD – ATS Civil Aviation Authority of the Philippines **PHILIPPINES**
	59.	Ms. Jesseelyn P. Heje	Acting Department Manager, AISD Civil Aviation Authority of the Philippines **PHILIPPINES**
	60.	Ms. Janice T. Palaganas	Air Traffic Management Officer IV, AISD Civil Aviation Authority of the Philippines **PHILIPPINES**
	61.	Mr. Ernesto P. Discaya Jr.	Supervising ASSI, Aerodrome and Air Navigation Safety Oversight Office (AANSOO) Civil Aviation Authority of the Philippines **PHILIPPINES**
20.	**REPUBLIC OF KOREA (4)**		
	62.	Mr. HA Hu-Ho	Senior Deputy Director for Air Traffic Korea Office of Civil Aviation Ministry of Land, Infrastructure and Transport **REPUBLIC OF KOREA**

	STATE/NAME		TITLE/ORGANIZATION
	63.	Mr. KIM Jong-seong	Assistant Director for Air Traffic Korea Office of Civil Aviation Ministry of Land, Infrastructure and Transport **REPUBLIC OF KOREA**
	64.	Ms. KIM Ha-Yeong	Assistant Director for Air Traffic Korea Office of Civil Aviation Ministry of Land, Infrastructure and Transport **REPUBLIC OF KOREA**
	65.	Mr. HAN Sang-Woo	Assistant Director for Air Traffic Management Air Traffic Management Office Ministry of Land, Infrastructure and Transport **REPUBLIC OF KOREA**
21.	**SINGAPORE (25)**		
	66.	Mr. Kong Beng KUAH	Director (Special Project) Civil Aviation Authority of Singapore (CAAS) **SINGAPORE**
	67.	Mr. Vincent HWA	Director of Air Traffic Services (ATS) Civil Aviation Authority of Singapore (CAAS) **SINGAPORE**
	68.	Mr. S Subash	Deputy Director Civil Aviation Authority of Singapore **SINGAPORE**

	STATE/NAME		TITLE/ORGANIZATION
	69.	Mr. Wee Sin Ho	Deputy Director Civil Aviation Authority of Singapore **SINGAPORE**
	70.	Mr. Hermizan Jumari	Deputy Director (Planning) Civil Aviation Authority of Singapore **SINGAPORE**
	71.	Mr. Andrew Wee	Deputy Director (ANS Regulation) Civil Aviation Authority of Singapore **SINGAPORE**
	72.	Mr. Roger Lau	Senior Chief (ATM) Civil Aviation Authority of Singapore **SINGAPORE**
	73.	Mr. Joel Ng	Senior Chief (OT) Civil Aviation Authority of Singapore **SINGAPORE**
	74.	Mr. Chee Han Tan	Covering Chief / Head (ATM) Civil Aviation Authority of Singapore **SINGAPORE**
	75.	Ms. Hansel Chen	Head (ATM-AP) Civil Aviation Authority of Singapore (CAAS) **SINGAPORE**

	STATE/NAME		TITLE/ORGANIZATION
	76.	Ms. Melisa Wee	Head (Regional ATM) Civil Aviation Authority of Singapore **SINGAPORE**
	77.	Mr. Jeffrey Loke	Head ATS Regulation Civil Aviation Authority of Singapore **SINGAPORE**
	78.	Mr. Han Chee Chew	Principal Air Traffic Control Manager (ATM-Asia Pacific) Civil Aviation Authority of Singapore **SINGAPORE**
	79.	Ms. Amelia Yeo	Senior Air Traffic Manager (ATM-AP) Civil Aviation Authority of Singapore **SINGAPORE**
	80.	Mr. Koong Jye Tay	Air Traffic Control Manager Civil Aviation Authority of Singapore **SINGAPORE**
	81.	Ms. Chrys Tang	Manager (ANSP) Civil Aviation Authority of Singapore **SINGAPORE**
	82.	Mr. Russell Yip	Manager (ANSP) Civil Aviation Authority of Singapore **SINGAPORE**

	STATE/NAME		TITLE/ORGANIZATION
	83.	Ms. Charmaine Ng	Senior Data Scientist Civil Aviation Authority of Singapore **SINGAPORE**
	84.	Ms. Qi Chen	Senior Principal Engineer Civil Aviation Authority of Singapore **SINGAPORE**
	85.	Ms. Candy Chen	SATCM (Regional ATM) / NGPO / CAAS Civil Aviation Authority of Singapore **SINGAPORE**
	86.	Mr. Steven Oon	Senior Analyst Civil Aviation Authority of Singapore **SINGAPORE**
	87.	Ms. Daphne Cheong	Analyst (Operations Analysis) Civil Aviation Authority of Singapore **SINGAPORE**
	88.	Mr. Kang Xian Ang	Operations Analyst Civil Aviation Authority of Singapore **SINGAPORE**
	89.	Mr. Jonathan Yeung	Air Traffic Control Manager (ATM) Civil Aviation Authority of Singapore **SINGAPORE**

	STATE/NAME		TITLE/ORGANIZATION
	90.	Mr. Len Wicks	CAAS Consultant Civil Aviation Authority of Singapore **SINGAPORE**
22.	**SRI LANKA (4)**		
	91.	Mr. Thilina Warnasinghe	Director Air Navigation Services Air Traffic Management – Operations Civil Aviation Authority of Sri Lanka **SRI LANKA**
	92.	Mr. Sanjaya Disapathige	Head of Air Navigation Services Airport & Aviation Services (Sri Lanka) Ltd **SRI LANKA**
	93.	Mr. Indika Bandupriya	Senior Manager (Air Traffic Control) Airport & Aviation Services (Sri Lanka) Ltd **SRI LANKA**
	94.	Ms. Mihiri Kumari	Chief Electronics Engineer Airport & Aviation Services (Sri Lanka) Ltd **SRI LANKA**
23.	**THAILAND (9)**		
	95.	Mr. Buntoeng Megchai	Air Navigation Operations Management Department Manager 12 The Civil Aviation Authority of Thailand **THAILAND**

	STATE/NAME		TITLE/ORGANIZATION
	96.	Ms. Irin Tubtong	Air Navigation Operations Officer 5 The Civil Aviation Authority of Thailand **THAILAND**
	97.	Ms. Sunisa Raddussadee	Senior Director, Air Traffic Management Network Bureau Aeronautical Radio of Thailand Ltd. (AEROTHAI) **THAILAND**
	98.	Mr. Piyawut Tantimekabut	Expert, Director Level Aeronautical Radio of Thailand Ltd. (AEROTHAI) **THAILAND**
	99.	Ms. Amornrat Jirattigalachote	Expert (Director Level) Aeronautical Radio of Thailand Ltd. (AEROTHAI) **THAILAND**
	100.	Mr. Kom Promsuttikul	Strategic Planning Manager (Engineering) Aeronautical Radio of Thailand Ltd. (AEROTHAI) **THAILAND**

	STATE/NAME		TITLE/ORGANIZATION
	101.	Ms. Wichanat Phoompiew	Executive Services Standards Officer Aeronautical Radio of Thailand Ltd. (AEROTHAI) **THAILAND**
	102.	Mr. Sopon Piyapanee	Assistant Permanent Secretary Acting Director of the Office of the Search and Rescue Commission, Office of the Search and Rescue Commission, Office of the Permanent Secretary, Ministry of Transport **THAILAND**
	103.	Ms. Natkritta Srithaweepan	Chief of the Search and Rescue Coordination and Operation Division Office of the Search and Rescue Commission, Office of the Permanent Secretary, Ministry of Transport **THAILAND**
24.	**UNITED KINGDOM (2)**		
	104.	Ms. Sydney Maniam	Strategic Business Advisor NATS Services Limited **UNITED KINGDOM**
	105.	Mr. Edwin Pang	Key Account Director NATS Services Limited **UNITED KINGDOM**

	STATE/NAME		TITLE/ORGANIZATION
25.	**UNITED STATES (2)**		
	106.	Mr. Shayne Campbell	Senior Air Traffic Representative, Asia Pacific Federal Aviation Administration Air Traffic Organization, Mission Support **SINGAPORE**
	107.	Mr. Vern Payne	Manager, CDM and International Operations Federal Aviation Administration Air Traffic Control System Command Center (ATCSCC) **SINGAPORE**
26.	**VIET NAM (6)**		
	108.	Mr. Dam Tuan Toi	Deputy Director of Air Navigation Department The Civil Aviation Authority of Vietnam **VIET NAM**
	109.	Mr. Bui Thanh Ha	Director of ATS Department Vietnam Air Traffic Management Corporation **VIET NAM**
	110.	Mr. Pham Viet Thai	Deputy Director Vietnam Aeronautical Information Center -VNAIC Vietnam Air Traffic Management Corporation **VIET NAM**

	STATE/NAME		TITLE/ORGANIZATION
	111.	Ms. Le Phi Long	Deputy Head of ATS Division, Southern Region Air Traffic Services Company Vietnam Air Traffic Management Corporation **VIET NAM**
	112.	Ms. Tran Thi Ngoc Anh	Officer, Safety and Quality Control Department Vietnam Air Traffic Management Corporation **VIET NAM**
	113.	Mr. Nguyen Xuan Le Cuong	Official, ATS Department Vietnam Air Traffic Management Corporation **VIET NAM**
27.	**CANSO (2)**		
	114.	Mr. Poh Theen Soh	Director, Asia Pacific Affairs Civil Air Navigation Services Organisation (CANSO) - Asia Pacific **SINGAPORE**
	115.	Mr. Blair Cowles	ATM Consultant Civil Air Navigation Services Organisation (CANSO) – Singapore **SINGAPORE**

	STATE/NAME		TITLE/ORGANIZATION
28.	**IATA (4)**		
	116.	Mr. John Moore	Assistant Director Safety & Flight Operations, ASPAC International Air Transport Association (IATA) **SINGAPORE**
	117.	Mr. Bin (Kevin) Hu	Regional Manager, Operations, Safety and Security IATA **CHINA**
	118.	Mr. George Chan	Regulatory Affairs Manager - Industry and Flight Operations IATA/Cathay Pacific Airways **CHINA**
	119.	Ms. Megan Yin	Senior Manager-Air Traffic System Asia Pacific United Airlines **CHINA**
29.	**IFALPA (3)**		
	120.	Captain Jaffar Hassan	Chief Delegate Executive Vice-President (EVP) of APAC IFALPA

	STATE/NAME		TITLE/ORGANIZATION
	121.	Captain Choong Sub Lee	Regional Vice-President, North Pacific (NOP) President of ALPA-K / Korean Air Senior Captain Ph.D. in Air Transportation **REPUBLIC OF KOREA**
	122.	Captain Ja'affarsiddiq Safrin	Honorary Secretary Air Line Pilots Association – Singapore IFALPA **SINGAPORE**
30.	**IFATCA (1)**		
	123.	Ms. Cheryl Yenchun Chen	EVP IFATCA – Asia and Pacific **CANADA**
31.	**ICAO (8)**		
	124.	Mr. Hiroyuki Takata	Regional Officer, Air Traffic Management ICAO Asia and Pacific Regional Office **THAILAND**
	125.	Mr. Mior Adli Bin Mior Sallehhuddin	Regional Officer, Air Traffic Management ICAO Asia and Pacific Regional Office **THAILAND**

	STATE/NAME		TITLE/ORGANIZATION
	126.	Mr. Weng Kit Ying	Air Traffic Management Officer ICAO Asia and Pacific Regional Office **THAILAND**
	127.	Mr. Anony Tak Chuen CHUI	AIM/ATM Officer ICAO Asia and Pacific Regional Office **THAILAND**
	128.	Dr. Trish Prakayphet Chalayonnawin	Programme Analysis Associate, Air Traffic Management ICAO Asia and Pacific Regional Office **THAILAND**
	129.	Ms. Ying Zhang	Deputy Chief ICAO Asia and Pacific Regional Sub-Office **CHINA**
	130.	Mr. Manjunath K. Nelli	Regional Officer, Air Traffic Management ICAO Asia and Pacific Regional Sub-Office **CHINA**
	131.	Dr. Hyuk Jin KWON	Regional Officer, Air Traffic Management ICAO Asia and Pacific Regional Sub-Office **CHINA**

— — — — — — — —

LIST OF PAPERS

WORKING PAPERS

No.	Agenda Item	Subject	Presented by
01	1	Provisional Agenda	Secretariat
02	2	ATM/SG/12 and APANPIRG/35	Secretariat
03	3	ANS USOAP Update	Secretariat
04	3	Asia/Pacific Seamless ANS Plan Update	Secretariat
05	3	FIT-Asia and RASMAG Outcomes	Secretariat
06	3	Application of ATC Separation Minimum	Secretariat
07	3	Use of Digital Form for Status and Implementation Progress Report	Secretariat
08	3	Progress of the APAC Data Analytics Group	Singapore on behalf of Australia, China, Hong Kong China, India, Indonesia, Japan, Papua New Guinea, Philippines, Republic of Korea, Singapore, Sri Lanka, Thailand, United States and Vietnam
09	4	ATM and Airspace Safety Deficiencies List	Secretariat
10	5	Regional Air Navigation Plan Update	Secretariat
11	5	Implementation of Project 30/10 in Asia/Pacific Region	Secretariat
12	5	Outcomes of CNS SG/29	Secretariat
13	5	Air Traffic Flow Management Steering Group Outcomes	Secretariat / Chairperson of ATFM/SG
14	5	Proposal for Modification of Name of ATFM Steering Group to ATFM & A-CDM Steering Group	Secretariat
15	5	Initiative on Establishing a Collaborative Operational Mechanism for Regional Air Traffic Flow Management in the Asia/Pacific Region	China, on behalf of Cambodia, China, Hong Kong China, Singapore, Viet Nam and IATA
16	5	Outcomes of ICAO APAC Airport and Airspace Capacity Assessment Workshop	Secretariat
17	5	Challenges Arising from Airspace Restructuring in Japan and their Solutions	Japan
18	5	Preparation for ATC Operation of the Fifth Runway at Guangzhou Baiyun International Airport	China

No.	Agenda Item	Subject	Presented by
19	5	Terms of Reference and Progress Update of the ICAO Asia/Pacific Flight and Flow Information for a Collaborative Environment (FF-ICE) Ad-Hoc Group	Singapore and Thailand on behalf of the FF-ICE Ad-hoc Group
20	5	Progress of the Asia-Pacific Trajectory-Based Operations Pathfinder Project	Singapore on behalf of Hong Kong China, Indonesia, Japan, New Zealand, Singapore, Thailand, United States of America, Viet Nam, CANSO, IATA
21	5	TBO Validation Achievements of China	China
22	5	Development of Trajectory-Based Operations (TBO) Roadmap for Inclusion into the APAC Seamless ANS Plan in support of a Harmonised Implementation in APAC	Thailand, on behalf of Hong Kong China, Indonesia, Japan, Singapore, Thailand, United States of America, Viet Nam, CANSO and IATA
23	5	Mitigation Measures to Avoid Confusing Callsigns in Indian Airspace	India
24	5	Improving the Effectiveness of Pilot – Controller Communication by Collaboration between the Operators and ANSPs	IATA on behalf of IATA and China
25	5	Spectrum Resilience: Balancing Spectrum Efficiency with Aviation Safety	IATA
26	5	Trial Operation of Data Link ATC Services in Middle-South Regional Air Traffic Management Bureau of CAAC	China
27	5	GNSS Radio Frequency Interference (RFI)	IATA
28	5	Impact Assessment of GNSS RFI	Pakistan
29	5	Progress of the Procedures for GNSS and Data Link Disruption Ad-hoc Group	Secretariat
30	5	Requirement to Amend Transition Altitude Establishment Criteria in PANS-OPS Volume III (Doc 8168)	Pakistan
31	6	SAIOSEACG Meeting Outcomes	Secretariat
32	6	Data-Driven and Performance-based Case Study on Improving Airspace Efficiency and Capacity	IATA
33	6	Regional ATM Contingency Planning and Contingency Operations Update	Secretariat
34	6	Proposal for the Development of a Level 2 ATM Contingency Plan in the Northeast Asia	Republic of Korea
35	6	Enhancing Operational Continuity: Jakarta ACC AMHS Disruption, Mitigation Measures, and Path Forward	Indonesia
36	6	Tropical Cyclone Alfred – Contingency Activation	Australia

No.	Agenda Item	Subject	Presented by
37	6	Enhancing Collaborative Contingency Planning – Lessons from Lewotobi Volcano Eruption Response in Indonesia	Indonesia
38	6	Enhanced Civil Military Cooperation in ATM for the Safe and Optimal Use of Airspace	Secretariat
39	6	Collaborative Efforts to Manage Danger Area over High Seas	Republic of Korea
40	6	Rocket Launch Danger Area Coordinates Mismatch	IATA
41	6	Asia/Pacific Region ATS Route Catalogue	Secretariat
42	6	Update on South-East Asia-Oceanic Implementation of Free Route Operations (FRTO) Project	IATA, Co-sponsored by IATA, Civil Aviation Authority of Singapore, AirNav Indonesia, Airservices Australia and Airways New Zealand
43	6	Measures to Enhance Safety and Efficiency on A593 within Incheon FIR	Republic of Korea
44	6	Suggestions for Enhancing the Safety and Efficiency of FUKUE-AKARA Corridor Operations	China
45	7	AOP Subgroup Outcomes	Secretariat
46	7	AIS – AIM Implementation Task Force Outcomes	Secretariat
47	7	Enhancing AIS to AIM Phase II and III Implementation in Indonesia through Data Digitalization and AIM Automation Upgrade	Indonesia
48	7	Review of MET SG Outcomes	Secretariat
49	7	Deep Convection Notification Service for Demand Capacity Balancing at the Hong Kong International Airport	Hong Kong China
50	7	Asia/Pacific Search and Rescue Update	Chairperson of APSAR/WG
51	8	Inclusion of ATFM-related Phraseologies Contained in ICAO Doc 9971 into ICAO Doc 4444	India
52	8	Adherence to the ICAO Principles and Recommendations for Setting Air Navigation Service Charges and Processing Overflight Approvals	IATA
53	8	Shaping the Future of Airspace – Airspace Asia Pacific 2025	CANSO and Hong Kong China
54	8	Free Route Airspace Implementation Webinar	Secretariat
55	8	ATM Points of Contact	Secretariat
56	8	Asia/Pacific Points of Contact List for Space Object Launch and Re-Entry Activities Coordination	Secretariat
57	9	Update for the Guidance of Visual Approach for Parallel Runways	Secretariat

No.	Agenda Item	Subject	Presented by
58	9	APANPIRG ATM Sub-Group Terms of Reference and Task List	Secretariat

INFORMATION PAPERS

No.	Agenda Item	Subject	Presented by
01	1	Provisional List of Papers	Secretariat
02	5	Different Approaches for Cross-Border Air Traffic Management	United States
03	5	A-CDM in Australia	Australia
04	5	Update of National Air Navigation Plan and Governance Plan for the Organization	Japan
05	5	Introduction to China Civil Aviation Administration's Work on Preventing Runway Incursion	China
06	5	Importance of ATC Readback and Hearback	Pakistan
07	8	Improvement Strategies for Fatigue Detection and Management of Air Traffic Controller	China
08	8	Introduction to English Level Testing for Non-Native English-Speaking Countries' Air Traffic Controllers	China
09	8	Introduction to the Joint Simulator Training for Controllers and Pilots	China
10	8	Training Performance Improvement Based on Air Traffic Control Simulator with AI Pilot	China
11	7	Final Draft Report – 2021 ICAO APAC Regional Survey on the Provision of Meteorological Services to Support ATM and ATFM	Secretariat
12	5	Higher Airspace Operations	India

FLIMSY

No.	Agenda Item	Subject	Presented by
01	7	Australian ATFM Meteorological Information	Australia

PRESENTATIONS

No.	Agenda Item	Subject	Presented by
01	3	Progress of the APAC Data Analytics Group (WP/08)	Singapore on behalf of Australia, China, Hong Kong China, India, Indonesia, Japan, Papua New Guinea, Philippines, Republic of Korea, Singapore, Sri Lanka, Thailand, United States and Vietnam
02	5	Air Traffic Flow Management Steering Group Outcomes (WP/13)	Secretariat / Chairperson of ATFM/SG
03	5	Initiative on Establishing a Collaborative Operational Mechanism for Regional Air Traffic Flow Management in the Asia/Pacific Region (WP/15)	China, on behalf of Cambodia, China, Hong Kong China, Singapore, Viet Nam and IATA
04	5	Different Approaches for Cross-Border Air Traffic Management (IP/02)	United States
05	5	Development of Trajectory-Based Operations (TBO) Roadmap for Inclusion into the APAC Seamless ANS Plan in support of a Harmonised Implementation in APAC (WP/22)	Thailand, on behalf of Hong Kong China, Indonesia, Japan, Singapore, Thailand, United States of America, Viet Nam, CANSO and IATA
06	6	Asia/Pacific Region ATS Route Catalogue (WP/41)	Secretariat
07	7	Review of MET SG Outcomes (WP/48)	Secretariat
08	7	Final Draft Report – 2021 ICAO APAC Regional Survey on the Provision of Meteorological Services to Support ATM and ATFM (IP/11)	Secretariat

— — — — — — — —

CORRIGENDUM TO THE ASIA/PACIFIC SEAMLESS ANS PLAN VERSION 4.0

The *Asia/Pacific Seamless ANS Plan* is amended as follows.

The text proposed to be removed has been strike through and the text to be inserted is highlighted in Grey.

i) Paragraph 5.6 Table 1: Asia/Pacific ASBU Block 0, Block 1 and Block 2 Priority

Functional Category	Element	Description	Priority	Responsibility for Review
Technology	~~NAVS-B0/1 to B0/4~~	~~SBAS, GBAS, ABAS, MON (PARS 7.5, 7.7)~~	~~2~~	~~CNS SG~~
	NAVS-B0/1	GBAS (PARS 7.5, 7.7)	2	CNS SG
	NAVS-B0/2	SBAS (PARS 7.5, 7.7)	2	
	NAVS-B0/3	ABAS (PARS 7.7)	1	
	NAVS-B0/4	Nav. MON (PARS 7.7)	1	

ii) Paragraph 5.10

There are ~~18~~20 Priority 1 elements as follows:

a) Aeronautical Meteorology: AMET-B0/1 to B0/4;

b) Aeronautical Information Management: DAIM-B1/1 to B1/6*;

c) Airport CDM: ACDM-B0/1;

d) ANSP human and simulator performance (Regional);

e) ATS Inter-facility Datalink Communications: FICE-B0/1;

f) Space object launches and re-entry management (Regional);

g) Civil-Military SUA management (Regional);

h) Civil-Military strategic and tactical coordination (Regional);

i) Core data communications: COMI-B0/3, B0/7 and B1/1;

j) Direct and Free Route Operations: FRTO-B0/1 to B0/4;

k) Enhanced SAR systems (Regional);

l) Ground-based Surveillance: ASUR-B0/1 to B0/3;

m) Network Operations: NOPS-B0/1 to B0/5;

n) Performance-based Navigation Approach Procedures: APTA-B0/1 and B0/2;

o) Runway Sequencing: RSEQ-B0/1 to B0/2; ~~and~~

p) Safety Nets: SNET-B0/1 to B0/4; and

q) Navigation Systems: NAVS-B0/3 and NAVS-B0/4.

**Note: DAIM-B1/7 is placed within PASL Phase III.*

iii) Paragraph 7.5

Where practicable, all instrument runways serving aeroplanes should have the following approach procedures consistent with **APTA-B0/1** (Priority 1) and **APTA-B0/3**:

a) SBAS/GBAS CAT1 precision approaches (Priority 2); or ILS CAT1 approaches (with APV approach as a backup); or

b) Approaches with Vertical Guidance (APV); RNP APCH with LNAV-VNAV or LPV Minima; or

c) if an APV is not practical, straight-in RNP APCH with Lateral Navigation (LNAV) or SBAS based LPV Minima.

iv) Paragraph 7.7

SBAS, GBAS, ABAS and Nav. MON systems should be established as appropriate to the level and type of aircraft operations and the operating environment consistent with NAVS-B0/1 to B0/4, subject to an assessment of benefits and costs.

Note 1: States should prioritize implementation of regulations and infrastructure for facilitating use of ABAS and establishing a Nav. MON (Priority 1).

Note ~~1~~2: the application of GNSS and its augmentations such as GBAS Landing System (GLS) is recommended where these systems were economically beneficial.

Note ~~2~~3: As far as practicable, airspace and instrument flight procedures associated with international aerodromes should not be constrained by international borders and political barriers, and be established only after appropriate consideration of:

a) environmental efficiencies;

b) noise abatement and local authority regulations;

c) adjacent aerodromes;

d) conflicting instrument flight procedures; and

e) affected ATC units or ATM procedures.

Terms of Reference of Air Traffic Management Sub-Group of APANPIRG (ATM/SG)

The Objectives of the ATM/SG are to:

1) *ensure the continuous and coherent development of the ATM/AIM/SAR parts of the Asia/Pacific Regional Air Navigation Plan (APAC ANP) in a manner that is harmonized with adjacent regions, consistent with ICAO SARPs, the Global Air Navigation Plan and the Global Aviation Safety Plan;*

2) *facilitate the implementation of ATM systems, procedures and services identified in the APAC ANP, Aviation System Block Upgrade (ASBU) priority modules and Asia/Pacific Seamless ~~ATM~~ ANS Plan elements using the project management principles where appropriate;*

3) *review, identify and address deficiencies that impede the implementation or provision of efficient ATM services in the Asia and Pacific Regions.*

Deliverables to meet the Objectives:

1) *Progress report to be **submitted** to APANPIRG addressing the ATM/SG deliverables (listed in 2 to 9 below);*

2) *ATM parts of the ASIA/PAC ANP to be **reviewed** and, as necessary, amendment proposals **prepared** to update the APAC ANP to reflect changes in the operational and global requirements;*

3) *Level of implementation of ATM services to be **monitored** and, as necessary, **facilitated** to support the effective implementation of ASBU priority modules and the Asia/Pacific Seamless ~~ATM~~ ANS Plan elements;*

4) *Air navigation deficiencies in the field of ATM to be **identified** (which may require any necessary systems performance monitoring to be **facilitated**) and, where necessary, appropriate corrective action **proposed** and the development and implementation of action plans by States to resolve identified deficiencies **facilitated**;*

5) *Air navigation deficiencies in the field of ATM (as listed in the APANPIRG database) to be **reviewed** and, as necessary, **updated** to reflect the current situation;*

6) *Research and development, trials and demonstrations in the field of ATM and other relevant areas to be **monitored** and, as necessary, the transfer of this information and expertise between States **facilitated**;*

7) *Specific recommendations to be **made,** and guidance materials **developed,** aimed at improving aeronautical meteorological services by the use of existing and/or new procedures, facilities and technologies;*

8) *Inter-regional and intra-regional co-ordination issues in the field of ATM to be **reviewed** and **identified** and, as necessary, actions **recommended** addressing those issues*;

9) *ATS environmental initiatives are consistently identified and progressed; and report outcomes from ATM environmental initiatives;*

10) *Draft Conclusions and Decisions to be **formulated** relating to matters in the field of ATM that come within the scope of the APANPIRG work plan.*

ATM and Airspace Safety Deficiencies List (Updated 31 July 2025)

	Deficiencies			Corrective Action		
States/facilities	**Description**	**Date first reported**	**Remarks**	**Executing body**	**Target date**	**Priority ****
	WGS-84 Requirements of Paragraph 1.2.1 of Annex 15					
Afghanistan	WGS-84 - Not implemented	24/6/2014		Afghanistan	TBD	A
Brunei Darussalam	WGS-84 - Not implemented	24/6/2014		Brunei Darussalam	31/12/2025	A
Marshall Islands	WGS-84 - Not implemented	24/6/2014		Marshall Islands	TBD	A
Micronesia	WGS-84 - Not implemented	24/6/2014		Micronesia	TBD	A
Nauru	WGS-84 - Not implemented		Conferring with consultant	Nauru	TBD	A
Palau	WGS-84 - Not implemented	24/6/2014		Palau	TBD	A
Samoa	WGS-84 - Not implemented	24/6/2014		Samoa	TBD	A
Vanuatu	WGS-84 – Not implemented	2/7/1999	Implemented at main airports	Vanuatu	1999	A
	AIP Format Requirements of Chapter 5 of Annex 15					
Kiribati	AIP Format - Not implemented	7/7/99	ATM/AIS/SAR/SG/18 (June 2009) was advised AIP in draft stage	Kiribati		A
	AIS Quality Management System Requirements of Paragraph 3.6.1 of Annex 15 Quality Management System - Not implemented					
Afghanistan	AIS Quality Management System - Not implemented	24/6/2014		Afghanistan	TBD	A
Bangladesh	AIS Quality Management System - Not implemented	24/6/2014		Bangladesh	TBD	A

	Deficiencies			Corrective Action		
States/facilities	**Description**	**Date first reported**	**Remarks**	**Executing body**	**Target date**	**Priority ****
Bhutan	AIS Quality Management System - Not implemented	24/6/2014		Bhutan	TBD	A
Brunei Darussalam	AIS Quality Management System - Not implemented	24/6/2014		Brunei Darussalam	31/03/2026	A
Cambodia	AIS Quality Management System - Not implemented	24/6/2014		Cambodia	TBD	A
Kiribati	AIS Quality Management System - Not implemented	24/6/2014		Kiribati	TBD	A
Lao PDR	AIS Quality Management System - Not implemented	24/6/2014		Lao PDR	TBD	A
Maldives	AIS Quality Management System - Not implemented	24/6/2014		Maldives	30/09/2024	A
Marshall Islands	AIS Quality Management System - Not implemented	24/6/2014		Maldives	TBD	A
Micronesia	AIS Quality Management System - Not implemented	24/6/2014		Micronesia	TBD	A
Myanmar	AIS Quality Management System - Not implemented	9/6/2016		Myanmar	31/12/2025	A
Nauru	AIS Quality Management System - Not implemented	24/6/2014		Nauru	TBD	A
Nepal	AIS Quality Management System - Not implemented	24/6/2014		Nepal	TBD	A
Palau	AIS Quality Management System - Not implemented	24/6/2014		Palau	TBD	A
Samoa	AIS Quality Management System - Not implemented	24/6/2014		Samoa	TBD	A

	Deficiencies			Corrective Action		
States/facilities	**Description**	**Date first reported**	**Remarks**	**Executing body**	**Target date**	**Priority ****
Solomon Islands	AIS Quality Management System - Not implemented	24/6/2014		Solomon Islands	TBD	A
Timor-Leste	AIS Quality Management System - Not implemented	24/6/2014		Timor-Leste	TBD	A
Vanuatu	AIS Quality Management System - Not implemented	24/6/2014		Vanuatu	TBD	A
	Aeronautical Data Area of Responsibility - requirements of Paragraph 2.1.2 of Annex ~~2~~ 15 to ensure that the provision of aeronautical data and aeronautical information covers its own territory and those areas over the high seas for which it is responsible for the provision of ATS					
Bangladesh	Aeronautical Data Promulgation Within the State's Area of Responsibility - Not implemented	29/03/2019 SAIOACG/9		Bangladesh	TBD	A
	Designation of Restricted Areas - requirements of Annex 2 (Definitions) to ensure that restricted areas are designated above the land areas or territorial waters of a State					
~~Australia~~	~~Designation of Restricted Areas Above the Land Areas or Territorial Waters of a State - Not implemented~~	~~29/03/2019 SAIOACG/9~~	~~Danger areas within international airspace that is part of a State's responsibility is acceptable~~ Australia has completed the corrective actions concerning the designation of restricted areas over land or territorial waters	~~Australia~~	~~December 2022~~	~~A~~

	Deficiencies			Corrective Action		
States/facilities	**Description**	**Date first reported**	**Remarks**	**Executing body**	**Target date**	**Priority ****
India	Designation of Restricted Areas Above the Land Areas or Territorial Waters of a State - Not implemented	29/03/2019 SAIOACG/9	Danger areas within international airspace that is part of a State's responsibility is acceptable	India	TBD	A
	Airspace Classification Requirements of Paragraph 2.6 of Annex 11					
China	Airspace Classification - Not implemented	7/7/99	Difference to Annex 11 is published in AIP, China.	China	APANPIRG/19 updated, implementation planned by end 2010.	A
Macao, China	Airspace Classification - Not implemented	05/09/2018		Macau, China	TBD	A
Nauru	Airspace Classification - Not implemented	7/7/99		Nauru	TBD	A
Solomon Islands	Airspace Classification - Not implemented	7/7/99		Solomon Islands	TBD	A
	ATS Message Addressing Requirements of Doc 4444 PANS-ATM Section 11.4 (Message Types and their Application)		Note: the threshold for a Deficiency is 5% or more DEP messages reported to have not been sent, and where the analysed data provided evidence of a systemic (either systems or human factors) failure to send the message			

	Deficiencies			Corrective Action		
States/facilities	**Description**	**Date first reported**	**Remarks**	**Executing body**	**Target date**	**Priority ****
Maldives	DEP message transmission	09/08/2019	DEP messages inconsistently transmitted Conclusion APANPIRG/27/12 and ICAO correspondence	Maldives	TBD	A
	SAR capability: Requirements of Annex 12 as defined in the Regional Air Navigation Plan Volume II Part I – GENERAL PLANNING ASPECTS Section 3 SPECIFIC REGIONAL REQUIREMENTS, failure to reach 90% or more implementation of the Asia/Pacific SAR Plan					
Afghanistan	Asia/Pacific SAR Plan	6/07/2015	~~APSAR/WG/6 56%~~ APSAR/WG/10 55%	Afghanistan	2019	U
Bangladesh	Asia/Pacific SAR Plan	17/05/2019	~~APSAR/WG/9 65%~~ APSAR/WG/10 66%	Bangladesh	2019	U
Bhutan	Asia/Pacific SAR Plan	6/07/2015	~~APSAR/WG/8 28%~~ APSAR/WG/10 26%	Bhutan	2019	U
Brunei Darussalam	Asia/Pacific SAR Plan	17/05/2019	~~APSAR/WG/4 63%~~ APSAR/WG/10 62%	Brunei	2019	U
Cambodia	Asia/Pacific SAR Plan	6/07/2015	~~APSAR/WG/9 76%~~ APSAR/WG/10 74%	Cambodia	2019	U
Macao, China	Asia/Pacific SAR Plan	6/07/2015	~~APSAR/WG/9 88%~~ APSAR/WG/10 86%	Macao, China	2019	U
Cook Islands	Asia/Pacific SAR Plan	6/07/2015	~~APSAR/WG/8 62%~~ APSAR/WG/10 60%	Cook Islands	2019	U
DPR Korea	Asia/Pacific SAR Plan	6/07/2015	~~APSAR/WG/8 71%~~ APSAR/WG/10 70%	DPR Korea	2019	U

	Deficiencies			Corrective Action		
States/facilities	**Description**	**Date first reported**	**Remarks**	**Executing body**	**Target date**	**Priority ****
French Polynesia	Asia/Pacific SAR Plan	17/05/2019	~~APSAR/WG/8 84%~~ APSAR/WG/10 82%	French Polynesia	2019	U
Kiribati	Asia/Pacific SAR Plan	6/07/2015	~~APSAR/WG/4 26%~~ APSAR/WG/10 25%	Kiribati	2019	U
Lao PDR	Asia/Pacific SAR Plan	6/07/2015	~~APSAR/WG/4 57%~~ APSAR/WG/10 56%	Lao PDR	2019	U
Maldives	Asia/Pacific SAR Plan	6/07/2015	~~APSAR/WG/8 78%~~ APSAR/WG/10 76%	Maldives	2019	U
Marshall Islands	Asia/Pacific SAR Plan	6/07/2015	~~APSAR/WG/5 17%~~ APSAR/WG/10 17%	Marshall Islands	2019	U
Micronesia	Asia/Pacific SAR Plan	6/07/2015	~~APSAR/WG/5 17%~~ APSAR/WG/10 17%	Micronesia	2019	U
Mongolia	Asia/Pacific SAR Plan	17/05/2019	~~APSAR/WG/9 89%~~ APSAR/WG/10 87%	Mongolia	2019	U
Myanmar	Asia/Pacific SAR Plan	6/07/2015	~~APSAR/WG/9 69%~~ APSAR/WG/10 68%	Myanmar	2019	U
Nauru	Asia/Pacific SAR Plan	6/07/2015	~~APSAR/WG/4 0%~~ APSAR/WG/10 0%	Nauru	2019	U
Nepal	Asia/Pacific SAR Plan	6/07/2015	~~APSAR/WG/9 66%~~ APSAR/WG/10 50%	Nepal	2019	U
New Caledonia	Asia/Pacific SAR Plan	17/05/2019	~~APSAR/WG/8 78%~~ APSAR/WG/10 77%	New Caledonia	2019	U
Pakistan	Asia/Pacific SAR Plan	17/05/2019	~~APSAR/WG/9 89%~~ APSAR/WG/10 89%	Pakistan	2019	U
Palau	Asia/Pacific SAR Plan	6/07/2015	~~APSAR/WG/5 17%~~ APSAR/WG/10 17%	Palau	2019	U
Papua New Guinea	Asia/Pacific SAR Plan	6/07/2015	~~APSAR/WG/7 54%~~ APSAR/WG/10 37%	Papua New Guinea	2019	U

	Deficiencies			Corrective Action		
States/facilities	**Description**	**Date first reported**	**Remarks**	**Executing body**	**Target date**	**Priority ****
Samoa	Asia/Pacific SAR Plan	6/07/2015	~~APSAR/WG/4 0%~~ APSAR/WG/10 0%	Samoa	2019	U
Solomon Islands	Asia/Pacific SAR Plan	6/07/2015	~~APSAR/WG/4 0%~~ APSAR/WG/10 0%	Solomon Islands	2019	U
Sri Lanka	Asia/Pacific SAR Plan	17/05/2019	~~APSAR/WG/9 84%~~ APSAR/WG/10 86%	Sri Lanka	2019	U
Thailand	Asia/Pacific SAR Plan	17/05/2019	~~APSAR/WG/9 85%~~ APSAR/WG/10 87%	Thailand	2025	U
Timor-Leste	Asia/Pacific SAR Plan	6/07/2015	~~APSAR/WG/4 0%~~ APSAR/WG/10 0%	Timor-Leste	2019	U
Tonga	Asia/Pacific SAR Plan	6/07/2015	~~APSAR/WG/4 70%~~ APSAR/WG/10 68%	Tonga	2019	U
Tuvalu	Asia/Pacific SAR Plan	28/05/2022	~~APSAR/WG/7 0%~~ APSAR/WG/10 0%	Tuvalu	2024	U
Vanuatu	Asia/Pacific SAR Plan	6/07/2015	~~APSAR/WG/4 0%~~ APSAR/WG/10 0%	Vanuatu	2019	U
	Non Provision of Safety-related Data Requirement of Paragraph 3.3.5.1 of Annex 11 (provision of data for monitoring the height-keeping performance of aircraft) and APANPIRG Conclusion 16/6 – Non Provision of safety related data by States					
Afghanistan	Non-provision of safety related data	12/07/2019	Failure to submit Kabul LHD data for January-December 2018 and 2020. Afghanistan had submitted data for the period January to July 2021, but no further LHD reports were received after August 2021.	Afghanistan	TBD	U

	Deficiencies			Corrective Action		
States/facilities	**Description**	**Date first reported**	**Remarks**	**Executing body**	**Target date**	**Priority ****
India	Non-provision of safety related data	RASMAG/30	India had not verified the RVSM approval status of 16 aircraft for over six months (since December 2024) and had not submitted the 2024 annual RVSM approval snapshot.	India	TBD	U
Nepal	Non-provision of safety related data	RASMAG/30	Failure to submit annual TSD on time and in the correct format	Nepal	TBD	U
	State Responsibility to comply with the Annex 6 Height-Keeping Monitoring Requirement Annex 6 Part I Section 7.2.9 (10th Ed.) and Part II Section 2.5.2.10 (9th Ed.)					
Afghanistan	Non-compliance with LTHM requirement (remaining monitoring burden more than 30%)	RASMAG/23	Remaining monitoring burden of 50% (RASMAG/29) MAAR informed ICAO that all known airframes in Afghanistan have complied with the monitoring requirement (November 2022). Deficiency retained due to the unknown status of the Afghanistan aeronautical authority responsible for ensuring monitoring is conducted.	Afghanistan	TBD	A
Democratic People's Republic of Korea	Non-compliance with LTHM requirement (remaining monitoring burden more than 30%)	RASMAG/30	Remaining monitoring burden of 100% (RASMAG/30)	DPR Korea	TBD	A
India	Non-compliance with LTHM requirement (remaining monitoring burden more than 30%)	RASMAG/29	Remaining monitoring burden of 46% (RASMAG/30)	India	TBD	A

	Deficiencies			Corrective Action		
States/facilities	**Description**	**Date first reported**	**Remarks**	**Executing body**	**Target date**	**Priority ****
Malaysia	Non-compliance with LTHM requirement (remaining monitoring burden more than 30%)	RASMAG/30	Remaining monitoring burden of 31% (RASMAG/30)	Malaysia	TBD	A
Nepal	Non-compliance with LTHM requirement (remaining monitoring burden more than 30%)	RASMAG/28	Remaining monitoring burden of 45% (RASMAG/30)	Nepal	TBD	A
~~Philippines~~	~~Non-compliance with LTHM requirement (remaining monitoring burden more than 30%)~~	~~RASMAG/29~~	~~Remaining monitoring burden of 40% (RASMAG/29)~~ Remaining monitoring burden of 22% (RASMAG/30)	~~Philippines~~	~~TBD~~	~~A~~
	~~**Data Link Performance Monitoring and Analysis Requirements of Paragraph 2.28 and/or 3.3.5.2 of Annex 11 not met**~~					
~~India~~	~~Post-implementation monitoring not implemented~~	~~13/07/2017~~	~~Performance monitoring and analysis was reported for the Chennai and Kolkata FIRs, but was not reported for the Mumbai FIR.~~ (FIT-Asia/15): India had submitted the data link performance report for all the three FIRs, including Mumbai FIR.	~~India~~	~~TBD~~	~~A~~

** Note: In accordance with the *APANPIRG Handbook - Asia/Pacific Supplement to the Uniform Methodology for the Identification, Assessment and Reporting of Air Navigation Deficiencies*, priority for Air Navigation Deficiencies is guided by the principle that a deficiency with respect to an ICAO Standard is accorded a "U" status, while a non-compliance with a Recommended Practice or a PANS is considered as "A" or "B" subject to additional expert evaluation. The final prioritization of deficiencies is the prerogative of APANPIRG.

Terms of Reference

Air Traffic Flow Management and Airport Collaborative Decision Making Steering Group (ATFM & A-CDM/SG)

1. Having considered relevant documents such as the *Manual on Collaborative Air Traffic Flow Management* (Doc 9971), regional air traffic data and the Asia/Pacific Region city pairs and associated airspace and ATS routes and aerodromes experiencing the most significant traffic demand, and noting the Asia/Pacific Seamless ANS Plan provisions for structural airspace capacity increasing measures, develop an Asia/Pacific Regional ATFM Framework which addresses ATFM implementation and ATFM operational issues in the Asia/Pacific Region;

2. Identify, research and recommend appropriate guidance regarding:

    a. capacity assessment and adjustment mechanisms;

    b. regular review for all aerodromes and ATC sectors where traffic demand is expected to reach capacity, or is resulting in traffic congestion;

    c. mechanisms for ATFM and A-CDM data gathering, collation and sharing between States, International Organizations and ICAO, which may include;

        i. capacity assessments, including factors affecting capacity such as special use airspace status, runway closures and weather information;

        ii. traffic demand information which may include flight schedules, flight plan data, repetitive flight plan data as well as associated surveillance updates of flight status; and

        iii. ATFM Daily Plan;

    d. compliance by airspace and aerodrome users with ATFM and A-CDM measures; and

    e. any other guidance relevant to the Regional ATFM Framework and Asia/Pacific A-CDM Implementation Plan.

3. Maintain an overview of CDM/ATFM and A-CDM programs being conducted within the Region, with a view to facilitating their coordination and alignment, and to promote;

    a. harmonized procedures;

    b. implementation of the performance expectations of the Regional ATFM Framework and Asia/Pacific A-CDM Implementation Plan; and

    c. interoperability of A-CDM with ATFM;

4. Review the effectiveness of existing and planned ATFM and A-CDM programs in the Asia/Pacific Region, and make specific recommendations, including any adjacent airspace affecting the Asia/Pacific Regions, and research and recommend appropriate mechanisms for the on-going review of such programs;

5. The Group coordinates closely with other relevant bodies such as the Airport Operations and Planning Sub-Group (AOP SG), the Meteorological Requirements Working Group (MET/R WG) and System-Wide Information Management Task Force (SWIM TF).

6. The Group reports to the ATM Sub-Group (ATM/SG).

.....

Terms of Reference

Asia/Pacific Flight and Flow Information for a Collaborative Environment Ad-hoc Group

1. Objectives

1.1. The objectives of the Asia/Pacific (APAC) Flight and Flow Information for a Collaborative Environment (FF-ICE) Ad-Hoc Group are to:

a) Develop the APAC Regional FF-ICE/R1 Operational Requirements, and related operational processes and procedures; and

b) Develop the APAC Regional FF-ICE/R1 Implementation Strategy, including timeframes and roadmap.

2. Tasks

2.1. To meet these objectives, the APAC FF-ICE Ad-Hoc Group will undertake the following tasks:

a) Study successful FF-ICE/R1 development in other regions and States, draw useful lessons, and enhance the understanding of FF-ICE/R1 through sharing use case scenarios and business cases;

b) Provide guidance for the regional FF-ICE/R1 implementation, taking into consideration of mixed-mode environment before the regional sunset date of Flight Plan 2012;

c) Coordinate and collaborate with other related APANPIRG contributory bodies, such as APAC Air Traffic Flow Management Steering Group (ATFM/SG) and APAC System Wide Information Management Task Force (SWIM TF);

d) Review the development of Flight Information Exchange Model (FIXM) revisions and if needed, propose FIXM extension amendments for regional adoption;

e) Provide progress update to the Air Traffic Management Sub-Group (ATM/SG) and the Communications, Navigation and Surveillance Sub-Group (CNS SG) of the Asia/Pacific Air Navigation Planning and Implementation Regional Group (APANPIRG);

f) Provide recommendation for the inclusion of additional Aviation System Block Upgrade (ASBU) elements in the Asia/Pacific Seamless ANS Plan, as they mature;

g) Submit inputs and recommendations to the ICAO ATM Requirements and Performance Panel (ATMRPP), when deemed necessary; and

h) Undertake any other tasks related to FF-ICE/R1 implementation that may arise in the future.

3. Memberships

3.1. Singapore and Thailand are the Rapporteurs and Secretariat of the APAC FF-ICE Ad-Hoc Group.

3.2. The APAC FF-ICE Ad-Hoc Group should consist of experts from:

a) Civil Aviation Authorities (CAA);

b) Air Navigation Service Providers (ANSP), including personnel involved in processing flight plans, performing Air Traffic Flow Management (ATFM) operations, and implementation of SWIM and FF-ICE;

c) Airspace Users (AU), including personnel involved in flight planning and flight dispatch; and

d) Relevant international and regional organizations.

4. Reporting

4.1. The APAC FF-ICE Ad-Hoc Group will report its progress, findings, and recommendations to the ATM/SG and CNS SG of APANPIRG. Regular updates will also be provided to the ATFM/SG and SWIM/TF.

Terms of Reference of the AIS-AIM Implementation Task Force (AAITF)

The objectives of the Task Force are to:

a) study means of aeronautical information management by civil aviation authorities and/or service providers in other regions including globally interoperable aeronautical data, aeronautical information exchange models and digital data sets, and promote the implementation of harmonized and interoperable methods/models in the Asia/Pacific Region;

b) assist States to implement Quality Management Systems for the aeronautical information service in an expeditious manner;

c) assist States to develop competency-based training and conduct workshops on the Asia/Pacific Regional Plan for Collaborative AIM;

d) review and update the Regional Plan for Collaborative AIM taking into account amendments to ICAO SARPs, procedures and guidance material;

e) monitor and review technical and operating developments in the AIS field especially in the area of automation and the exchange of digital data sets of aeronautical information in a SWIM environment; and

f) monitor the transition from AIS to AIM, and in particular monitor developments in Annexes 4 & 15, PANS-AIM (Doc 10066), PANS-Information Management (PANS-IM, Doc 10199 ~~when available~~) and related ICAO guidance documents.

To achieve the above objectives, the Task Force shall consider:

1. results of the ICAO Information Management Panel (IMP);

2. amendments to Annex 4, Annex 15, PANS-AIM, PANS-IM, ~~(when available)~~ the AIS Manual (Doc 8126), the Manual on the Quality Management System for AIS (Doc 9839), the Manual on AIS Training (Doc 9991), the Manual on System-Wide Information Management (SWIM) Implementation (Doc 10203 ~~when available~~) and the Aeronautical Chart Manual (Doc 8697);

3. revisions to the EUROCONTROL *Operating Procedures for AIS Dynamic Data* (OPADD);

4. implementation of the regional priorities and the performance objectives of the Asia/Pacific Seamless ANS Plan and the Regional Plan for Collaborative AIM.

The Task Force will maintain close coordination with other relevant bodies such as the System-Wide Information Management Task Force (SWIM TF).

The Task Force will report to the ATM Sub-Group of APANPIRG.

(Adopted by the 14th Meeting of the Asia/Pacific Air Navigation Planning and Implementation Regional Group (APANPIRG/14), 2003, and most recently amended by APANPIRG/~~34~~36, ~~2023~~2025)

INTERNATIONAL CIVIL AVIATION ORGANIZATION

ASIA/PACIFIC SEARCH AND RESCUE (SAR) PLAN

Version 5.0, May 2025

This Plan was developed by the Asia/Pacific Search and Rescue Task Force (APSAR/TF) and updated by Asia/Pacific Search and Rescue Work Group (APSAR/WG)

Approved by ATM/SG/13 and published by the
ICAO Asia and Pacific Office, Bangkok

CONTENTS

SCOPE OF THE PLAN **1**

OBJECTIVES **2**

EXECUTIVE SUMMARY **6**

ABBREVIATIONS AND ACRONYMS **8**

BACKGROUND INFORMATION **10**

CURRENT SITUATION **14**

PERFORMANCE IMPROVEMENT PLAN **19**

Preferred SAR Capability Specifications (PSCS) 19

EMERGING ISSUES AND FUTURE DEVELOPMENTS **29**

MILESTONES, TIMELINES, PRIORITIES AND ACTIONS **31**

APPENDIX 1: BENEFITS TO THE SAR SYSTEM OF STATES ASSISTING OTHER STATES **32**

APPENDIX 2: ANNUAL ASIA/PACIFIC SRU CAPABILITY SURVEY **34**

SCOPE OF THE PLAN

Plan Structure

1.1 The Asia/Pacific Search and Rescue (SAR) Plan (hereinafter referred to as the 'Plan') references different levels. At the higher level are global requirements established by the ICAO Annex 12 to the ICAO Convention on International Civil Aviation (ICAO Doc 7300). Global guidance material is provided by the International Maritime Organization (IMO) and ICAO's joint publication, the International Aeronautical and Maritime Search and Rescue (IAMSAR) Manual. Beneath this is regional planning guidance primarily provided by this Plan and other regional guidance material, in order to enable States to define the goals and means of meeting objectives for State planning towards improving State SAR System capability, such as the performance objectives of *Asia/Pacific Regional Air Navigation Plan* (ANP) and *Asia/Pacific Seamless Air Navigation Services (ANS) Plan*.

1.2 The global air navigation perspective is guided mainly by the *Global Air Navigation Plan* (GANP, ICAO Doc 9750), the *Global ATM Operational Concept* (ICAO Doc 9854) and the *Global Aviation Safety Plan* (GASP).

1.3 The scope of the Plan is the identification of:

a) the current status of SAR preparedness of Asia/Pacific States and State SAR arrangements; and

b) recommendations for SAR planning and preparedness enhancements, in terms of compliance with Annex 12 of the ICAO Convention, IAMSAR Manual guidance, and accepted best international practice.

1.4 References in the Plan to 'States' are intended to include Special Administrative Regions and territories.

Plan Review

1.5 As an iterative process, the Plan requires regular updating to keep current with changes in ICAO Annexes and guidance material, outcomes from the ICAO/IMO Joint Working Group on the Harmonisation of Aeronautical and Maritime Search and Rescue (JWG-SAR), the IAMSAR Manual, regional aviation activity, developments in the Air Traffic Management (ATM) system, new technology, political considerations, human performance and lessons learned from actual SAR responses. Plan updates should also focus on the SAR system being an important component of an integrated regional and global air navigation system. It is intended that Asia/Pacific Air Navigation Planning and Implementation Regional Group (APANPIRG), and its contributory bodies conduct a complete review every three years from 2019 (or a shorter period determined by APANPIRG) of the Plan to align with the review cycle of the GANP and the IAMSAR Manual. The review should be guided by a consultative process involving States and relevant International Organizations and technical bodies.

OBJECTIVES

Introduction

2.1 Asia/Pacific States that are signatories to the Chicago Convention accept the responsibility for the provision of SAR services per the requirements of ICAO Annex 12 – *Search and Rescue*. Increases in both aviation and maritime traffic throughout the Asia/Pacific Region places additional importance on the ability for States to be adequately prepared for potentially increased demand for aeronautical and maritime SAR services.

2.2 The world's citizens, who frequently fly over or sail through the Asia/Pacific, expect a timely and adequate SAR response to be provided should it be required. States in the region need to be adequately prepared for the provision of efficient and effective SAR services. To assist in achieving this, it is essential for States to cooperate, collaborate and in some cases assist with resources to neighbouring and sub-regional RCCs.

2.3 ICAO Regional Office maintains a record, as reported to ICAO by the States themselves, of the status of individual State SAR compliance against ICAO Annex 12 requirements. There are significant variations in the level of State SAR capability across the region with significant gaps requiring urgent action, especially in oceanic areas. The ICAO Universal Safety Oversight Audit Programme – Continuous Monitoring Approach (USOAP-CMA) also provides a useful tool to States to self-assess their individual SAR system status. Since the establishment of this Plan, there had already been commendable improvements to the SAR systems of some States which have contributed to building better regional SAR capability. However, there was still considerable work required to address capability gaps.

2.4 There is a high risk of negative consequences to a State which does not provide an adequate SAR response to an aircraft or vessel in distress. The primary concern is the higher probability for loss of lives which may have been saved. The ability for news to spread rapidly in today's technologically connected world also provides the opportunity for a poor or ineffective SAR response to quickly reach a global audience resulting in damage to that State's reputation internationally and potential economic loss to sensitive State industries such as tourism and transport. However, the benefits of an effective and reliable SAR service to States offers many advantages. Besides reduction of loss of life and human suffering, other advantages include the following aspects:

a) safer and more secure environment for aviation and maritime related industries, commerce, recreation and travel. Increased safety may promote use and enjoyment of aviation and maritime environments, tourism and economic development. This is especially true when the SAR system utilised programmes aimed at preventing or reducing the effects of mishaps, sometimes referred to as 'Preventative SAR';

b) availability of SAR resources often provides the initial response and relief capabilities critical to saving lives in the early stages of natural and man-made disasters. SAR services offer an integral part of local, national and regional emergency management systems;

c) well performed SAR operations can provide positive publicity about situations which may otherwise be viewed negatively. This can lead to improved public confidence in that State's reputation and commitment to providing a safe environment, leading to increased confidence to conduct activities beneficial to that State's economy; and

d) as SAR is a relatively non-controversial and humanitarian mission, it provides an excellent opportunity to enhance cooperation and communication in general between States and organisations, not only for SAR. It can also foster better working relationships between States and organisations at the local, national and international levels, including civil/military cooperation.

2.5 In 2014 Malaysia Airlines flight MH370, a Boeing 777 with 239 persons on board, disappeared when flying from Kuala Lumpur, Malaysia to Beijing, China, and AirAsia QZ8501 was lost on a flight from Surabaya, Indonesia to Singapore. The MH370 event resulted in probably the largest and most expensive search response for a missing aircraft in human history. Together with Air France flight AF447, which crashed into the Atlantic Ocean in 2009, these tragedies highlighted vulnerabilities in the air navigation system including the SAR system, which have hampered timely identification and localization of aircraft in distress, hindering effective response efforts. ICAO is addressing these vulnerabilities through implementation of functions of the Global Aeronautical Distress and Safety System (GADSS) concept of operations; however, this new system is also dependent on improvements in global SAR capability, especially for remote and oceanic SAR response.

2.6 The Plan is designed to address both civil and military SAR authorities and has been developed in consultation with Asia/Pacific States, SAR administrations and relevant International Organizations. States should consult with stakeholders nationally, regionally and internationally as appropriate and determine actions in order to commit to achieving the objectives of this Plan in order to meet at least the minimum SAR service requirements in accordance with ICAO Annex 12. It is noted that where a State is unable to meet minimum SAR Standards and Recommended Practices (SARPs) of ICAO Annex 12, Article 38 to the ICAO Convention requires notification to ICAO of the differences between its own practice and that established by the international standards.

2.7 It is a common practice for the military to conduct or have a major role in SAR operations to fulfil or assist in fulfilling the State's obligation to provide SAR services. From the perspective of providing SAR services, civil-military coordination takes on many forms. This includes coordination during an actual SAR response, national coordination with other agencies to determine the military role, part of an international agreement or set of procedures with a neighbouring State to assist in SAR response, or other types of coordination. The *Manual on Civil-Military Cooperation in Air Traffic Management* (ICAO Doc 10088) is focused on airspace management and includes SAR matters relevant to civil-military coordination in airspace management.

2.8 The IAMSAR Manual Volume II has guidance on multiple aircraft operations and establishing areas of SAR action to assist with the safe coordination and management of aircraft operations during SAR operations. SAR authorities should have procedures in place to rapidly notify airspace users of SAR operations and the establishment of any temporary airspace operation such as danger areas or restricted areas through appropriate State authorities. The combination of guidance in the IAMSAR Manual and ICAO Doc 10088 should enable a State to have an appropriate plan in place for civil-military coordination and cooperation in readiness for efficient and effective SAR response.

2.9 States should aim to meet their obligations progressively in a strategically structured and planned manner with improvement goals set for short-, medium- and long-term implementation. It may be more productive to make gains in small steps commencing with measures that are more easily achievable in the short term and have a minimal cost, progressing to measures which will take longer to implement over the medium to long term. Short term measures that may be implemented relatively easily include the establishment of a national SAR Committee and ensuring SAR agreements are in place with neighbouring States allowing for seamless cross-border transit of search assets engaged in SAR activity. A SAR agreement can be in the form of 'Letter of Agreement' (LOA) or a Memorandum of Understanding (MOU) or other acceptable term indicating a lower form of arrangement for operational matters between SAR service providers [such as Rescue Coordination Centres (RCCs) and/or Rescue Sub-Centres (RSCs)] or a more formal agreement for arrangements between governments concerned.

2.10 All States are encouraged to use the guidance provided within this Plan as a way forward, thus ensuring a timely, well-coordinated response to any SAR incident within their area of responsibility, or during cooperative responses involving more than one Search and Rescue Region (SRR) including overlapping aeronautical and maritime SRRs which may be the responsibility of different RCCs.

Plan Objective

2.11 The objective of this Plan is to provide a framework to assist Asia/Pacific States to meet their SAR needs and obligations accepted under the Convention on International Civil Aviation and for the harmonised and interoperable delivery of both aeronautical and maritime SAR services within the region, and across other ICAO regional boundaries, where practicable.

2.12 The Plan is to be consistent with the SARPs of ICAO Annex 12, and aligned where appropriate with the SAR technical and operational standards and guidance of the IMO.

2.13 The Plan recognizes that ICAO serves as the forum for the implementation of practical and achievable measures to improve SAR services for international civil aviation. The Plan also recognizes that the IMO provides a similar forum for SAR services to maritime shipping.

2.14 Both ICAO and IMO share the same goal of ensuring that SAR services are available globally wherever people sail or fly. The SAR services that ICAO and IMO promote are complementary and offer tangible opportunities to derive mutually beneficial efficiencies for both the aviation and maritime transportation SAR systems globally, regionally and nationally. The objective of this Plan includes encouraging States to take advantage of such efficiencies. States should, where practicable, align their SAR systems with the guidance provided by the IAMSAR Manual, which also provides the benefit for standardised SAR coordination between RCCs and across SRR lines of delineation.

2.15 State SAR plans describe how SAR services will be provided, organized and supported in order for States to meet their obligations under the relevant Conventions. Search and Rescue Coordinators (SC) and SAR managers oversee and implement these plans. National SAR plans should be signed by all Government agencies which can provide or support SAR services. These agencies should all be represented on the State's Search and Rescue Coordinating Committee (SCC), which oversees these plans.

Note: the SC should not be confused with the operational nature of the SAR Mission Coordinator (SMC). The primary purpose of the national SC is to enable a whole-of-government approach to make efficient and effective use of a State's capabilities for SAR.

Plan Development

2.16 The Plan was developed as part of a suite of Asia/Pacific air navigation plans, including the *Asia/Pacific Seamless ANS Plan*, the *Asia/Pacific Plan for Collaborative Aeronautical Information Management* (AIM), the *Asia/Pacific Regional Framework for Collaborative Air Traffic Flow Management* (ATFM), and the *Regional ATM Contingency Plan*, so the Plan should not be considered in isolation.

2.17 The Plan is expected to provide guidelines and recommendations for Asia/Pacific States to consider for the enhancement and improvement of national, sub-regional and regional SAR capability including:

a) compliance with ICAO Annex 12 SARPs;

b) identification and addressing of deficiencies in SAR capability;

c) continuous and coherent development of SAR capability;

d) harmonisation of aeronautical and maritime SAR services;

e) civil/military cooperation and coordination (including SAR response, information sharing and use of airspace);

f) remote oceanic SAR response capability [including provision for Mass Rescue Operations (MRO)];

g) establishment and review of arrangements between neighbouring States to expeditiously facilitate SAR coordination, operations and cooperation across regional boundaries including sharing SAR resources and contingency procedures;

h) facilitation of the implementation of SAR systems and services including the establishment of JRCCs where suitable and practicable;

i) supporting the sharing of SAR information, data and expertise;

j) integration with ATM systems and future ATS developments, where appropriate;

k) monitoring of outcomes from APANPIRG Sub-Groups, other ICAO Region SAR groups, ICAO/IMO JWG-SAR and related forums for issues that may affect the Plan;

l) facilitation of a continuous reporting mechanism of State SAR capability, ICAO Annex 12 compliance and SAR performance data to the ICAO Asia/Pacific Regional Office through the APANPIRG Air Traffic Management Sub-Group (ATM/SG);

m) implementation of a SAR System Improvement and Assessment measures, including Safety Management System, Quality Assurance programme and risk assessment, and programs to reduce the number of SAR incidents;

n) coordinating the introduction of new technology affecting the regional SAR system;

o) sharing future research and development concepts;

p) seeking efficiencies, through the coordination and facilitation of concurrent regional SAR meetings, seminars, workshops and exercises, including joint ICAO and IMO, and sub-regional forums where practicable; and

q) conducting efficient SAR Exercises (SAREXs) that identify improvements and latent problems.

2.18 The Plan elements should be periodically reviewed by APANPIRG to ensure that they remain relevant to the SAR system, particularly for new technology developments and alignment with other relevant global and regional SAR plans and the Global Air Navigation Plan.

EXECUTIVE SUMMARY

3.1 Aviation is a significant driver of economic growth and contributes strongly to the economic wellbeing of the diverse cultures and people in the Asia/Pacific Region. According to ICAO data, the global passenger traffic continued to increase in 2023 with around 4.2 billion passengers transported worldwide, up from 3.2 billion passengers in 2022. Although still slightly below pre-pandemic (2019) levels with 4.5 billion passengers having been transported worldwide, passenger traffic in 2023 increased 30 per cent from 2022. The number of flight departures for scheduled commercial operations continued to increase by approximately 13 per cent with over 35 million departures in 2023, compared to around 31 million in 2022.

3.2 For the maritime industry, the United Nations Conference on Trade and Development (UNCTAD) Review of Maritime Transport 2024 reported that a record of almost 250,000 port calls by container ships in the second half of 2023 were driven by growing trade and longer routes with Asia handling 63% of global container trade. In 2019, the region accounted for 41% of goods unloaded, and had strengthened its position as a maritime hub that brings together more than 50% of global maritime trade volumes. Before the COVID-19 pandemic, growth in the cruise ship industry together with the many other forms of maritime transport such as fishing vessels and passenger ferries created added potential demand for regional SAR services. Whilst IMO assists the Parties to the Maritime SAR Convention, particularly their implementation related to the provision of maritime SAR services, the demand for aeronautical SAR services which frequently support responses to maritime SAR incidents is also likely to rise.

3.3 Asia/Pacific States that are signatories to the Chicago Convention accept the responsibility for the provision of SAR services per the requirements of ICAO Annex 12. Increases in both aviation and maritime traffic throughout the Asia/Pacific Region places additional importance on the ability for States to be adequately prepared for potentially increased demand for aeronautical and maritime SAR services.

3.4 Considering that many of the Asia/Pacific States have the challenging responsibility for providing a SAR service over vast and remote areas, including three of the world's five oceans, the importance for States with oceanic SAR responsibility to cooperate, collaborate and share resources with their neighbouring and regional/sub-regional RCCs is essential.

3.5 High-level support might be necessary from regional bodies that can effectively support the Plan's implementation, such as the:

a) Association of Southeast Asian Nations (ASEAN) and ASEAN Regional Forum (ARF);

b) Asia Pacific Economic Cooperation (APEC);

c) South Asian Association for Regional Cooperation (SAARC);

d) Pacific Community (SPC); and

e) Indian Ocean Rim Association (IORA).

SAR System Funding

3.6 The level of funding provided for effective SAR systems is a matter of concern for all senior decision-makers. An effective SAR system helps prevent lives being lost that may have been saved which provides a persuasive argument for proper funding. The resources should be sufficient to develop and/or maintain the required SAR service per their obligations as signatories to the relevant aeronautical and maritime SAR conventions. This may require the development of business cases to governments outlining where additional funding is required.

3.7 Such business cases should include consideration of amendments to existing State SAR arrangements which may provide more efficient delivery of the SAR service by better utilisation of existing resources [for example by establishing Joint RCCs (JRCCs)], or additional funding sources where required (for example charging a levy to aircraft operators for providing the SAR service or seeking company sponsorship for SRUs). The economic value of a life saved when compared against the economic value of a life lost can also be a significant persuasive factor in any business case.

Joint Rescue Coordination Centres (JRCCs)

3.8 Where practicable, States are encouraged to examine the potential benefits that may be derived by the establishment of JRCCs to incorporate the aeronautical and maritime SAR activities and/or facilities of Aeronautical RCCs (ARCCs)/Aeronautical RSCs (ARSCs) and Maritime RCCs (MRCC)/Maritime RSCs (MRSCs). JRCCs have the potential to not only provide a more effective SAR service to both the aeronautical and maritime industries, but also offer potential financial efficiencies by releasing funds for improvements in other SAR areas.

Note 1: where JRCCs are not practicable, facilities and procedures should be developed which provide and/or enhance effective SAR coordination and collaboration between the ARCCs and MRCCs in support of each other, to provide an efficient and integrated State SAR system for both aeronautical and maritime SAR incident response.

Note 2: a JRCC may be established either physically or by virtual means using the integration of communications, information and computer technology between an ARCC and an MRCC to achieve full search and rescue coordination functionality.

3.9 Where practicable, the JRCC evaluation may consider consolidation of two or more different State RCCs into single sub-regional JRCCs.

Note: a single sub-regional JRCC may be established in partnership with a group of States and serve as a 24-hour nodal JRCC supported by Joint RSCs (JRSCs) of the other partner States which may not necessarily need to be staffed 24 hours but could be activated when required.

ABBREVIATIONS AND ACRONYMS

AAM	Advanced Air Mobility
ADS-B	Automatic Dependent Surveillance-Broadcast
ADT	Autonomous Distress Tracking
AIS	Automatic Identification System
AIP	Aeronautical Information Publication
ANP	(Regional) Air Navigation Plan
ANSP	Air Navigation Service Provider
APANPIRG	Asia/Pacific Air Navigation Planning and Implementation Regional Group
APEC	Asia Pacific Economic Cooperation
APSAR/TF	Asia/Pacific SAR Task Force
APSAR/WG	Asia/Pacific SAR Workgroup
ARCC	Aeronautical Rescue Coordination Centre
ARF	ASEAN Regional Forum
ARSC	Aeronautical Rescue Sub-Centre
A/SMC	Assistant SMC
ASEAN	Association of Southeast Asian Nations
ASPOCS	Administrative Single Point of Contact for SAR
ATC	Air Traffic Control
ATFM	Air Traffic Flow Management
ATM	Air Traffic Management
ATS	Air Traffic Service
CONOPS	Concept of Operations
COSPAS-SARSAT	Cosmicheskaya Sistema Poiska Avariynyh Sudov-Search and Rescue Satellite-Aided Tracking
EI	Effective Implementation
ELT	Emergency Locator Transmitter
ELT(DT)	Emergency Locator Transmitter (Distress Tracking)
EPIRB	Emergency Position Indicating Radio Beacon
FIR	Flight Information Region
GADSS	Global Aeronautical Distress and Safety System
GANP	Global Air Navigation Plan
GASP	Global Aviation Safety Plan
GLONASS	Global Navigation Satellite System
GPS	Global Positioning System
IAMSAR	International Aeronautical and Maritime SAR (Manual)
ICAO	International Civil Aviation Organization
IMO	International Maritime Organization
IORA	Indian Ocean Rim Association
JRCC	Joint (aeronautical and maritime) Rescue Coordination Centre
JRSC	Joint Rescue Sub-Centre
JWG-SAR	ICAO/IMO Joint Working Group on the Harmonisation of Aeronautical and Maritime Search and Rescue
LADR	Location of an Aircraft in Distress Repository
LOA	Letter of Agreement
LRIT	Long Range Identification and Tracking of Ships
MCC	Mission Control Centres
MEOSAR	Medium-altitude Earth Orbit Search and Rescue
MOU	Memorandum of Understanding
MRCC	Maritime Rescue Coordination Centre
MRO	Mass Rescue Operations
MRSC	Maritime Rescue Sub-Centre
PFL	Post Flight Localization

PLB	Personal Locator Beacon
PQs	Protocol Questions
PSCS	Preferred SAR Capability Specifications
RCC	Rescue Coordination Centre
RPAS	Remotely Piloted Aircraft Systems
SAR	Search and Rescue
SARPs	Standards and Recommended Practices
SAARC	South Asian Association for Regional Cooperation
SAREX	SAR Exercises
SC	Search and Rescue Coordinator
SCC	Search and Rescue Coordinating Committee
SMC	Search and Rescue Mission Coordinator
SMS	Safety Management System
SOLAS	International Convention for the Safety of Life at Sea
SPC	Pacific Community
SPOC	SAR Point of Contact
SRR	Search and Rescue Region
SRU	Search and Rescue Unit
SWIM	System Wide Information Management
UAS	Unmanned Aircraft System
UNCLOS	United Nations Convention on the Law of the Sea
USOAP-CMA	Universal Safety Oversight Audit Programme – Continuous Monitoring Approach

BACKGROUND INFORMATION

Improvement Drivers

5.1 The ICAO USOAP-CMA focuses on a State's capability in providing safety oversight by assessing whether the State has effectively and consistently implemented the critical elements of a safety oversight system and determining the State's level of implementation of ICAO's safety-related SARPs, including ICAO Annex 12, and associated procedures and guidance material.

5.2 ICAO Asia/Pacific Regional Office maintains the APANPIRG Air Navigation Deficiencies Lists, including the ATM and Airspace Safety Deficiencies List where SAR-related deficiencies are recorded. This list is based on the uniform methodology for identification, assessment and reporting of such deficiencies as described in Part V of the APANPIRG Procedural Handbook. By identifying and addressing specific deficiencies, APANPIRG and its Sub-groups facilitate the development and implementation of action plans by States to resolve identified deficiencies, where necessary.

5.3 The APANPIRG Air Navigation Deficiencies information is accessible through the ICAO Secure Portal.

Asia/Pacific SAR System Monitoring

5.4 Significant ICAO Annex 12 compliance weaknesses had been identified within the Asia/Pacific Region based upon information provided by States to the ICAO Asia/Pacific Regional Office. This regional status of the SAR capability and SAR agreements as reported by States is recorded in tables made available to APANPIRG.

ICAO Global Aeronautical Distress and Safety System (GADSS)

5.5 In response to the tragedies of Malaysia Airlines flight MH370 in 2014 and Air France flight AF447 in 2009, the GADSS has been developed with the primary objective of addressing vulnerabilities in the air navigation system which had hampered the timely identification and location of aircraft in distress, particularly in remote oceanic areas, and which significantly hindered effective SAR efforts and recovery operations.

5.6 The four main functions of the GADSS are aircraft tracking, location of an aircraft in distress, Post Flight Localization (PFL) and flight recorder data recovery. These functions are enabled through GADSS information management [such as the ICAO OPS Control Directory and the Location of an Aircraft in Distress Repository (LADR)] which allows for the sharing of information and efficient communication between stakeholders.

5.7 The aircraft tracking function provides an automated position report every 15 minutes or less, which can help reduce the time to resolve the status of an aircraft or, if necessary, help locate an aircraft.

5.8 The location of aircraft in distress function uses an Autonomous Distress Tracking (ADT) system which has the capability to automatically determine and transmit the position of an aircraft with an in-flight distress condition, at least every minute, in a manner which is resilient to failures of the aircraft's electrical power, navigation and communication systems. This function is expected to significantly improve the ability for SAR services to locate such aircraft in distress and rescue survivors.

5.9 Following an aircraft accident, PFL provides accurate aircraft position information by means of an ELT and/or homing signals. To assist with localization of wreckage, this function specifies a number of requirements for ELTs and Underwater Locating Devices (ULDs). To ensure accident investigation authorities obtain timely access to flight recorder information, new types of large aircraft will be equipped with a means to recover the flight recorder data in a timely manner.

5.10 RCCs need to implement updated SAR practices and procedures for the GADSS. RCCs need to be able to respond to ADT activations, including that the aircraft could remain in flight across multiple SAR regions. RCC staff also need to be provided with training to ensure understanding of the ADT system and processes. The GADSS relies on implementation by SAR services of:

a) accurate delimitation of SAR regions to ensure proper transfer of the SAR operation to the next responsible RCC;

b) effective and efficient coordination, and procedures between the ATS unit and responsible RCC; and

c) harmonized operations between aeronautical and maritime SAR services.

5.11 ICAO has not prescribed a specific technology for ADT. One ADT technology solution now in operational use is a new Cospas-Sarsat 406 MHz beacon type, the Emergency Locator Transmitter for Distress Tracking, or ELT(DT). The Cospas-Sarsat System section below has further information on ELT(DT)s.

5.12 ADT notifications from the ELT(DT) will be delivered to RCCs by both the existing Cospas-Sarsat Data Distribution System and the ICAO LADR. RCCs and ATS units need to implement procedures that take these two delivery methods into account to ensure effective coordination aligned with ICAO Annexes 11 and 12 provisions on alerting and SAR services.

5.13 The IAMSAR Manual provides a comprehensive overview of ADT. The IAMSAR Manual Volume II Appendix V *Autonomous distress tracking of aircraft in flight* includes anticipated *flow of events arising from an ADT device activation* that serves as a flowchart of actions. Per the requirements of ICAO Annex 12, each RCC, and as appropriate, RSC is to:

a) maintain up-to-date contact details in the OPS Control Directory; and

b) subscribe and maintain access to the location of an aircraft in distress repository.

5.14 The *Manual on Global Aeronautical Distress and Safety System* (ICAO Doc 10165) provides guidance and information on the implementation and operation of the GADSS and is intended to facilitate the uniform application of SARPs in ICAO Annex 6 – *Operation of Aircraft*, Part I – *International Commercial Air Transport – Aeroplanes* and provisions in the *Procedures for Air Navigation Services - Aircraft Operations* (PANS-OPS, ICAO Doc 8168). Additional practical guidance is provided in the *LADR and OPS Control User Manual* developed by ICAO and EUROCONTROL which is available within the LADR application Help menu.

Cospas-Sarsat System

5.15 The International Cospas-Sarsat System is available to maritime and aviation users and to persons in distress situations who activate a 406 MHz distress beacon. Access is provided to all States on a non-discriminatory basis and is free of charge for the end-user in distress. On average, about 7 persons are rescued every day with the assistance of Cospas-Sarsat alert and location data. The system is composed of:

a) distress beacons operating at 406 MHz, with a homing signal transmitting on 121.5 MHz and/or 243.0 MHz [except ELT(DT)s which do not transmit a homing signal in-flight];

b) SAR payloads on satellites in low- and mid-altitude Earth orbit, and in geostationary orbit;

c) ground receiving stations (LUTs) spread around the world; and

d) a network of Mission Control Centres (MCCs) to distribute distress alert and location information to SAR authorities, worldwide.

5.16 Cospas-Sarsat has been developing two major enhancements to its distress-alerting System of value to all System users, including the aviation industry. One is the introduction of in 2020, of a new space-segment architecture based primarily on Medium-altitude Earth Orbit Search and Rescue (MEOSAR) payloads aboard the European Commission's Galileo system, the Russian Federation's Global Navigation Satellite System (GLONASS) and the United States' Global Positioning System (GPS) satellites. Another potential satellite system from China, the Beidou Navigation Satellite System, could become part of the Cospas-Sarsat Space Segment.

5.17 This architecture permits determination of distress incident location (independent of any location data transmitted in the beacon message) beginning with the first burst from the distress beacon. This could mean near real-time and very frequent delivery of distress alerts.

5.18 The SAR/Galileo space segment also provides a Return Link Service (RLS) that, among other possible future uses, provides an acknowledgment from the MCC back to the beacon to confirm that the distress message has been received.

5.19 The technical specifications for the second generation 406 MHz distress beacon have been approved, including for ELTs. This new generation of beacons based on wideband spectrum technology improves speed and accuracy in locating an activated distress beacon. The period from beacon activation to first transmission is reduced from 50 seconds to three seconds. The specification considers in-flight activation of ELTs when certain flight parameters are exceeded. Consequently, false alerts will affect real SAR events significantly.

5.20 Cospas-Sarsat has introduced a new beacon type, the ELT(DT) which will activate autonomously when an aircraft exceeds certain predetermined flight parameters which, unless corrected, may result in an imminent crash. ELT(DT)s allows an aircraft in distress to be tracked in-flight, prior to any crash, without human intervention. ELT(DT)s use both the existing beacon transmission method (first-generation) and the second-generation (spread-spectrum) modulation schemes. Distress data from activated ELT(DT)s will be delivered directly to distress authorities as well as the ICAO LADR. A growing number of aeroplanes are now operating globally with ELT(DT)s fitted.

5.21 States also need to ensure the critical requirement to provide for a suitable, clear and simple means for aircraft owners to register and keep updated their 406 MHz distress beacon details.

Note: information regarding beacon registration can be found at: https://www.cospas-sarsat.int/en/beacons-pro/beacon-regulations-pro/ibrd-user-information-for-professionals).

5.22 Entries in the beacon register should be available to both aeronautical and maritime RCCs on a 24-hour basis (ICAO Annex 12 refers, although ICAO Annex 10 establishes the registration requirement).

5.23 Further information for distress authorities can be found in the RCC Handbook, document C/S G.007 (https://www.cospas-sarsat.int/en/documents-pro/system-documents).

ICAO Annexes and Documents

5.24 States should note that ICAO Annex 12 should be read in conjunction with elements of the following ICAO Annexes and Documents:

Annex 6 – *Operation of Aircraft*;

Annex 10 – *Aeronautical Telecommunications*;

Annex 11 – *Air Traffic Services* (particularly Chapter 5 Alerting Service)*;*

Annex 14 – *Aerodromes* (particularly aerodrome emergency planning with the RCC);

Annex 15 – *Aeronautical Information Services* (particularly Section 6.3.2 *NOTAM*);

Annex 19 – *Safety Management*;

Doc 4444 – *PANS-ATM*;

Doc 8168 – *PANS-OPS Volume III* (particularly Section 10 Flight Tracking);

Doc 9731 – *IAMSAR Manual*;

Doc 9734 – *Safety Oversight Manual*;

Doc 10066 – *PANS-AIM* (particularly Appendix 2 GEN 3.6 Search and rescue);

Doc 10088 – *Manual on Civil-Military Cooperation in Air Traffic Management*;

Doc 10165 – *Manual on Global Aeronautical Distress and Safety System*; and

Doc 10205 – *Manual on Hazards at Aircraft Accident Sites.*

CURRENT SITUATION

Asia/Pacific SAR Analysis

Universal Safety Oversight Audit Programme – SAR-Related Protocol Questions

6.1 An analysis of the 16 Universal Safety Oversight Audit Programme (USOAP) SAR-related Protocol Questions (PQs) indicated that the overall Effective Implementation (EI) in the Asia/Pacific Region for SAR had risen from 52% in October 2022 to 55% in April 2025.

6.2 **Figure 1** provides the overall Asia/Pacific Region EI for individual SAR-related PQs in October 2022.

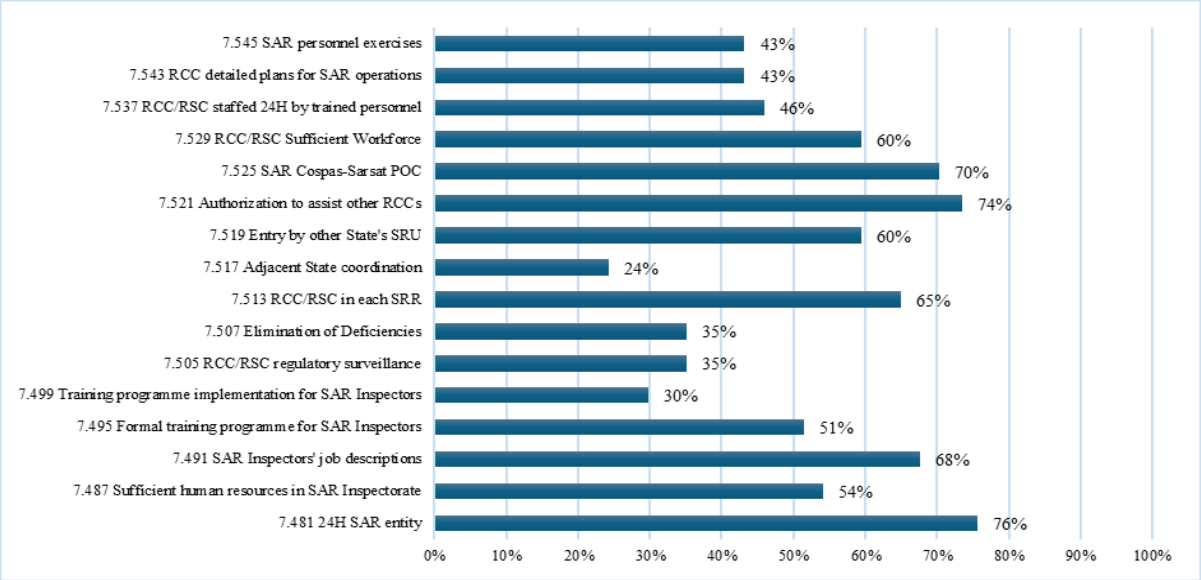

Figure 1: Asia/Pacific USOAP CMA SAR-related PQ Compliance (October 2022)

6.3 **Figure 2** provides the overall Asia/Pacific Region EI for individual SAR-related PQs in April 2025.

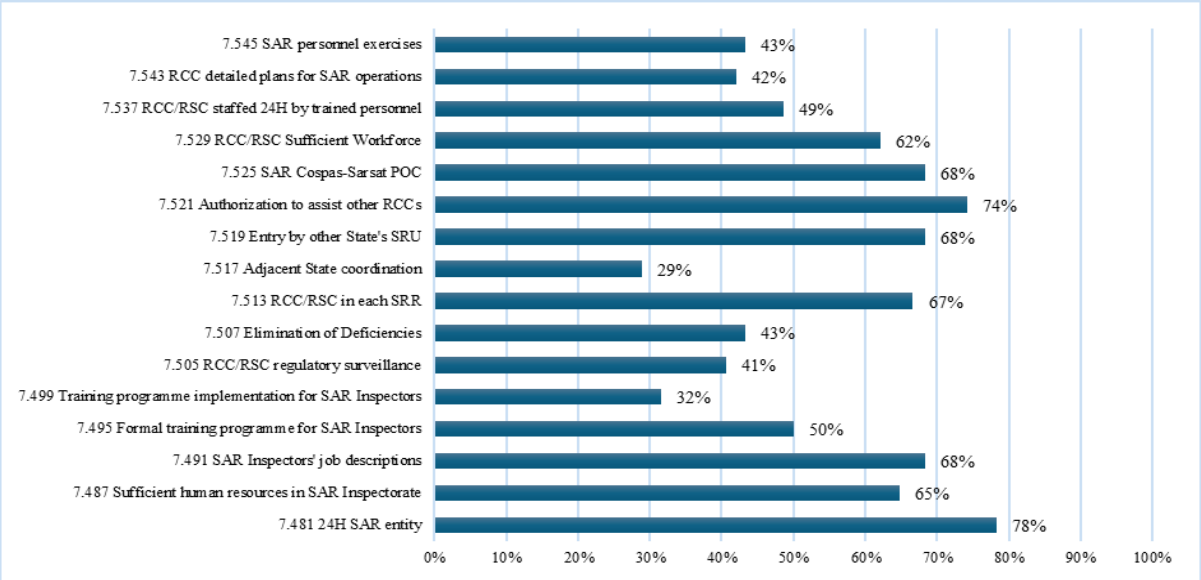

Figure 2: Asia/Pacific USOAP CMA SAR-related PQ Compliance (April 2025)

6.4 From these analyses it appeared that the major areas of weakness were in effective SAR oversight, coordination with adjacent States, elimination of deficiencies. Therefore, a focus on the minimisation of barriers associated with the efficient cross-border coordination of SRU (such as pre-arranged approval) and other coordination mechanisms, including updates of SAR agreements (whatever their form) was vital.

6.5 The analyses also revealed the need for improved systemic approaches to training for both SAR inspectors and personnel responsible for the provision of SAR services, including the regular organisation of effective SAR exercises that test systems and personnel. It should be noted that the training of SAR inspectors does not necessarily require SAR-specific technical training, but was more focused on effective audit and inspection techniques, etc.

Regional SAR Implementation Performance – the Asia/Pacific SAR Plan

6.6 With the advent of the Asia/Pacific SAR Plan and its more comprehensive expectations, an accurate assessment of capability aligned with the Plan was developed. This assessment could be used by States as a means of internal gap analysis, in addition to providing a more accurate metric of the Asia/Pacific SAR Plan implementation. **Figure 3** summarizes the reported implementation of the performance expectations of the Asia/Pacific SAR Plan (see Section 7).

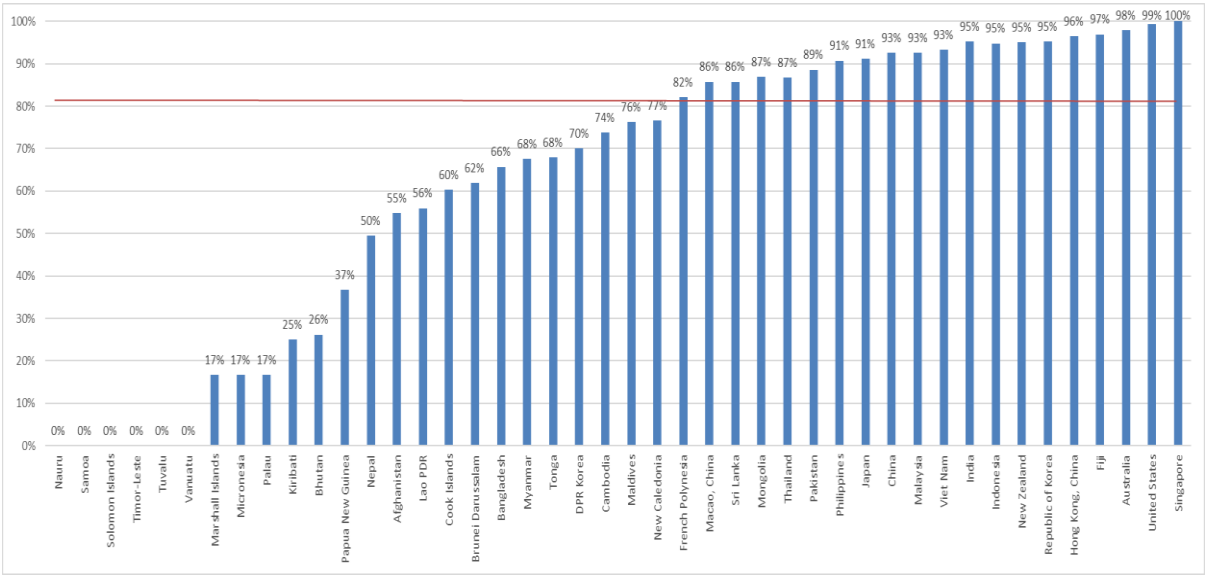

Figure 3: Implementation Status of the Performance Expectations of the Asia/Pacific SAR Plan – April 2025 (Average 63%)

6.7 The Asia/Pacific Region Air Navigation Plan Volume II Section 3 *Specific Regional Requirements* states, in respect of State reporting of implementation regional air navigation planning elements:

> *a 'robust status plan that is not subject to consideration as an APANPIRG Deficiency is one that is evaluated as achieving 90% or more implementation of the planning elements.*

6.8 Accordingly, and noting that SAR services were a safety of life matter. APANPIRG ATM and Airspace Safety Deficiencies were recorded for 30 Administrations in the Asia/Pacific Region, for failure to reach 90% or more implementation of the performance expectations of the Asia/Pacific SAR Plan (APANPIRG/35, November 2024).

Asia/Pacific SAR Coordination Forums

6.9 The Asia/Pacific Region will benefit from the cooperation and coordination of States and International Organizations involved in the APSAR Workgroup. The establishment of permanent joint ICAO/IMO Regional SAR Forums to enable collaboration and cooperation on oceanic SAR matters across the specific oceanic regions and including adjacent ICAO regions should be considered.

6.10 There were several regional initiatives for cooperative support and development already being undertaken in the Asia/Pacific Region to assist with SAR capability enhancement.

6.11 Such improvement programmes could result from a request by a State needing assistance, ICAO/IMO oversight, the users of the SAR system itself, an audit or following a SAR 'Go-Team' visit that identifies weaknesses in the State's SAR capability (a 'Go Team' normally consists of external SAR experts from ICAO/IMO, more advanced 'champion' States or external agencies such as Cospas-Sarsat). The programs can be conducted by experts from a 'champion' State, or through a cooperative effort by several States or a regional body.

*Note: **Appendix 1** provides a summary of benefits to the SAR System of States assisting other States.*

Barriers

6.12 The following potential issues should be considered to ensure they do not become barriers to the achievement of the expected SAR capability:

a) absence of established appropriate legal framework designating, recognizing, supporting and giving authority to national SAR authorities, RCCs and SMCs;

b) inadequate funding and equipping of SAR authorities and in particular, resourcing of RCCs;

c) absence of an appropriate SAR organizational framework;

d) absence of a national SAR committee;

e) lack of clarity of responsibilities for each component of the SAR system;

f) inadequate collaboration and cooperation between aeronautical and maritime SAR agencies;

g) absence of bilateral/multi-lateral/international SAR agreements;

h) inadequate civil/military cooperation; and

i) complacency about, or lack of recognition of, the importance or priority given to SAR.

Global and Regional SAR Issues

6.13 States should monitor outcomes from global and regional ICAO and IMO SAR forums to ensure their State SAR authorities are updated on relevant SAR developments, otherwise State planning may not be synchronized with external international expectations, including users. Such forums may include APANPIRG and its Sub-Groups, other ICAO Region SAR groups, the ICAO/IMO JWG-SAR, ICAO High Level Safety Conferences, etc.

6.14 The provision of sufficient resources is critical in a number of areas, including:

a) Financial –

- funding for 24-hour RCC facility and staff;
- funding arrangements/agreements for hiring/payment/sharing of SRUs to permit rapid deployment;
- provision of a suitable administrative process enabling financial support including the ability for SAR authorities to quickly authorise payments required for emergency response aircraft, vessels and supporting logistics such as fuel.

b) RCC personnel – a suitable number of trained and skilled staff, supplemented by a pool of trained RCC support staff where appropriate;

c) RCC facilities –

- appropriate RCC facility space;
- minimum RCC tools (such as current charts, plotting equipment, documentation, etc.);
- ability to identify and task available SRUs;
- aircraft and vessel tracking information including ATS surveillance, Automatic Identification System (AIS), ADS-B and other satellite tracking systems, etc.;
- reliable and rapid H24 communications, and a suitable means to –
  - receive, communicate and acknowledge distress alerts;
  - communicate with ATS units, other RCCs/RSCs, Coastal Radio Stations, COSPAS-SARSAT Mission Control Centres (MCCs), military units, medical services, meteorological offices, aircraft and vessel operators, etc.;
- information technology –
  - RCC workstation computers;
  - software including basic databases, drift modelling, incident management, etc.;
  - reliable internet access;

d) Contingency – back-up RCC facility, or arrangement with another RCC as a contingency against inability to operate from the primary RCC due to the need to evacuate or loss of systems, etc.;

e) Search and Rescue Units (SRUs) –

- available and suitably equipped SRUs with SAR trained crews and SAR capability –
  - aircraft units;
  - maritime units;
  - land units;
  - specialised units (paramedical, divers, etc.);
- available and suitable SAR survival equipment for delivery by aircraft to survivors and to assist SAR coordination efforts (e.g. SAR Datum Buoys, droppable life rafts and survival supplies, etc.);

f) Training support –

- RCC staff – basic and ongoing;
- SRU crews – pilots, air crew, air observers, vessel crew, land crews;
- RCC support staff – basic and refresher; and
- SAR inspectorate staff – basic and on-going.

PERFORMANCE IMPROVEMENT PLAN

Preferred SAR Capability Specifications (PSCS)

Note 1: PSCS are the non-mandatory expectations on all Asia/Pacific States to enhance SAR systems in order to meet a minimum level of SAR capability, with a high degree of interoperability and harmonisation, and interoperability with other ATM components such as Air Navigation Service Providers (ANSPs) and aerodrome operators, and between aeronautical and maritime SAR services. PSCS were not expected to contravene existing ICAO Annex 12 standards.

Note 2: Asia/Pacific SAR Plan Version 1.0, published in September 2015, included the expectation that all PSCS would be implemented by 07 November 2019. Noting that, at the time of publication of this fifth version of the Plan, the implementation is several years in the past, and also noting that further changes to PSCS are expected to be incremental and relatively minor in scope, dates for future implementation are not included. All States should note that APANPIRG ATM and Airspace Safety Deficiencies for non-implementation of 90% of the elements of this Plan will continue to be raised and maintained by the ICAO Asia/Pacific Regional Office.

7.1 *Legal Framework and Structure Planning*: All States should develop statutes and related provisions that establish or enhance the legal foundation for a State SAR organization and its framework, resources, policies and procedures, where appropriate, to:

a) ensure that it is party to, and/or aligned with the following Conventions, as applicable –

   i. Convention on International Civil Aviation, 1944;

   ii. International Convention on Maritime Search and Rescue, 1979; and

   iii. International Convention for the Safety of Life at Sea (SOLAS), 1974;

b) unless delegated by written agreement, establish an entity that provides, on a 24-hour basis, SAR services within its territories and designated area of responsibility/SRR;

c) establish a national SAR committee consisting of civil and, where appropriate, military members to enable a whole-of-government approach;

d) empower SMC with the authority to adequately carry out their responsibilities to ensure no delay to timely SAR response actions;

e) conduct studies to check the feasibility for, and develop an implementation plan if practicable, the integration of aviation and maritime SAR services, and as far as practicable, civil and military SAR activities, including joint training, exercises and familiarization of staff and review of documentation to ensure harmonization of procedures;

f) conduct studies to align, as far as practicable, aeronautical and maritime SRRs; and SRRs with Flight Information Regions (FIRs);

g) establish a single State SAR Plan that –

i. designates the responsible RCC(s), RSC(s) and 24-hour SPOC;

ii. describes the relevant aeronautical and maritime SRRs, including the coordinates and geographical chart depiction of the aeronautical and maritime SRR and neighbouring aeronautical and maritime SRRs;

iii. establishes an Administrative Single Point of Contact for SAR (ASPOCS) for non-urgent, administrative matters, such details to be submitted to the ICAO Asia/Pacific Regional Office;

iv. details the National SAR Committee;

v. details the governmental and non-governmental agencies with authority and responsibility for SAR coordination and supporting of SAR response operations within its territories and designated area of responsibility;

vi. details required and available SAR facilities, personnel, and equipment;

vii. describes the SAR manuals, plans and procedures used for national and regional cooperative SAR response arrangements;

viii. details the SAR personnel training and competency programme, qualification standards, SAR certification if applicable and SAR cooperation training;

ix. lists the SAR agreements required;

x. is electronic and accessible on the Internet, such details to be submitted to the ICAO Asia/Pacific Regional Office, if possible; and

xi. is monitored by quality assurance processes.

7.2 *SAR Standards and Procedures*: All States should:

a) establish aerodrome emergency plans that provide for cooperation and coordination between the aerodrome operator and RCCs. The plans should include clear responsibilities for response to emergencies in proximity to, but outside, the aerodrome boundaries including adjacent waterways;

b) establish SAR agreements with States having adjoining SRRs or FIRs, including trans-regional neighbours (the agreements should include clear responsibilities for overlapping or non-adjoining aeronautical and maritime SRRs);

c) provide up to date information on State SRU location and capability on those SRUs that may operate into other State SRRs. This should be provided to the ICAO Asia/Pacific Regional Office per the guidance in **Appendix 2** of this Plan;

d) pre-arrange procedures for cross-border SAR responses to allow entry of another State's SRUs into State territory (this should be included in bilateral SAR agreements);

e) establish RCC plans for response to MROs integrated with national disaster plans;

f) establish SAR Operations Plans between the State's SAR authorities and Government, military and commercial operators, including those with a capability to assist with an air, maritime or land SAR capability, or other support capability (e.g. communications, meteorology, logistics, etc), including:

i. procedures for cooperation and deployment of foreign SRUs;

ii. provision for translators/liaison Officers/Embassy Officers for the daily tasking of the SRUs at the RCC;

iii. provision of information for logistic and administrative support (hotels, fuel, security passes, food, medicine, etc.);

iv. instructions on communication (ops normal reports, sightings, etc.) for search planning, command and control to foreign SRUs;

v. planning and arrangements that ensure the availability of State and other SRU assets, especially over-water rotary wing capability where applicable, to support a timely and effective SAR response; and

vi. daily end of day report by SRUs to the RCC (via mobile/satellite telephone, email, web-based application, fax, etc.);

vii. provision of meteorology information;

g) establish SAR Alerting procedures which:

i. are tested and fully integrated with RCC procedures so that RCCs are rapidly notified of any SAR event 24 hours a day;

ii. include procedures for joint aeronautical and maritime distress alert notification, including reliable delivery and acknowledgement of Cospas-Sarsat distress alerts, support and response to both aviation and maritime SAR incidents;

iii. where applicable, include protocols for civil and military support and sharing of information; and

h) establish arrangements for situations where RCCs need to conduct SAR operations (in accordance with ICAO Annex 12) at the same time as the accident investigation authority needs to conduct search and recovery operations (in accordance with ICAO Annex 13).

Note: a sample MOU between the SAR service and the accident investigation authority is provided in the IAMSAR Manual Volume I Appendix P.

SAR Facilities and Resources

7.3 *RCC Facility*: All States should ensure that RCCs are of sufficient size with adequate provision for operational positions designed in accordance with human factors principles (such as human machine interface) for all SAR incidents from small scale to major searches involving civil and military assets where applicable, and facilities such as:

a) workstations, telephones (with international access), plotting tables, wall notice/status boards, computer, and communications equipment and systems, briefing/debriefing areas, room for storage including incident records and recorders, RCC staff break and rest facilities;

b) computer resources which may provide support to RCCs with incident management, plotting, search planning, mapping, contact databases, web-based information, etc.;

c) charts, electronic or paper, which:

i. apply to SAR (aeronautical, nautical, topographic and hydrographic);

ii. depict aeronautical and maritime SRR(s), neighbouring aeronautical and maritime SRRs;

iii. depict SAR resources and SRU locations, including in neighbouring SRRs where available;

iv. depict aeronautical navigation information including terrain and obstacles (vertical structures, powerlines, etc with elevation data), FIR(s), ATS units and airspace boundaries including military and Prohibited, Restricted and Danger Areas, Air Defence Identification Zones (ADIZ), and environmentally sensitive areas;

v. depict maritime navigation information including hazardous and environmentally sensitive areas;

vi. provide a means of plotting;

d) ability to reliably receive, acknowledge and action distress alerts 24 hours in a timely manner;

e) a means of recording, timely retrieval and playback, and archiving of communications and SAR incident data;

f) shipping/vessel communications and maritime broadcast facilities such as Coastal Radio Stations, RCC radio and satellite communications, marine radio networks;

g) aircraft communications – via ATS units, aircraft operators, satellite communications or direct between RCC and aircraft;

h) access to aircraft and ship tracking data, e.g. ATS surveillance data, GADSS ADT and LADR data, commercial satellite tracking data, AIS and Long Range Identification and Tracking of Ships (LRIT) allowing rapid identification of potential aircraft and vessels that may divert to assist;

i) a means of obtaining timely meteorological information – forecast, present and historical data;

j) if applicable, drift modelling software;

k) if applicable, ocean data including sea temperature, currents, winds, tides, etc.;

l) if applicable, SAR Datum Buoys, preferably with satellite tracking capability;

m) RCC documentation and reference material such as plans of operation, procedures manuals, guidance material, ICAO and IMO reference documents, SAR agreements;

n) Cospas-Sarsat equipment and reference material; and

o) when developed and available, System Wide Information Management (SWIM)-enabled systems that can evolve the sharing of flight data, aeronautical information and meteorological data in alignment with contemporary practices being implemented under global and regional planning.

7.4 *Personnel and Training*: All States should, where applicable to maintain a 24-hour service:

a) provide adequate ATS resources (either an ATS supervisor or other staff) that can provide relief within ATS units to allow timely response to SAR alerts and information to RCCs;

b) provide sufficient RCC staffing, including a sufficient number of trained specialist RCC officers including SMCs and Assistant SMCs (A/SMCs);

c) provide availability of a pool of RCC support staff who are familiar with RCC operations, but not trained as coordinators, that can assist with the functioning of the RCC to supplement a SAR incident response;

d) develop SAR personnel position descriptions that detail responsibilities and eligibility criteria for recruitment of operational staff;

e) develop a comprehensive training programme that includes SAR training for:

   i. RCC Coordinators based on a competency-based assessment approach to ensure technical proficiency, cyclical (periodic) instruction that provides continuous training to ensure competency is maintained, and a system for maintaining training records;

   ii. SRU staff, including military personnel;

f) facilitate RCC staff to be proficient in the English language; and

g) facilitate a programme of regular liaison between relevant RCCs, ATS units and airline operating centres in order to understand those organizations, facilities and capabilities (reference ICAO Annex 12).

7.5 *Oceanic Capability*: Where applicable, States should establish additional oceanic SAR capability as far as practicable to ensure a timely and adequate SAR response is available to all oceanic areas of their SRRs. This may be met through cooperative arrangements with neighbouring States or other RCCs.

7.6 *Search and Rescue Units (SRUs)*: All States should establish capabilities enabling:

a) availability and deployment of suitably crewed, trained and equipped SRUs (including, for SAR aircraft a pool of air search observers trained in visual search techniques), public and/or private, civil and military, for rapid SAR response;

b) availability and deployment of SRU craft that may be in use for another primary purpose but made available to RCCs for SAR purposes on an as needed emergency basis (vessels, aircraft and land units);

c) protocols for civil SAR authorities to request the assistance of military assets, and similarly military SAR authorities to request civil assets;

d) a communication means and information protocols between the State's aeronautical and maritime SAR authorities;

e) cooperative use and/or sharing of SAR assets with protocols incorporated within National SAR Plans and bilateral SAR agreements;

f) pre-arranged government authority for funding of costs associated with hiring of SRUs, and payment for critical supporting logistics such as fuel, to avoid any delays in response availability;

g) pre-approval of specified SRU assets that may be utilised in the territory of another State or cross-SRR boundary (which may not require diplomatic approval if operating within international airspace or seas);

   Note: IAMSAR Manual Volume I Appendix Q provides a sample expeditious process to allow SAR units from an assisting State to enter into the territory of the State of the RCC.

h) aircraft with the ability and regulatory approval to safely conduct SAR missions, including international operations where applicable.

   Note: guidance material on SAR aircraft capability can be found in the IAMSAR Manual Volume II Appendix G Facilities and equipment selection.

7.7 *Distress Beacons*: All States should:

a) where separate ARCCs and MRCCs exist with responsibility for coincident aviation and maritime SRRs, coordinate distress beacon alert procedures to ensure both RCCs are aware of any distress beacon activations within their areas to avoid duplication of response. For example, MRCCs should ensure their procedures alert ARCCs and ATS units to any EPIRB activations. For distress beacon alerts near SRR boundaries, coordination should also occur with neighbouring State RCCs;

b) have a reliable distress beacon registration system that:

i. provides a readily accessible mechanism (preferably one that is available by Internet as well as other conventional means) to enable distress beacon owners to fulfil their obligation to register ELTs [including ELT(DTs)], EPIRBs and PLBs, and update the registration data as information changes (e.g. change in ownership or disposal);

ii. is available to RCCs 24 hours a day and includes up-to-date registration details for all national civil and military ELTs, ELT(DTs), EPIRBs and PLBs;

c) take steps (including education) required to prepare for, and to implement changes related to, the introduction of second generation beacons, the transition to the MEOSAR satellite architecture, ELT(DTs), and the pending Return Link Service provided by the Galileo constellation;

d) establish an appropriate nationwide means of disposal for old distress beacons; and

e) conduct education programmes promoting correct use, handling, storage, registration and disposal of distress beacons, including, where appropriate, with airworthiness agencies, and civil aviation and maritime authorities, and aviation, maritime and land-based beacon user stakeholder groups. A focus should include awareness to minimize false alerts.

Note 1: information on beacon registration can be found at: http://www.cospas-sarsat.int/en/beacons-pro/beacon-regulations-pro/ibrd-user-information-for-professionals.)

Note 2: incorrect disposal of distress beacons often causes the deployment of scarce and often expensive SAR resources only to have the beacon located as a non-distress event in a rubbish dump or similar location. This also creates the risk of SAR resources being diverted away from a real emergency should it arise at the time. Beacon batteries are hazardous items which should be disposed of in an environmentally friendly manner.

Note 3: education should include matters such as an update on beacon registration systems to be compatible with new beacon hexadecimal identifications, the transition to the MEOSAR satellite architecture (e.g. update local user terminals and mission control centres to properly receive and manage MEOSAR data), in accordance with Cospas-Sarsat specification documents (http://www.cospas-sarsat.int/en/documents-pro/system-documents).

7.8 *Contingency Facilities*: All States should ensure there are established contingency facilities~~,~~ or for when a SAR service is not able to be provided~~,~~. This may include procedures ~~in place~~ for the temporary delegation of the SAR responsibility to another appropriate national body or State. All States should test their contingency arrangements periodically, but not less than once every six months.

SAR Information

7.9 *Provision of Information*: All States should ensure the:

a) establishment of a centralised information source publishing all Asia/Pacific State Aeronautical Information Publication (AIP) information (refer PANS-AIM Appendix 2 GEN 3.6 *Search and rescue*):

i. The agency responsible for providing SAR services;

ii. The area of SAR responsibility where SAR services are provided;

iii. The type of SAR services and facilities provided including indications where SAR aerial coverage is dependent upon significant deployment of aircraft;

iv. SAR agreements;

v. The conditions of SAR facility and service availability; and

vi. SAR procedures and signals used;

b) establishment of an Internet-based SAR information sharing system (with security protocols as required and in accordance with the emerging SWIM concept as applicable) to share SAR activity with States and key stakeholders participating in a SAR activity (the information sharing system should include a means of handling media and next of kin enquiries, and recognise the need to avoid premature media statements); and

c) maximum practicable cooperation between State entities in the provision of accurate and timely information when required, including from military sources, except where national security could be adversely affected.

7.10 *SAR Facilities and Equipment Lists*: All States should develop and maintain a current, comprehensive electronic list of State SAR Facilities, SAR Equipment, and SAR Units (SRUs), including joint or shared facilities and equipment.

7.11 *SAR Library*: All States should:

a) establish a web-based SAR Library, or cooperate by contributing to an Internet-based Asia/Pacific resource (such as https://www.dco.uscg.mil/Our-Organization/Assistant-Commandant-for-Response-Policy-CG-5R/Office-of-Incident-Management-Preparedness-CG-5RI/US-Coast-Guard-Office-of-Search-and-Rescue-CG-SAR/SAR-Publications/);

b) ensure that each RCC and SAR authority has ready access to a current copy (either electronic or hard copy) of the following reference documents at a minimum:

i. ICAO Annex 12;

ii. IAMSAR Manual Volumes I, II and III;

iii. International Convention on Maritime SAR (SAR Convention);

iv. *Asia/Pacific Region ANP*;

v. *Asia/Pacific SAR Plan*; and

vi. relevant regional, national and agency SAR documents.

Note: the Asia/Pacific SAR Library hosted by the US Coast Guard contains a list of documents that may be held by RCCs and JRCCs as appropriate. In addition, a list of documents (SAR.7/Circ.12) would be available on the IMO website at: (http://www.imo.org/en/OurWork/Safety/RadioCommunicationsAndSearchAndRescue/SearchAndRescue/Pages/Default.aspx).

SAR Improvement

7.12 *Search and Rescue Exercises (SAREX)*: All States should conduct regular SAREX (at least once every two years) to test and evaluate existing coordination procedures, data and information sharing and SAR response arrangements involving:

a) both aeronautical and maritime SAR authorities including both civil and military agencies as applicable, and related bodies such as ANSPs and Airline Operations Centres (AOCs);

b) where appropriate, cross-aeronautical SRR boundary coordination (SAREX should routinely involve SAR authorities of adjacent SRRs);

c) improvement of SAREX effectiveness through a post-SAREX review and written report, completed to ensure that deficient areas or latent problems are identified and remedied;

d) SAREX type may be a desktop communications, coordination or full-scale exercise or field exercise;

e) a SAREX program should be developed that includes, as appropriate, exercises held:

i. within RCCs;

ii. depending on the number and type of RCCs within a State, between JRCCs, aeronautical and maritime RCCs and RSCs;

iii. with local SAR support agencies;

iv. with SRUs; and

v. with neighbouring States.

Note 1: a SAREX template is provided in the IAMSAR Manual Volume I Appendix O Sample template for a joint SAREX.

Note 2: SAREX should test the SAR system, including unannounced alerts that allow an actual search (whether it is a desktop or a physical operation) to be conducted which will indicate weaknesses in the system. SAREX should not be confused with, or take the form of, simulated crash fire exercises such as for aerodrome emergency procedures that do not have a search component.

Note 3: real SAR incident responses which include an adequate post-response review and evaluation with lessons learned may replace the need for a SAREX.

Note 4: this expectation may be fulfilled by participating in a sub-regional SAREX that tests the State's SAR system.

7.13 *SAR Quality Assurance*: All States should implement SAR System Improvement and Assessment measures, including Safety Management and Quality Assurance systems, that:

a) provide performance and safety indicators, including post-incident/accident lessons learned and management reviews (RCC and SAR System Continuous Improvement process), and feedback from RCC staff, SAR system users or SAR stakeholders;

b) identifies risk and corrective and preventive actions that prevent or minimise risk and the possibility of substandard SAR performance;

c) establishes an internal quality assurance programme, which includes regular internal audits of the RCC, SAR operations, SAR facilities and procedures that are conducted by trained auditors;

d) ensures the person responsible for internal quality assurance within the entity responsible for SAR services has direct access to report independently to the Head of the entity responsible for SAR services on matters of quality assurance; and

e) where appropriate, provides submissions to the ICAO/IMO JWG-SAR to share lessons learned and experiences with other global States for the continuous improvement of the worldwide SAR system.

Note 1: resourcing of SAR system audit arrangements could be mitigated by States entering cooperative arrangements, including sub-regional regulation, between States for auditing of each other's SAR systems to share expertise and costs.

Note 2: refer to related provisions of ICAO Annex 19 for a Safety Management System (SMS) and ICAO Doc 9734 for a Safety Oversight Manual.

Note 3: Peer review, either external or internal, may provide a useful internal quality assurance tool.

7.14 *SAR Management Review*: All States should conduct an annual or more frequent analysis of their current State SAR system to identify specific gaps in capability against the minimum requirements of ICAO Annex 12 and the guidelines of the IAMSAR Manual to:

a) enable the ICAO Asia/Pacific SAR data to be updated to accurately reflect the State's capability;

b) be informed regarding the availability and capability of SAR services in neighbouring States;

c) identify SAR research and development programmes, especially those which could be conducted if possible in cooperation with other States;

d) establish a common set of basic SAR system statistics, which include:

i. number of SAR incidents per year;

ii. number of lives at risk versus number of lives saved;

iii. records of time from first alert to tasking the SRU;

iv. records of time from first alert to arrival on scene of first SRU; and

v. records of time from first alert to rescue.

vi. records of false alerts or unnecessary activation of SAR services.

e) plan for any necessary improvements to gradually build and improve capability over time, which would be detailed in the State SAR Plan; and

f) regularly review and update SAR agreements as appropriate.

Note 1: the National self-assessment on SAR found in IAMSAR Manual Volume I Appendix H, the ICAO USOAP-CMA Protocol Questions for SAR and ICAO Electronic Filing of Differences for ICAO Annex 12 compliance may assist States with their reviews.

Note 2: for SAR system statistics, the number of incidents should identify the type (e.g. Cospas-Sarsat alert, ATS alerts, etc.) and outcome of SAR incidents.

7.15 *SAR Promotion*: All States should conduct SAR promotional programs (e.g. Seminars, Workshops and public safety campaigns) to:

a) encourage higher SAR preparedness by persons that may require SAR services through education aimed at preventing persons getting into distress situations (i.e. 'preventative SAR');

b) foster a reduction in false alerts to avoid wasting valuable SAR resources and risk to SAR crews responding unnecessarily;

c) ensure the support of government decision-makers for SAR facilities and improvements, in particular adequate funding availability;

d) assist media to understand SAR operations to minimise the need for explanations during SAR responses;

e) recognise improvement in State SAR systems;

f) enhance cooperation between SAR services and supporting bodies including:

   i. civil, military and police agencies;

   ii. ANSPs;

   iii. aerodrome and port operators;

   iv. aircraft and shipping operators;

   v. meteorological agencies;

   vi. accident investigation authorities;

   vii. government and non-government agencies affected by SAR operations, in particular large scale national and international responses involving whole of government agencies;

   viii. aviation and maritime regulators; and

   ix. other States.

Note: social media may be an effective means of SAR promotion, and that may help reduce the workload of SAR staff during major SAR responses.

EMERGING ISSUES AND FUTURE DEVELOPMENTS

Planning for the Future

8.1 States should monitor developments such as improvements to existing and new technologies and other emerging matters which may impact on the SAR system of the future as part of State, regional and global aviation strategic direction and planning. This may include matters such as:

a) the need to cater for increased growth or changes in air and maritime traffic through SRRs which may increase the demand, or present changed capability requirements, for SAR services. This may include, for example, new air routes using longer range aircraft into more remote areas or increased numbers of, and/or larger, cruise ships;

b) new technology such as:

i. Remotely Piloted Aircraft Systems (RPAS) and Advanced Air Mobility (AAM);

ii. autonomous vessels;

iii. commercial space vehicles carrying people;

iv. new distress alerting devices and systems;

v. new tracking systems;

vi. new electronic search equipment (such as optical radar systems);

vii. online virtual conferencing platforms;

viii. smartphone apps;

ix. artificial intelligence; and

x. data driven decision making tools.

c) SAR intervention in and around offshore wind turbine farms;

Note: IAMSAR Manual Volume II provides further guidance on wind farms.

d) impacts of climate change; and

e) planning for SAR response to shipping involving alternative fuel hazards and other hazardous cargo types on board.

Research and Development

8.2 To develop the tools and systems required to meet foreseeable long-term requirements, there is a need for States to undertake planning and co-operation on SAR matters. This includes major efforts to define concepts, to extend knowledge and invent new solutions to future SAR challenges so these new concepts are selected and applied in an appropriate timely manner. Such efforts could be forged through collaborative partnerships between, States, ANSPs, International Organizations, institutes of higher learning and specialised technical agencies. This concept is consistent with *Asia/Pacific Seamless ANS Plan* Principle 36 [*Inter-regional cooperation ('clustering') for the research, development and implementation of ATM projects*], and may manifest itself in joint projects such as:

a) ICAO and/or IMO regional SAR training opportunities, where provided, to assist States that are unable to provide their own SAR training;

b) Joint Sub-regional RCCs (ASEAN States in particular may be candidates for a single centre of excellence that brings together civil and military SAR experts from all ASEAN States and provides a single SAR facility that is cost-effective and has a level of resources and facilities that would be difficult for all States to maintain by themselves); and

c) Regional online eLearning packages.

8.3 With the end goal of a globally interoperable SAR system in mind, the region will have to consider planning for a long-term supporting concept and infrastructure, including possible integration of the new technologies listed in paragraph 8.1 for SAR application. The following are possible areas that should be considered for future SAR research and development to promote the maximum possible harmonization and interoperability of SAR systems:

a) data sharing such as aircraft and ship tracking information;

b) automated data link communication to RCCs when an aircraft or ship exceeds a Variable Set Parameter (VSP) in terms of its operating envelope, or activation of an emergency status (could be displayed as a symbol, and the data could include certain operating parameters such as acceleration and altitude for an aircraft);

Note: the ICAO GADSS includes this concept.

c) regional UAS and autonomous vessels for use in SAR and their safe operation alongside crewed aircraft and vessels;

d) inclusion of the SAR system and RCC access as a component of the ICAO SWIM concept of operation and implementation;

e) on-going development of standardised SAR training objectives and advanced training systems, including the use of high fidelity simulators;

f) enhanced technology oriented systems to improve SAR system effectiveness such as use of virtual conferencing platforms to enhance real-time SAR incident coordination between RCCs and other stakeholders, and live imagery and video streaming from SAR units to RCCs; and

g) transition to MEOSAR System and second generation beacons.

MILESTONES, TIMELINES, PRIORITIES AND ACTIONS

Milestones

9.1 Section 7 (*Performance Improvement Plan*) provides a scheme for the implementation of a collective set of enhancements for a number of elements in the PSCS.

9.2 States should implement the various PSCS elements of this Plan without delay, and should include consideration of issues such as:

a) safety/operational analysis and assessment;

b) cost-effectiveness;

c) budgetary issues;

d) development of operational procedures; and

e) training.

9.3 Section 8 (*Emerging Issues and Future Development*) provides, subject to future agreement by concerned parties, possible SAR improvements over the next 10 years.

Priorities

9.4 It is a matter for each State to determine priorities in accordance with its own economic, environmental, safety and administrative drivers.

Actions

9.5 This Plan necessitates a number of implementation actions. It is expected that each Asia/Pacific State report progress on each applicable element to APANPIRG through the ATM Sub-Group. All States should note the importance of SAR status monitoring, and are required to submit their implementation status pertaining to the *Asia/Pacific SAR Plan* to the ICAO Asia/Pacific Regional Office, by February 28 of each year.

9.6 Section 6 (*Current Situation*) provides analysis and major concerns in the region, which should be considered in the formulation of specific State plans.

9.7 SAR Coordination Forums, which are likely to be based on sub-regional development (such as a Pacific Ocean SAR Forum and Indian Ocean SAR Forum) need to be promoted, established and supported to ensure the on-going implementation work and future review of SAR expectations linked to this Plan are conducted.

SAREX

9.8 A program is expected to be established for an annual SAREX in each sub-region (South Asia, Southeast Asia, East Asia and the Pacific), with every second year being a desktop communications exercise, and alternate years being a full exercise. The SAREX outcomes and lessons learned should be reported to APANPIRG through the ATM Sub-Group.

9.9 The ICAO Asia/Pacific Regional Office is responsible for taking actions that assist the implementation of SAR within its accredited States, in cooperation with the IMO. In addition, the ICAO Asia/Pacific Regional Office is responsible for coordinating with adjacent ICAO regional offices on an ad hoc basis or at relevant trans-regional meetings.

APPENDIX 1: BENEFITS TO THE SAR SYSTEM OF STATES ASSISTING OTHER STATES

Asia/Pacific States Face Demanding SAR Responsibilities with Few Resources

1.1. Many Asia/Pacific States have the challenging responsibility of providing SAR services over vast and remote land and oceanic areas, and several have few resources available to meet ICAO Annex 12 requirements.

Taking a Regional Approach Improves Effectiveness and Efficiency

1.2. To provide an effective and efficient SAR service in the region, it is important that States focus not only on meeting their own national obligations, but also take the broader view that their State SAR system is only one part of the wider regional SAR system. States therefore need to cooperate, collaborate and share resources and technical expertise with their neighbouring and regional RCCs, with the more developed SAR States in particular looking for opportunities to assist their lesser developed State neighbours.

When Developed SAR States Support Less Developed Neighbours, Everyone Wins

1.3. Sometimes simple measures can reduce the incidence of SAR operations in a State's Area of Responsibility.

1.4. An example of this is where New Zealand has been regularly requested to send resources to Kiribati, which is not in New Zealand's SRR, to conduct aerial searches for people missing in small vessels at sea. New Zealand recognised that with the provision of basic aids, the number of people going missing at sea could be reduced. The work was completed through an aid program and the benefit was immediate and twofold. There has been a large reduction in the number of people going missing at sea and New Zealand has reduced costs through less aerial searches being required.

1.5. Another example is where Australia has recognized that increasing aircraft and vessel traffic in the north and western areas of its SRR in the Indian Ocean region comes with increased likelihood of more frequent SAR responses in that region. As a result, Australia worked in partnership with the Maldives, Mauritius and Sri Lanka to fund and provide technical assistance to improve the SAR capabilities of those countries that will also assist Australia's SAR response obligations in that area of its SRR. Similarly, since 2008 Australia has been providing funding and development assistance to Indonesia to improve SAR capability and cooperation.

1.6. States that aren't compliant with ICAO Annex 12 SARPs and are unable to meet the minimum SAR service requirements could consult and seek assistance from 'champion' States that are compliant and have well developed SAR systems in place.

1.7. Examples of assistance that could be provided by States, International Organizations (such as IMO and ICAO) or multi-lateral initiatives include:

a) conducting of a SAR gap analysis;

b) advice on the establishment of a SAR organisational framework;

c) advice for the establishment of a National SAR Committee;

d) technical assistance in the development of a National SAR Plan;

e) providing copies of relevant SAR documents to be used as templates;

f) technical assistance on the establishment of SAR agreements;

g) technical assistance in the development of RCC position descriptions;

h) training of SAR personnel;

i) provision of SRU where appropriate and training of SRU crews;

j) provision/sharing of computerised SAR tools including incident management systems, databases, maritime drift modelling software, etc.;

k) establishing data and information sharing agreements between RCCs;

l) provision of operational search plan data;

m) providing advice on how to conduct a SAREX and post-SAREX analysis; and

n) set up of SAR system publicity and safety awareness campaigns.

APPENDIX 2: ANNUAL ASIA/PACIFIC SRU CAPABILITY SURVEY

In accordance with the *Asia/Pacific SAR Plan*, this document provides information on regional State SRUs.

Note: this document does not contain information on all State SRUs, only those SRUs which are capable of operating into another State's SRR.

EXPLANATION OF THE TABLE

Column

1. State.
2. SRU category (*Note: refer IAMSAR Manual Volume II Appendix G for SRU category criteria*)
   - Air units – SRG, MRG, LRG, VLR, ELR, HEL-L, HEL-M or HEL-H.
   - Maritime units – RB or RV [*Note: the boat or vessel speed in knots may be inserted, e.g. RB(14) or RV(10*)].
3. SRU location – full name of the location.
4. SRU capability
   - Air units – indicate specialised capability which may include, but not be limited to, visual search, electronic search (e.g. 121.5/ 243.0/ 406 MHz homer), rescue hoist/winch (day, night), aviation VHF/UHF/HF radio, marine VHF/HF radio, ADS-B, AIS, satellite telephone, droppable SAR equipment [e.g. life raft, survival kit, datum marker buoy (DMB), etc], medical crew, etc.
     i. life raft capacity should be inserted, e.g. LR (12).
     ii. survival kits may be indicated by type P (polar), D (desert), M (maritime) or J (jungle) if appropriate.
   - Maritime units – as for air units, indicate specialised capability, for example, electronic search, DMB, deployable fast rescue boat, etc.
5. Remarks – supplementary information such as aircraft type (ICAO designator) or vessel type, etc.
6. Contact – RCC name.

Example

State	SRU Category	SRU Location	SRU Capability (Optional)	Remarks (Optional)	Contact
1	2	3	4	5	6
Australia	ELR	Cairns, Essendon, Perth	Visual search, EO/IR, NVIS, search radar, multi-frequency homer, aviation VHF/HF, marine VHF, ADS-B in/out, AIS, satphone Droppable kits D, M, J, LR(6), LR(36), DMB	CL60	JRCC Australia
	HEL-M	Thursday Island	Visual search, 406 MHz homer, NVIS, aviation VHF, marine VHF, ADS-B out, satphone, winch	AW139	
	RV(27)	Sydney	Range 1,400 NM, carries deployable 6.4 m rescue craft	Offshore patrol vessel	

……

REGIONAL SAR PLAN MONITORING AND REPORTING FORM

SAR PERFORMANCE INDICATORS

Following is a bank of indicators based on the Asia/Pacific Plan's performance improvement section (which should be read in conjunction with these questions), that can be used to assess whether an administration is either compliant or not and to internally evaluate their implementation status of the Asia/Pacific SAR Plan. Please indicate implementation status with either 0% (not implemented), or partial implementation may be indicated (e.g. 10%, 20%, 30%, 50%, etc) or 100% (fully implemented).

1.	Enacted legislation that incorporates or is aligned to applicable international Conventions	0%
2.	Unless delegated, established an entity that provides H24, SAR services within its area of responsibility/SRR	0%
3.	Established a national SAR committee	0%
4.	Empowered SAR Mission Coordinators with the authority to adequately carry out their responsibilities	0%
5.	Established an Administrative Single Point of Contact for SAR (ASPOCS) for non-urgent, administrative matters	0%
6.	Conducted studies to integrate aviation and maritime SAR, and as far as practicable, civil and military activities	0%
7.	Conducted studies to align, as far as practicable, aeronautical and maritime SRRs, and SRRs and FIRs	0%
8.	Established a single State SAR Plan	0%
9.	Established aerodrome emergency plans that provide for co-operation and co-ordination with RCCs	0%
10.	Established SAR agreements with States having adjoining SRRS or FIRs	0%
11.	~~Provided up to date cross-border information on SAR capability to adjoining States~~	~~0%~~
	Provided up to date information on SAR unit (SRU) location and capability to the ICAO Asia/Pacific Regional Office per the guidance in Appendix 2 of the Asia/Pacific SAR Plan	0%
12.	Pre-arranged procedures for cross-border SAR responses	0%
13.	Established RCC plans for response to Mass Rescue Operations (MROs) integrated with national disaster plans	0%
14.	Established operational plans and procedures for SRUs, provision of support, communication and reporting	0%
15.	Established SAR Alerting procedures which are tested, integrated and include civil/military protocols	0%
16.	Establishment of arrangements to conduct SAR operations at the same time as the accident investigation authority needs to conduct search & recovery operations (in accordance to Annex	0%
17.	Provided a fully equipped RCC of sufficient size with adequate provision for operational positions and human factors	0%
18.	Provided adequate supervisory ATC resources to allow timely SAR alerts and information to RCCs	0%
19.	Provided sufficient RCC staffing	0%
20.	Provided a sufficient number of trained specialist RCC officers including SMCs and A/SMCs	0%
21.	Availability of a pool of RCC support staff who are familiar with RCC operations, but not trained as coordinators	0%
22.	Developed SAR personnel position descriptions detailing responsibilities and eligibility criteria	0%
23.	Developed a comprehensive training programme that includes SAR training for SAR Coordinators and SRU staff	0%
24.	Facilitated RCC staff to be proficient in the English language	0%
25.	Facilitated a programme of regular liaison visits between relevant RCCs, ATC units and airline operating centres	0%
26.	Established additional oceanic SAR capability as far as practicable to ensure a timely and adequate SAR response	0%
27.	Established sufficient SRU capabilities (crews, availability, military assets, communications, authority, etc.)	0%
28.	Established procedures and necessary infrastructure to coordinate distress beacon alert responses	0%
29.	Established a reliable distress beacon registration system	0%
30.	Planned and prepared for the implementation of next generation beacons	0%
31.	Established an appropriate nationwide means of disposal for old distress beacons	0%
32.	Established contingency facilities, or procedures for the temporary delegation of SAR to another body or State	0%
33.	Established a centralised information source publishing all AIP information required on SAR	0%
34.	Established an Internet-based SAR information sharing system	0%
35.	Established systems for the maximum practicable cooperation between State entities for information when required	0%
36.	Developed and maintained a current, comprehensive electronic list of State SAR Facilities, SAR Equipment, and SRUs	0%
37.	Established an Internet-based SAR Library, or cooperate by contributing to an Internet-based Asia/Pacific resource	0%
38.	Provided each RCC and SAR Authority with ready access to a current copy of SAR reference documents	0%
39.	Conducted regular SAREX to test and evaluate coordination procedures, data and information sharing and SAR responses	0%
40.	Implemented SAR System Improvement and Assessment measures, including Safety Management and QA systems	0%
41.	Conducted an annual or more frequent analysis of their current State SAR system to identify specific gaps in capability	0%
42.	Conducted SAR promotional programs	0%
	Overall implementation Status (of 42)	**0%**

ATM Sub-Group of APANPIRG — TASK LIST

The priorities assigned in the list have the following connotation:

A = Tasks of a high priority on which work should be expedited; and
B = Tasks of a medium priority on which work should be undertaken as soon as possible but not to the detriment of Priority "A" tasks.

(Last update October 2023, amendments are shown in highlight)

ACTION ITEM & PRIORITY	DESCRIPTION	TARGET DATE	RESPONSIBLE PARTY	STATUS	REMARKS
18/8 **Priority A**	Identify and manage Deficiencies in the ATM, AIS and SAR fields: a) Develop and maintain Deficiencies list, b) Identify unimplemented items in the ANP, c) Assist States to correct deficiencies, d) Promote timely resolution of safety-critical items identified by APANPIRG.	Ongoing	**Functional Responsibility:** No specific working group established, all parties have responsibilities in this area (States, Users, International Organisations, Regional Office, ATMSG APANPIRG)	Open	

ACTION ITEM & PRIORITY	DESCRIPTION	TARGET DATE	RESPONSIBLE PARTY	STATUS	REMARKS
18/9 **Priority B**	SAR Matters Assist appropriate provision of SAR facilities, services and procedures within the Asia Pacific Region by: a) Periodic review of SAR facilities, services and procedures in the region, b) Encourage States to delegate or negotiate SAR services, c) Asia/Pacific SAR Plan Assessment be kept up to date and distributed to States for information and action, d) Asia/Pacific "Register of SAR Agreements" be kept up to date and distributed to States for information and action.	Ongoing	States, Regional Office, APSARWG ATM/SG APANPIRG	Open	States to update the ATM/SG and APSAR/WG each year on SAR capability
22/1 **Priority B**	Review and update the Asia/Pacific Route Catalogue.	Ongoing	IATA, ATM Coordination Groups, ATM/SG	Open	

ACTION ITEM & PRIORITY	DESCRIPTION	TARGET DATE	RESPONSIBLE PARTY	STATUS	REMARKS
5/5	Phase 2 of the Alphanumeric Call Sign Project report to ATM/SG/7.	Ongoing	IATA/States/ CANSO/ACI	Open	ATM/SG/10 WP/22 ATM/SG/9 update: ***Conclusion APANPIRG/31/11*** urged aerodrome operators, in coordination with CANSO and ACI, to consider a trial to identify and overcome barriers, with a view to developing a project for the APAC Region. ATM/SG/13 WP/23
5/8	Follow-up on Mumbai/Mogadishu/Seychelles FIR route PfA.	~~SAIOSEACG/3~~ ~~SAIOSEACG/4~~ SAIOSEACG/5	India, ICAO	Open	Coordinate with ICAO ESAF and States
9/3	Follow up on Fukuoka/Khabarovsk FIR boundary discrepancy.	~~2024 (TBA)~~ ~~2025 (TBA)~~ Ongoing	ICAO	Open	Update 5/10/23: Meeting TBA
9/7	Review Regional ATM Contingency Plan.	~~ATM/SG/12~~ ~~ATM/SG/13~~ ATM/SG/14	ICAO/IATA Australia Nepal	Open	ATM/SG/9 report 6.57 ATM/SG/12 report 6.7
10/4	Explore option of conducting a workshop on the classification of airspace, and seek information from States in order to compile guidance in the form of a checklist of considerations in determining airspace classification.	~~ATM/SG/12~~ ATM/SG/13	ICAO, States? Nepal	~~Open~~ Closed	ATM/SG/10 report 5.66

ACTION ITEM & PRIORITY	DESCRIPTION	TARGET DATE	RESPONSIBLE PARTY	STATUS	REMARKS
10/5	Develop SEI (Alphanumeric Call Signs) for consideration for inclusion in the APAC RASP. Consider inclusion of related regional planning element in the Seamless ANS Plan.	~~ATM/SG/12~~ ~~ATM/SG/13~~ Ongoing	ICAO, RASG SEI WG	Open	ATM/SG/10 report 5.74
10/7	Conduct workshop on Safety Management and Positive Safety Culture in ATM.	~~2024~~ 2025	USA (facilitator) Australia, Hong Kong China, India, Japan, Malaysia, Nepal, Other States? IATA, IFALPA, ICAO	~~Open~~ Completed	ATM/SG/10 report 8.6, 8.7
11/3	Examine the global practices and guidance for A-MAN, D-MAN, S-MAN and Extended A-MAN (X-MAN) integration and report to the ATM/SG/12.	~~ATM/SG/12~~ ATFM/SG/15	ICAO	~~Open~~ Closed	ATM/SG/11 report 5.84
11/5	Coordinate with the AGA section of the ICAO Asia/Pacific Regional Office on the possibility of conducting a workshop on the Aerodrome operation, including Runway Safety.	~~ATM/SG/12~~ ATM/SG/13	ICAO (RO/ATM and RO/AGA)	~~Open~~ Completed	ATM/SG/11 report 5.102
11/7	Provide NOPAC Route System Redesign information for BOBTFRG and SAIOSEACG.	~~BOBTFRG/6~~ SAIOSEACG/4	Japan, USA	~~Open~~ Completed	ATM/SG/11 report 6.18
11/11	Continue to improve AKARA airspace safety and efficiency through bilateral or if necessary multilateral meetings, and coordinate with the TWG secretariat if necessary.	~~ATM/SG/12~~ ATM/SG/13	China, Republic of Korea	~~Open~~ Closed	ATM/SG/11 report 6.60 and 6.61
11/14	Coordinate with ICAO HQ on the feasibility of AIP AD 1.2.3.	~~AAITF/19~~ AAITF/20	ICAO	~~Open~~ Completed	ATM/SG/11 report 7.6

ACTION ITEM & PRIORITY	DESCRIPTION	TARGET DATE	RESPONSIBLE PARTY	STATUS	REMARKS
12/1	Discuss the appropriate section to include GNSS interference reporting procedures in the AIP.	AAITF/20	ICAO	~~Open~~ Completed	ATM/SG/12 report 5.30
12/2	Request for relevant ATM and CNS technical experts to attend the various ATM/CNS meetings of SWIM, TBO, FF-ICE and ATFM.	ATM/SG/13	ICAO	~~Open~~ Completed	ATM/SG/12 report 5.45
12/3	Coordinate with ICAO ANB on guidance document for visual approach for parallel runways.	ATM/SG/13	ICAO	~~Open~~ Completed	ATM/SG/12 report 8.4 ATM/SG/13 WP/57
12/4	Submit an Information Paper on the risk analysis of aircraft deviation from the planned route.	RASMAG/30	China	~~Open~~ Completed	ATM/SG/12 report 8.14
13/1	Organize a webinar on using the updated Asia/Pacific Seamless ANS Plan Reporting Tool.	January 2026	ICAO		ATM/SG/13 report 3.17
13/2	Provide Working Paper at the ATFM/SG/16 on initiative on establishing a collaborative mechanism on ATFM.	ATFM/SG/16 and update the discussion to ATM/SG/14	Cambodia, China, Hong Kong China, Singapore, Viet Nam and IATA		ATM/SG/13 report 5.40
13/3	Review APAC Common SWIM Aeronautical Information Services related to ATM/SG, particularly those with incomplete fields, and share the review results with the SWIM TF for inclusion in the next version of APAC Common SWIM Information Services document.	Ongoing	APAC Common SWIM Aeronautical Information Services Ad-hoc Group		ATM/SG/13 report 5.14

ACTION ITEM & PRIORITY	DESCRIPTION	TARGET DATE	RESPONSIBLE PARTY	STATUS	REMARKS
13/4	Consider establishing a mechanism to conduct regular review of the APAC Common SWIM Information Services document, and notify the SWIM TF of any changes to existing business requirements identified in the document or the introduction of new ones related to ATM SG.	SWIM TF/11	APAC FF-ICE Ad-hoc Group, APAC Common SWIM Aeronautical Information Services Ad-hoc Group, ATFM/SG		ATM/SG/13 report 5.15
13/5	Consider establishing a regional migration strategy and timeline for transitioning to the ATM information exchange via SWIM.	SWIM TF/11	APAC FF-ICE Ad-hoc Group, APAC Common SWIM Aeronautical Information Services Ad-hoc Group, support by ATFM/SG		ATM/SG/13 report 5.16
13/6	Deliberate and review the list of recommendations provided in ATM/SG/13 WP/12 Appendix B and share feedback.	CNS SG/30	Procedures for GNSS and Data Link Disruption Ad-hoc Group		ATM/SG/13 report 5.19
13/7	Refer matters related to Transition Altitude to ICAO HQ for clarification and guidance.	ATM/SG/14	ICAO		ATM/SG/13 report 5.124
13/8	Conduct a workshop on space object launch and re-entry activities.	ATM/SG/14	ICAO and States		ATM/SG/13 report 6.55

ACTION ITEM & PRIORITY	DESCRIPTION	TARGET DATE	RESPONSIBLE PARTY	STATUS	REMARKS
13/9	Consider conducting a GNSS RFI related workshop in conjunction with CNS section.	2027	ICAO and Procedures for GNSS and Data Link Disruption Ad-hoc Group		ATM/SG/13 report 5.116
13/10	Continue to discuss the matter and present a joint paper of the progress of Phase 2 implementation.	ATM/SG/14	China and the Republic of Korea		ATM/SG/13 report 6.71 e)
13/11	Incorporate the relevant contingency planning and procedures for geophysical hazards into the Asia/Pacific Region ATM Contingency Plan.	2027	ICAO		ATM/SG/13 report 7.22
13/12	Raise the ATFM-related phraseology in Doc 9971 to be included in Doc 4444 at ICAO Air Navigation Commission for further action by ICAO ATM Operations (ATMOPS) Panel.	2026	ICAO		ATM/SG/13 report 8.6

— END —