

INTERNATIONAL CIVIL AVIATION ORGANIZATION



REPORT OF THE FIRST MEETING OF THE SOUTH ASIA, INDIAN OCEAN AND SOUTHEAST ASIA ATM COORDINATION GROUP (SAIOSEACG/1)

VIDEO TELECONFERENCE, 28 MARCH – 01 APRIL 2022

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

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

SAIOSEACG/1 Meeting Report
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INTRODUCTION

Meeting

1.1 The First Meeting of the South Asia, Indian Ocean and South East Asia ATM Coordination Group (SAIOSEACG/1) was held as a Video Teleconference (VTC), from 28 March to 01 April 2022.

Attendance

2.1 The meeting was attended by 135 participants from Australia., Bangladesh, Cambodia, China, Hong Kong China, India, Indonesia, Malaysia, Maldives, Nepal, Pakistan, Philippines, Republic of Korea, Singapore, Sri Lanka, Thailand, United States of America, Viet Nam, CANSO, IATA, IFALPA, IFATCA and ICAO.

2.2 A list of participants is appended at **Appendix A** to this report.

Officers and Regional Office

3.1 Mr. Indra Gunawan, Deputy Director of Air Navigation Operation, Directorate of Air Navigation, Directorate General of Civil Aviation Indonesia presided over the meeting throughout its duration as Chair of SAIOSEACG.

3.2 Ms. Sunok Lee, Regional Officer Air Traffic Management (ATM), ICAO Asia and Pacific Regional Sub-Office was the Secretary for the meeting. She was assisted by Mr. Shane Sumner, Regional Officer ATM/Aeronautical Information Management (AIM), Mr. Takata Hiroyuki, Regional Officer ATM, Mr. Vijay Kumar Mishra, Regional Officer ATM, Mr. Manjunath Krishna Nelli, Regional Officer ATM/Air Traffic Flow Management (ATFM), and Mr. Ying Weng Kit, Associate ATM Officer, ICAO APAC Regional Office.

Opening of the Meeting

4.1 Mr. Indra Gunawan welcomed participants to the meeting.

4.2 On behalf of Mr. Tao Ma, Regional Director of ICAO Asia and Pacific Office, Ms. Sunok Lee also welcomed participants to the meeting.

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, the ATM Sub-Group of APANPIRG or SAIOSEACG concerning the legal status of any country, territory, city or area of its authorities, or concerning the delimitation of its frontiers or boundaries.

Documentation and Working Language

5.1 The working language of the meeting and all documentation was English. There were 20 Working Papers (WP), 9 Information Papers (IP) and 1 Flimsy were considered by the meeting.

5.2 A list of papers is included at **Appendix B** to this report.

Draft Conclusions, Draft Decisions and Decisions of SAIOSEACG – Definition

6.1 SAIOSEACG recorded their actions in the form of Draft Conclusions, Draft Decisions and Decisions within the following definitions:

- a) **Draft Conclusions** deal with matters that, according to APANPIRG terms of reference, require the attention of States, or action by the ICAO in accordance with established procedures;
- b) **Draft Decisions** deal with the matters of concern only to APANPIRG and its contributory bodies; and
- c) **Decisions** of SAIOSEACG that related solely to matters dealing with the internal working arrangements of these bodies.

List of Decisions and Draft Conclusions/Decisions

7.1 List of Draft Conclusions/Draft Decisions

Nil

7.2 List of Decisions

Decision SAIOSEACG/1-1: Revised BOBTFRG Terms of Reference	
What: That, noting the: the SAIOACG and SEACG meetings to be combined under the Decision APANPIRG/32-5 to form the South Asia, Indian Ocean and Southeast Asia ATM Coordination Group, the BOBTFRG Terms of Reference (TOR) be amended as detailed in Appendix D to the Report.	Expected impact: <input type="checkbox"/> Political / Global <input type="checkbox"/> Inter-regional <input type="checkbox"/> Economic <input type="checkbox"/> Environmental <input checked="" type="checkbox"/> Ops/Technical
Why: To reflect the changes.	Follow-up: <input type="checkbox"/> Required from States
When: 22-Mar-28	Status: Draft to be adopted by Subgroup
Who: <input checked="" type="checkbox"/> Sub groups <input checked="" type="checkbox"/> APAC States <input checked="" type="checkbox"/> ICAO APAC RO <input type="checkbox"/> ICAO HQ <input checked="" type="checkbox"/> Other: RSO	

Decision SAIOSEACG/1-2: Revised SCSTFRG Terms of Reference	
What: That, noting the: the SAIOACG and SEACG meetings to be combined under the Decision APANPIRG/32-5 to form the South Asia, Indian Ocean and Southeast Asia ATM Coordination Group, the SCSTFRG Terms of Reference (TOR) be amended as detailed in Appendix E to the Report.	Expected impact: <input type="checkbox"/> Political / Global <input type="checkbox"/> Inter-regional <input type="checkbox"/> Economic <input type="checkbox"/> Environmental <input checked="" type="checkbox"/> Ops/Technical
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REPORT ON AGENDA ITEMS

Agenda Item 1: Adoption of Agenda

Election of Chairperson

1.1 This was the first official Meeting of the SAIOSEACG as per the **Decision APANPIRG/32/5** to form the South Asia, Indian Ocean and Southeast ATM Coordination Group (SAIOSEACG) by consolidating the SAIOACG and SEACG meetings to enhance efficiencies of States and ICAO.

1.2 Malaysia formally nominated Mr. Indra Gunawan, Deputy Director of Air Navigation Operation, Directorate of Air Navigation, Directorate General of Civil Aviation Indonesia, to continue as the Chair of SAIOSEACG. The nomination was seconded by China, Hong Kong China, India, Singapore, and Thailand. As no other nominations were received, Mr. Indra Gunawan was duly elected as the Chair of the Group.

Adoption of Agenda (WP01)

1.3 The provisional agenda for the Meeting (WP01) was adopted by the meeting. The List of Papers (IP01) was noted.

Agenda Item 2: Review of the SAIOSEACG Terms of Reference

SAIOSEACG Terms of Reference (WP02)

2.1 ICAO presented the revised SAIOSEACG Terms of Reference for review and consideration by the meeting, which was adopted by the Thirty-Second Meeting of the Asia Pacific Air Navigation Planning and Implementation Regional Group (**Decision APANPIRG/32/5, Draft Conclusion SAIOACG/10 and SEACG/27-1**).

2.2 The SAIOSEACG Terms of Reference is appended as **Appendix C** to this report.

Agenda Item 3: Review of Outcomes of Related Meetings

Relevant Meeting Outcomes (WP03)

3.1 ICAO presented information relevant to the SAIOSEACG/1 meeting from recent ICAO meetings (not including safety matters under the Regional Airspace Safety Monitoring Advisory Group – RASMAG), including the:

- Ninth Meeting of the APANPIRG Air Traffic Management Sub-Group (ATM/SG/9, held via video teleconference, from 1 to 5 November 2021); and
- Twenty Fifth Meeting of the Communications, Navigation and Surveillance Sub-group of APANPIRG (CNS SG/25, held via video teleconference, from 18 to 22 October 2021).

3.2 Airspace safety-related meeting outcomes, and those related to Aeronautical Information Management (AIM) and Air Traffic Flow Management (ATFM) were reported to the meeting under

separate papers.

3.3 India reminded the meeting to adhere strictly to the 7 days advance notification as stated in Doc 10066 for the activities in oceanic danger areas so as to ensure safety to all airspace users. Hence, States requiring notification of hazardous activities over Oceanic airspace of Chennai, Mumbai or Kolkata FIRs to submit the request at least 10 days prior. The United States commented that it would strive to improve communication with its external stakeholders to make sure important notification of dangerous activities should reach all relevant stakeholders in a sufficient timely manner.

BOBTFRG Meeting Outcomes (WP04)

3.4 ICAO presented outcomes from the Third Meeting of the Bay of Bengal Air Traffic Flow Review Group (BOBTFRG/3, VTC, 14 – 15 December 2021) for the review and action by the SAIOSEACG.

3.5 The meeting noted the updates on ADS-C/CPDLC and PBCS implementation in the area:

- The CAA Bangladesh CNS/ATM upgrade project to be completed in 2024 to provide the full communication and surveillance coverage in Dhaka FIR
- India's PBCS implementation in Chennai FIR oceanic airspace including the enhanced Chennai Oceanic Control Center (OCC) ATM automation system to ensure the PBCS compliance with ICAO requirements and performance-based separations application.

3.6 Indonesia provided information that the communications and surveillance facilities at Banda Aceh had the coverage in the area of Large Height Deviation (LHD) Hot Spot A2 (Chennai – Kuala Lumpur interface), which supported the decrease of LHD reports at this interface.

3.7 The meeting noted the BOBTFRG/3 had extensive discussion on the updated BOBTFRG Priority Areas Implementation Timeline, noting that for better clarity and in line with *Asia/Pacific Seamless ANS Plan*, the ADS-C/CPDLC non-exclusive mandate should be referred to as “*designation as non-exclusive PBN and PBCS airspace to allow operational priority for PBN and PBCS approved aircraft*”.

3.8 Considering all changing factors by the COVID-19 pandemic and the possible changes in aircraft capability over the Bay of Bengal, and to facilitate progress of BOBTFRG in a realistic timeline, the meeting had agreed with the following expected actions:

- BOBTFRG States should work with local airlines to conduct the analysis on the fleet equipage in ADS-C/CPDLC, RNP 10, RNP 4 and RNP 2;
- States requiring PBCS support to implement performance-based separations should develop its PBCS implementation plan, including the expected timeline; and
- IATA to support States and work with its member airlines to conduct the analysis of fleet equipage.

3.9 IATA suggested the NOPAC implementation be used for designing the non-exclusive mandate for the Bay of Bengal and as a benchmark for deciding on the length of a transition period. The recently introduced non-exclusive mandate in the North Pacific (NOPAC) Route Systems included a transition period, where non-capable aircraft could still plan up to an intermediate/higher level, but capable aircraft would be accorded a priority in a specified level band.

3.10 With regards to the States' and IATA's concerns on setting the definitive timeline for the non-exclusive mandate, ICAO emphasised the importance of States and IATA to conduct the analysis on the fleet equipage in ADS-C/CPDLC, RNP 10, RNP 4 and RNP 2. All States concerned were also urged to develop its PBCS implementation plan.

(formerly the Asia/Pacific Seamless ATS Plan) in 2019 was appended to the report as agreed by the SAIOSEACG (**Appendix D**).

3.17 The meeting agreed to the following:

Decision SAIOSEACG/1-1: Revised BOBTFRG Terms of Reference:

That, the updated Terms of Reference for BOBTFRG at Appendix D to the Report be adopted.

SCSTFRG Meeting Outcomes (WP05)

3.18 The outcomes from the Ninth Meeting of the South China Sea Traffic Flow Review Group (SCSTFRG/9, VTC, 1 – 3 June 2021) was presented for the review and action by the meeting.

3.19 The meeting noted updated information on the SCSTFRG Priority Areas, that most of the action items under Priority Areas 1, 2 and 3 were almost completed, States/Administration should be prepared to discuss Priority Area 4 – *Review of Existing FLAS/FOS Operation within the South China Sea*, at the upcoming SCSTFRG/10 meeting.

3.20 Singapore presented the follow up on the proposed implementation of RNAV 2 route specification for ATS routes L642, M771 and N892, and RNP 10 route specification for ATS route M768 including implementation timeline, as discussed at the SAIOACG/10 and SEACG/27 (VTC, 29 March – 02 April 2021).

3.21 The meeting recalled that Indonesia, Malaysia, Singapore and Viet Nam, at the SCSTFRG/8, had agreed to the implementation of RNP 10 operations with 50 NM longitudinal spacing on ATS route M768 to enhance capacity allowing additional traffic and optimum flight levels allocation.

3.22 ICAO also reminded the meeting that the application of RNP 10-based separation minimums was determined only by the Required Navigation Performance (RNP) capability of the aircraft, together with the requirement for either Direct Controller-Pilot Communications (DCPC) with position reports (Doc 4444, paragraph 5.4.2.6.3), or RCP240 and RSP180 (Doc 4444, paragraph 5.4.2.9.2). The application of RNP-based separations was applied on the basis of aircraft and ATS capability, not ATS route definition.

3.23 The review of existing flight planning restriction on ATS routes L644 was proposed by Singapore to allow more flights from other destinations to maximise the route capacity providing a more efficient and direct routing for upstream flights arriving in Jakarta, Indonesia. With no objection from China and Hong Kong China, Indonesia and Viet Nam expressed their concerns, especially on the potential traffic complexity.

3.24 Malaysia provided an update on the proposed implementation of uni-directional parallel route to R208 to improve safety and efficiency and savings to the airspace users (**Figure 2**). With support and agreement by Singapore and Viet Nam, Malaysia agreed to host a virtual meeting in Q4 2021 or Q1 2022 to further discuss the development, ATC coordination procedures and other ATM matters related to the implementation of this parallel uni-directional routes proposal.

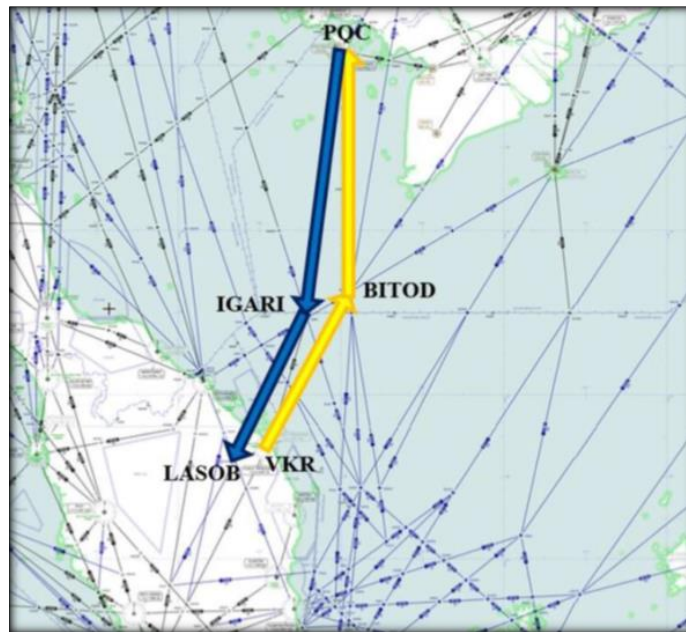


Figure 2: Proposed Parallel Uni-directional Routes

3.25 Philippines provided an update on the HF radio communications in Manila FIR. Manila ACC had significantly reduced its dependency on HF radio operators for obtaining aircraft position reports in the oceanic airspace with the new Philippine ATMC, after extensive upgrade of systems.

3.26 Indonesia presented its proposals to implement the longitudinal spacing on ATS routes M772, N875 and P648 to 50 NM, along with normalisation of Flight Level Orientation Scheme (FLOS) and removal of Flight Level Allocation Scheme (FLAS) restrictions on these routes.

3.27 Encouraging the relevant States to this propose to cooperate, ICAO reminded the meeting that as portions of these routes were within Category S airspace, Air Navigation Service Providers (ANSPs) concerned should be able to provide surveillance-based separations, without FLAS restrictions for procedural flight level separation, according to the standard FLOS (Annex 2, Appendix 3a).

3.28 Noting the *Decision APANPIRG/32-5* and the renaming of the *Asia/Pacific Seamless ANS Plan* (formerly the *Asia/Pacific Seamless ATS Plan*) in 2019, the SCSTFRG Terms of Reference was appended as **Appendix E** to the Report, as agreed by the meeting.

3.29 The meeting agreed to the following:

Decision SAIOSEACG/1-2: Revised SCSTFRG Terms of Reference:

That, the updated Terms of Reference for BOBTFRG at Appendix E to the Report be adopted

Agenda Item 4: Review of Current Operations and Problem Areas

Air Navigation Service Deficiencies List (WP06)

4.1 ICAO presented information on the current Air Navigation Deficiencies related to airspace safety and Air Navigation Services (ANS), as approved by the APANPIRG/32. APANPIRG Deficiencies had been issued in the following areas:

SAIOSEACG/1
Report on Agenda Items

- Aeronautical Information Management (AIM);
- Airspace Classification;
- Air Traffic Services (ATS) Messages and Flight Planning;
- Search and Rescue (SAR);
- ATS Datalink; and
- airspace safety reporting.

4.2 APANPIRG/32 had agreed to Indonesia deletion in WGS-84 deficiency, China deletion in Search and Rescue (SAR) deficiency, and Fiji deletion and India amendment (remove reference to Kolkata FIR) in ATS Datalink deficiency.

4.3 **Figure 3** provides a graphical indication of the APANPIRG Deficiencies that had been issued for each State.

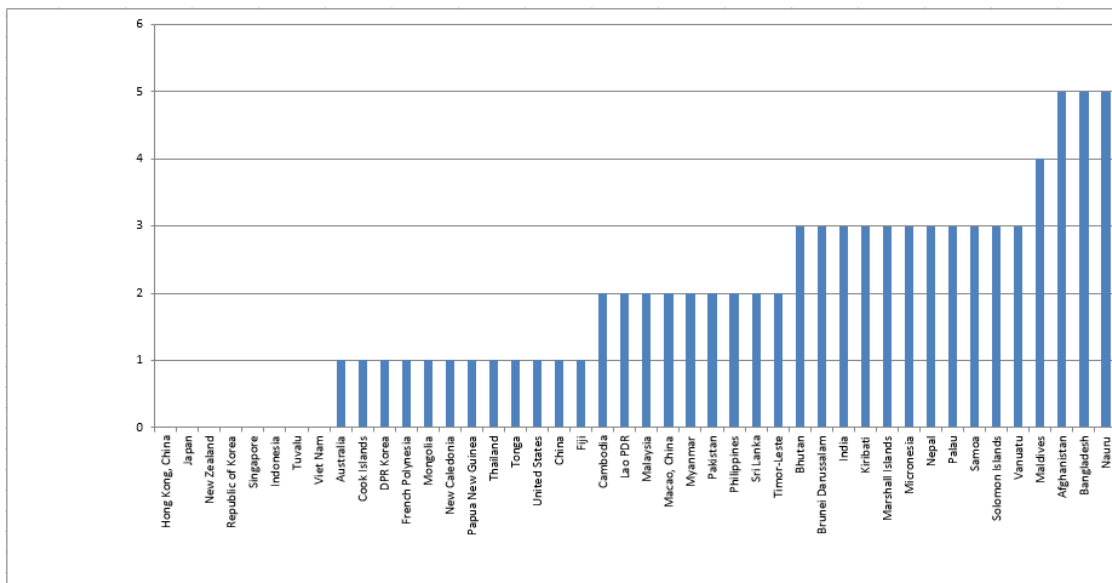


Figure 3: Comparison of State Deficiencies

4.4 In response to a query, ICAO informed Maldives that the Deficiency recorded for ATS Datalink related to the non-submission of datalink performance reports and problem reports to, respectively, a recognized FANS Interoperability Team (FIT) and a recognized Central Reporting Agency (CRA). Maldives was encouraged to attend the next meeting of FIT-Asia.

4.5 Regarding the deficiency recorded for Bangladesh relating to ATS messages, it was currently expected that a regional analysis to be conducted in 2022 would provide the data to support removal of the deficiency by APANPIRG/33.

Airspace Safety Monitoring (WP07)

4.6 ICAO presented the outcomes relevant to the SAIOSEACG/1 meeting from the Twenty-Sixth Meeting of the Regional Airspace Safety Monitoring Advisory Group (RASMAG/26, VTC, 27 – 30 October 2021).

4.7 The paper presented the outcomes of FIT-Asia/11 meeting:

Conclusion RASMAG/26-1: FANS1/A CPDLC Latency Timer Value.

That, recognizing:

1. the need for aircraft to provide an appropriate indication when the age of the time stamp of a received CPDLC message exceeds a defined value (latency timer value), in accordance with ICAO Doc 9869 PBCS Manual safety requirement SR-15;
2. a latency timer value of 300 seconds supports both RCP240 and RCP400 operations;
3. the need for a single, standardized global value; and
4. the trialling of a value of 300 seconds in the North Atlantic Region;

States are urged to implement a latency timer value of 300 seconds on a trial basis and report outcomes to FIT-Asia.

4.8 Overall ASP for the region had met the 95% criterion of the Required Surveillance Performance 180 (RSP180) specification, but fell marginally below the 99.9% criterion. While the volume of data counts had significantly reduced in 2020, the trend of regional performance in both the 95% and 99.9% criteria had generally improved.

4.9 Overall ACP for the region met the 95% criterion (ACP for most FIRs fell marginally below the 99.9% criterion, but several FIRs failed to meet it in 2020. And Pilot Operator Response Time (PORT) performance requirements were not met by a number of aircraft operators.

APAC Consolidated Safety Report

4.10 The combined summary of the safety analysis results for the Asia Region was presented during RASMAG/26. The estimated vertical collision risk for 2020 for the Asia area did not meet TLS. (**Table 1**).

Year	Vertical Overall Risk Estimate (x 10 ⁻⁹ FAPFH)	Remark
2020	7.42	Above TLS
2019	12.88	Above TLS
2018	15.50	Above TLS
2017	27.30	Above TLS
2016	12.53	Above TLS

Table 1: Asia Area Vertical Collision Risk Estimates 2016 – 2020

4.11 **Table 2** summarizes current LHD Hot Spots, the FIRs involved, the year of identification, and status remarks.

Hot Spot	Involved FIRs	Identified	Remarks
A1	Kolkata/Chennai/Dhaka-Yangon	2015	Cat. E LHDs reducing
A2	Chennai – Kuala Lumpur	2015	Cat. E LHDs reducing
B	Incheon (AKARA Airspace)	2015	Cat. E LHDs
D	Manila – all adjacent FIRs	2015	Cat. E LHDs reducing Cat F LHDs emerging
F	Mogadishu – Mumbai	2015	Cat. E LHDs
G	Sanaa/Muscat – Mumbai	2015	Cat. E LHDs (Sanaa improved)
J	Jakarta – Singapore/Kota Kinabalu	2018	Cat. E LHDs, minor and reducing
M	Colombo – Melbourne	2019	Proposed to re-classify as non-hot spot, subject to further data

Table 2: LHD Hot Spots in the Asia/Pacific Region

4.12 LHD Hot Spot F (Mogadishu – Mumbai) and LHD Hot Spot G (Sanaa/Muscat – Mumbai) at the western boundary of Mumbai FIR remained as LHD hot spots since 2015. The poor communication services and lack of surveillance coverage at these interfaces worsened the situation.

However, with AIDC implementation between Mumbai ACC and Muscat/Mogadishu ACCs along with Space-based ADS-B surveillance capability, it was expected to improve in this interfaces.

RMA's 'W' Verification of State Aircraft

4.13 APAC RMA's currently conducted monthly or annual audits of the use of the 'W' designator in flight plans, including the flight plans of State aircraft, against the global snapshot of all RMA's approval records. Aircraft that included 'W' in flight plans but did not have matching RVSM approval were generally called 'rogue' aircraft. The rogue aircraft that persistently remained on the list were mostly State aircraft. In order for the rogue State aircraft to be removed from the list either the State aircraft's approval data had to be provided to the designated RMA, or the State aircraft operator had to stop using 'W' in item 10 of the ICAO flight plan. APANPIRG/32 agreed to the following conclusion to address the issue. ICAO reminded all States to return their survey (sent on 3 March 2022) by 30 April 2022.

Conclusion APANPIRG/32-6: RVSM Approvals Data and Filing of RVSM Indicator in Flight Plans of State Aircraft	
What: That, States are urged to: <ol style="list-style-type: none"> 1. liaise with their State aircraft operators to not file 'W' in item 10 of the ICAO flight plan of aircraft that are not approved for RVSM; and 2. respond to a survey on RMA and State responsibility on the matter of RVSM approvals of State aircraft. 	Expected impact: <input checked="" type="checkbox"/> Political / Global <input checked="" type="checkbox"/> Inter-regional <input type="checkbox"/> Economic <input type="checkbox"/> Environmental <input checked="" type="checkbox"/> Ops/Technical
Why: To improve airspace safety by ensuring that only RVSM-approved State aircraft file the RVSM 'W' indicator in filed flight plans, and facilitating the monitoring of RVSM approvals and performance of State aircraft by Regional Monitoring Agencies	Follow-up: <input checked="" type="checkbox"/> Required from States
When: 3-Dec-21	Status: Adopted by PIRG
Who: <input checked="" type="checkbox"/> Sub groups <input checked="" type="checkbox"/> APAC States <input checked="" type="checkbox"/> ICAO APAC RO <input checked="" type="checkbox"/> ICAO HQ <input checked="" type="checkbox"/> Other: RASG	

APAC Consolidated LTHM Burden Estimate

4.14 While noting that RASMAG/23 had agreed that States with a remaining burden 30% or more would be proposed to be added to the APANPIRG Deficiencies List, MAAR observed that operators had been trying to fulfil their height monitoring requirements but could not do so due to the unavailability of Enhanced GPS-based Monitoring Unit services during the pandemic. It was therefore proposed that consideration of new deficiencies be delayed until an alternative means of height monitoring became available. If the pandemic continues to affect the monitoring burden, new Deficiencies would be recorded by RASMAG/27.

Air Navigation Service USOAP Update (IP02)

4.15 ICAO presented information on the USOAP-audited status of Asia/Pacific States, noting that due to the COVID-19 pandemic there had been no audit activities carried out in the last two year.

Application of ATC Separation Minimums (WP08)

4.16 This paper presented data on surveyed ATC separation standards that were being applied within the APAC Region compared to the provisions in the elements 7.34 and 7.35 of the *Asia/Pacific Seamless ANS Plan*. The response to the latest survey had been received from 14 States/Administrations

representing 19 FIRs (31% of administrations). Based on the 2022 survey response,

- a) ATC separation within the FIR: It could be seen that the majority of Category R and Category T horizontal separation is in compliance with Seamless ANS separation standards whereas for Category S, only 56% (9 out of 16) applicable FIRs were in compliance.
- b) For ATC separation at inbound FIR TOC points: The data showed that 72% (201 of 281) TOC points in the Category R/S to R TOC and 22 of 316 Category S to S TOC points were in compliance and nil for the Category R to S TOC points.

4.17 In general, Asia Pacific Category R airspace and interfaces complied with the expectations of the Asia/Pacific Seamless ANS Plan, however Category S and interfaces would require more efforts to comply with the expectations of the Asia/Pacific Seamless ANS Plan. In order to provide a clear definition to illustrate the efficiency and compliance of ATC separation standard in the Asia Pacific region, the colour-coding would be amended accordingly and shared at the ATM/SG/10. Therefore, all States/Administrations were urged to complete the ATC separations survey.

4.18 At the APANPIRG/32, held from 1 – 3 December 2021, all Administrations were urged to review Letters of Agreement (LOAs) with adjacent FIR, both periodically and whenever there was an improvement in CNS/ATM systems, given the urgent need to ensure the most efficient ATM systems to support the fragile recovery of the aviation industry after severe financial losses during the COVID-19 pandemic. The meeting agreed to the following Conclusion, drafted by SAIOACG/10 and SEACG/27:

Conclusion APANPIRG/32-3: Implementation of Efficient ATS Horizontal Separations and Transfer of Control Aircraft Spacing

That, given the global priority to support airlines' recovery from the unprecedented negative economic consequences of the COVID-19 pandemic, and the suitable low traffic environment:

- a) *States are strongly urged to review and update their National Air Navigation Plans (NANPs) to ensure that Air Navigation Service Providers (ANSPs) fully implement the horizontal separation and aircraft spacing elements in the Asia/Pacific Seamless ANS Plan V3.0; and*
- b) *ICAO considers the need for seminars, workshops and other educational material to support this implementation*

4.19 IFATCA showed its appreciation on the initiatives by States regarding CNS/ATM improvements and also on efforts of ICAO to reemphasise the competence of ATCOs and in particular the safety culture environment which would optimise the capacity of ATM.

Application of 10 minute Horizontal Separation on Crossing Tracks in Oceanic Airspace of Mumbai FIR (WP09)

4.20 India proposed the application of 10 minute separation on opportunity basis between ADS-B equipped aircraft flying on crossing tracks under Space Based ADS-B (SB ADS-B) Surveillance in the oceanic airspace of Mumbai FIR. For the proposed separation, the establishment of two-way radio communication via VHF/HF or CPDLC connection for suitably equipped aircraft was considered mandatory.

4.21 The Mumbai Oceanic Airspace had jurisdiction over vast areas in Arabian Sea/Indian Ocean Region and services in a complex network of RNP 10 ATS Routes primarily catering to East-South East/West-North West traffic flows from and to airports between South-East Asia and Middle East, and beyond. Additionally, RNAV and Conventional ATS Routes provide connectivity between

the Indian sub-continent and the African coastline. These ATS Routes intersect the East-South East/West-North West ATS Routes at multiple waypoints. For this crossing traffic over the portion of oceanic airspace, currently procedural 15 minutes separation over the crossing points was being applied. (**Figure 4:** about 31 crossing points).

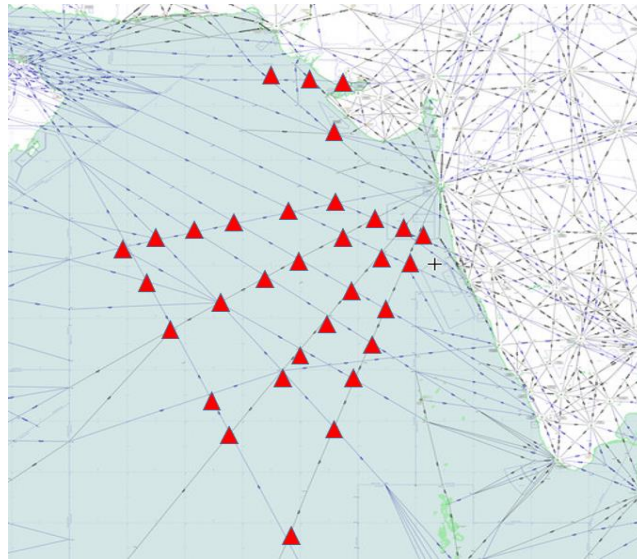


Figure 4: Opportunities for application of 10 min separation at crossing points in Mumbai Oceanic Airspace

4.22 The ATS provision in Mumbai Oceanic Airspace was dependent on procedural position reporting via HF and establishing ADS-C/CPDLC connection with appropriately equipped aircraft. However, with availability of Space Based ADS-B surveillance, improved performance of HF and availability of ADS-C/CPDLC, strengthened Mumbai ATM Automation System for both ADS-B equipped aircraft and the enhanced ATC situation awareness since 2021, the safe application of 10 minute separation between aircraft on crossing tracks expected to be realised.

4.23 In view of the above, India proposed to implement application of 10 minute horizontal separation on crossing tracks on opportunity basis only between the aircraft that its ADS B tracks have been correlated with CPL and the aircraft that are in positive contact with Mumbai OCC on voice (HF/VHF) or CPDLC, starting with trial operation for three months from 1 May 2022.

4.24 IATA informed the meeting that they would be happy to alert member airlines to the intended trial. IATA would also like to see the initiative extended to the Chennai and Kolkata FIRs.

4.25 In response to IATA and ICAO comments, India advised that safety assessment and other analyses of the initiative had been conducted, and that if the outcomes of the intended trial were satisfactory a Proposal for Amendment (PfA) to ICAO Doc 7030 *Regional Supplementary Procedures* would be submitted. An update of any trial conducted before the next meeting of the Bay of Bengal Traffic Flow Review Group (BOBTRFG) would be provided to that meeting.

4.26 During the meeting, India informed that NOTAM had been issued for this trial starting 1 May until 31 July 2022.

Implementation of 10NM surveillance spacing between Jakarta ACC and Ujung Pandang ACC (IP03)

4.27 The meeting noted the information provided by Indonesia on the implementation of 10NM surveillance spacing between Jakarta ACC and Ujung Pandang ACC to enhance ATC separation standard in accordance with the Asia/Pacific Seamless ANS Plan.

4.28 As all ATC units should authorize the use of the horizontal separation minima as stated in ICAO Doc 444 (PANS ATM), or as close to the separation minima as practicable, in accordance with the provisions of the Asia/Pacific ANS Plan (7.34), Indonesia had implemented 10NM spacing between Jakarta and Ujung Pandang FIRs to meet the standards at TOCs between airspace Category S.

4.29 Based on the positive post-trial evaluation result, Indonesia also completed the update of LOCA in 30 March 2021. Indonesian airspace capacity was highly improved compared to the past:

ROUTE	SEPARATION
G464	15NM/10 MINUTE
L504, M635, M774	50NM/10 MINUTE
W15, W18, W35, W36	10 MINUTE

Table 3: Separation on Routes before Implementation of 10NM Surveillance Spacing

Missing Departure (DEP) Messages (WP10)

4.30 ICAO provided an update on the issue missing DEP messages, as discussed at multiple meetings of the ATFM/SG and ATM/SG since and including ATFM/SG/8 (2018) and ATM/SG/7 (2019). The meeting was reminded of *Conclusion APANPIRG/27/12: Origination and Distribution of Departure (DEP) Messages*, and *Conclusion ATM/SG/7-5: ATS Message Reception and Handling*.

4.31 The meeting was informed of matters affecting the correct distribution and reception of Filed Flight Plan (FPL), DEP and other related ATS messages including compliance with ICAO addressing procedures, other factors that may cause failure of messages to reach one or more relevant ATS units, and follow-up actions coordinated by the ICAO Regional Office.

4.32 In response to discussion of PANS-ATM 11.2.1.2.3.3, ATM/SG/9 had been informed that multiple APAC States had a substantial re-distribution requirement for FPL and associated ATS messages, but only required PANS-ATM-compliant addressing to [location indicator]ZQZX for each FIR.

4.33 APANPIRG Deficiencies would be considered if any State failed to correctly process messages that were correctly addressed to [FIR location indicator]ZQZX. It was noted that several States had amended their AIP Section ENR 1.11 to more closely comply with the PANS-ATM provisions.

4.34 Bangladesh, India, Malaysia, Maldives, Nepal and USA currently had APANPIRG ATM and Airspace Safety Deficiencies recorded for non-compliance with the requirements of ICAO Doc 4444 – Procedures for Air Navigation Services – Air Traffic Management (PANS-ATM) Section 11.4, relating to the percentage of flights for which DEP messages were not transmitted.

4.35 Due to the COVID-19 pandemic the planned further data gathering and analyses in 2020 and 2021 had not been conducted, as the significant reduction in air traffic was considered to render a data analysis of unrepresentative. However, noting the importance of this issue another regional analysis was being tentatively planned in 2022.

4.36 Thailand continuously monitored the non-receipt of DEP messages for flights entering the Bangkok FIR, and kindly agreed to provide data for the information of the meeting.

4.37 **Table 4** summarized non-receipt of DEP messages for flights originating in the FIRs of APAC Administrations and entering the Bangkok FIR for the six months ending in December 2021 (percentage of flights).

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Originating State	JUL 2021	AUG 2021	SEP 2021	OCT 2021	NOV 2021	DEC 2021	TOT %
Afghanistan							
Bangladesh	10/77	0/93	1/111	0/121	4/181	1/204	2%
Bhutan	2/21	0/18	0/14	1/15	0/17	1/14	4%
Brunei Darussalam	2/15	0/12	0/10	1/10	1/10	0/10	6%
Cambodia	2/174	1/167	0/167	0/173	2/224	3/270	< 1%
China	1/477	3/490	1/412	0/388	0/453	4/642	< 1%
India	39/226	44/227	51/237	51/294	50/320	55/587	15%
Indonesia	4/74	1/70	4/66	3/73	9/91	4/82	5%
Lao PDR	4/32	1/27	1/28	0/24	1/31	1/54	4%
Malaysia	16/187	23/243	29/269	24/298	58/330	46/390	11%
Maldives	0/7	0/5	2/4	1/3	2/4	6/10	33%
Myanmar	2/188	4/250	5/196	5/197	3/177	18/235	3%
Nepal	0/42	0/50	1/44	0/64	1/59	1/79	< 1%
Pakistan	1/11	1/11	1/13	5/12	0/25	4/25	12%
Philippines	2/429	5/465	6/427	5/480	21/500	7/523	1%
Republic of Korea	2/149	4/160	0/151	0/157	0/163	0/157	< 1%
Singapore	1/598	0/521	1/502	2/556	3/690	0/1055	< 1%
Sri Lanka	0/80	2/79	0/68	1/93	0/100	0/80	< 1%
Timor Leste							
USA	5/28	7/31	4/43	3/53	3/31	5/32	14%
Viet Nam	1/273	5/217	2/252	2/417	4/464	3/482	< 1%

Table 4: Non-receipt of DEP Messages for Flights Entering the Bangkok FIR per Originating State – July to December 2021

4.38 With reference to Attachment A to the working paper, China stated that the addresses specified in AIP China ENR 1.11 were compliant with PANS-ATM. In response, ICAO stated that this had been discussed in many meetings over several years¹. Indonesia (offline) and Viet Nam informed the meeting that their AIP Section 1.11 information had been updated to comply with PANS-ATM.

Agenda Item 5: Implementation of CNS/ATM Systems

New Kuala Lumpur FIR airspace (KL FIR) and Kuala Lumpur CNS/ATM complex (KL ATCC) (IP05)

5.1 Malaysia provided overview information on the successful restructuring of New KL FIR airspace and migration to Kuala Lumpur new CNS/ATM Complex that were done on 17 June 2021 and 31 August 2021 respectively. The meeting was also informed of the purpose of both implementation

¹ Most recently, ATM/SG/9 (November 2021) Report of the Meeting paragraphs 5.24 to 5.26

and migration, and how Malaysia managed the transition including its post-migration operation review.

5.2 Airspace was enhanced with more ATC sectors, PBN implementation, new procedures and better utilisation of airspace to accommodate the future traffic increase and to further improve airspace capacity and performance. In addition, the new CNS/ATM complex, Kuala Lumpur Air Traffic Control Center (KLATCC) successfully started operation as of 31 August 2021 at Sepang, 60kms away from the old KLATCC. The new facility supported ASBU block 0 and block 1 upgrade plan with Electronic Flights Strips (EFS) capability, including Search and Rescue (SAR) facility to improve SAR capability.

5.3 With the newly enhanced airspace structure and CNS/ATM complex in KL FIR, Malaysia could better support the recovery of aviation industry from the impacts by the pandemic through providing more capacity and safety.

5.4 ICAO informed the meeting of the discussion on concerns by airspace users at the BOBTFRG/3 regarding the ATM Automation System readiness. It reminded the meeting that ATM Automation System was needed to be appropriately capable of processing the required CNS performance specifications when planning any sort of mandate on PBN and PBCS implementation to airspace users for harmonized implementation, highlighting the requirements that was described in 2.7.3, 2.8.2, 2.9.2 and 2.9.3 of ICAO Annex 11 Air Traffic Service.

5.5 Noting the remarks by ICAO, the Chair encouraged States to continue their efforts to develop the appropriately capable ATS units with ATM Automation Systems for better ATM capacity building and safety improvement in aviation.

5.6 Malaysia shared experience regarding migrating to a new facility, training, and new features in its new ATM systems with participants.

Regional Air Navigation Plan Update (WP11)

5.7 ICAO presented an update on the ANP for the Asia/Pacific Region. Noting that the previous ICAO Doc 9673 Asia and Pacific Regions Regional Air Navigation Plan did not provide a legal description of FIRs in the first place, it was important for States to understand that the process of checking, alignment and validation was crucial to provide a formal basis for their FIRs.

5.8 As FIRs were considerably more difficult to establish than Search and Rescue Regions (SRRs), the review of FIRs had been commenced first. The Proposal for Amendment (PfA) process for FIRs and SRRs was not the same process of approval in ANP Vol. I (approval of the Council of ICAO). ICAO anticipated that the SRR Table would be completed by October 2022, to be entered into the ANP by APANPIRG/33.

5.9 Current ICAO data was provided in SAIOSEACG/1 WP/11 Attachments B and C (FIRs and SRRs, respectively).

5.10 There were four areas affecting the resolution of 11 FIRs, each with a political dimension and therefore appropriately involving APANPIRG in terms of overseeing the process used to resolve issues. The four areas were detailed in SAIOSEACG/1 WP/11 D to G.

5.11 30 FIR PfAs had been approved by the President of the Council and were incorporated in ANP VOL I Table ATM I-1. Three FIR PfAs had been received by the ICAO Regional Office and were in the process of circulation for ICAO HQ review. 12 FIR PfAs had been submitted to the Regional Office but required further clarification/justification with adjacent States. **Figure 5** shows the FIR review status in March 2022.

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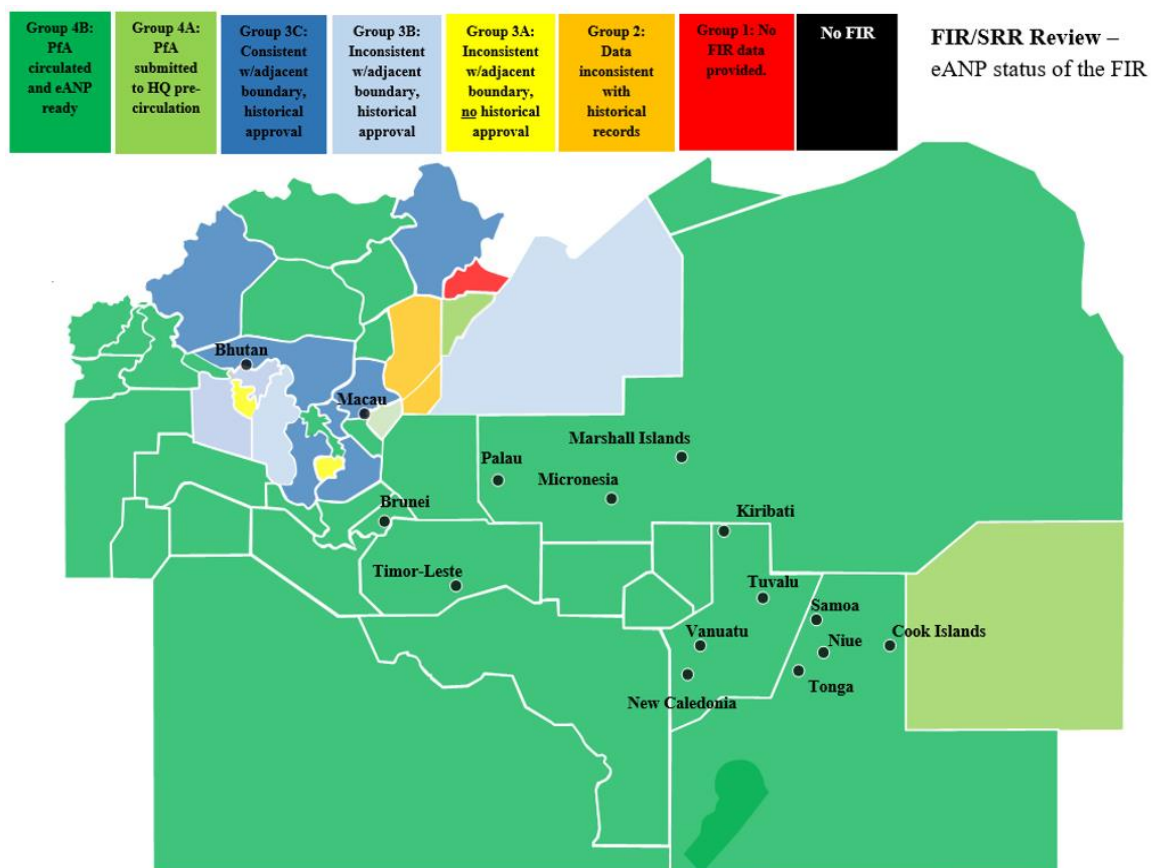


Figure 5: FIR Review Status, March 2022

5.12 10 SRR PfAs had been submitted and were being processed.

5.13 In response to Attachment to the WP (Kolkata-Dhaka-Yangon FIRs), India contended that the PFA for the Kolkata FIR had been submitted seven years ago, was consistent with the FIR data published in AIP India and AIP Bangladesh, and therefore should be approved for insertion in the ANP. ICAO responded that the AIP was not the definitive source of FIR definition. The PFA submitted by the neighbouring State must align with the PFA submitted by India. In this case it did not. It was further proposed by ICAO that this matter should be a subject for discussion/resolution at the regular ATS/ATM coordination meetings held between the States concerned.

Seamless ANS Plan Update (WP12)

5.14 The meeting was informed of the current status of *Asia/Pacific Seamless Air Navigation Services (ANS) Plan* (formerly the Seamless ATM Plan) reporting, and the implementation progress of air navigation improvements in the Asia/Pacific Region. Due to the lack of a current reporting system the ICAO Regional Office was not able to update the current implementation status; the reporting portal had not been updated to match the 6th Edition of GANP and the current Version 3.0 of the Seamless ANS Plan. Implementation status information provided in the paper was as of March 2019, and therefore unchanged since reported to ATM/SG/8 in 2020. The meeting was reminded of ***APANPIRG Conclusion 30/6 - ICAO HQ Support for Regional ANS Implementation***.

5.15 A total of 28 States/Administrations, i.e. 63.6% of the APAC States/Administrations, had submitted one or more report(s) on the previously used ICAO Seamless ATM Reporting Portal (accessible through the ICAO Secure Portal). Among those 28 States/Administrations, only six States had submitted at least four reports from 2014 to 2018. 16 APAC States had not provided any Seamless ANS Reports, including SAIOSEACG member States: Afghanistan, Brunei Darussalam, Myanmar,

Timor Leste.

5.16 The meeting was reminded that implementation of the ten priority regional targets for Phase I of the Seamless ATM Plan (November 2015 to November 2019) had in general not been achieved. There were now 16 priority ASBU Block 0 and 1 and regional elements in Seamless ANS Plan Version 3.0.

5.17 Information was provided on the need for States to develop a National Air Navigation Plan (NANP) as detailed in Section 9 of the Seamless ANS Plan and included among the specific regional requirements of the Regional Air Navigation Plan (ANP) Vol II.

5.18 The intended three-yearly review of the Seamless ANS Plan fell due in 2022. Noting that there was currently no known planning for mid-term changes to the Global Air Navigation Plan and its ASBUs, it was proposed that a 2022 review of the plan should be editorial only, except where significant issues had been identified by relevant ICAO APAC technical bodies. APAC Administrations wishing participation in any review were invited to nominate a single point of contact by email to apac@icao.int.

Trial Implementation of AIDC between Jakarta ACC and Ujung Pandang ACC (IP04)

5.19 Indonesia provided information on its trial implementation of simplified AIDC between Jakarta ATCC and Ujung Pandang ACC, which was a stand-alone system inhouse developed to process data and communicate with the AIDC system in Ujung Pandang ACC. Although the system required some manual input into the ATC system, phase 1 evaluation results showed significant decrease in ATC workload in Jakarta ACC that did not used to have AIDC capability, which also could potentially support mitigation of LHDs.

5.20 In response to IFATCA and Hong Kong China' inquiries on the future plan to implement AIDC with neighboring FIRs to address the Hot Spot 'J' and adopting other messages like TOC and AOC, Indonesia stated that after a positive trial implementation and in the long-term planning, it would progress further to the full AIDC implementation including TOC, AOC messages.

5.21 In response, ICAO commented if the system still required manual work by controllers, it would not cater to the objective of AIDC, which was designed to reduce the human errors so as to increase the safety.

Air Traffic Flow Management Update (WP13)

5.22 The meeting was informed of the outcomes of the 11th Meeting of the Air Traffic Flow Management Steering Group (ATFM/SG/11), held by VTC from 02 to 06 August 2021 and subsequent decisions by APANPIRG/32 on ATFM and ACDM.

5.23 The Sixth Meeting of the Asia/Pacific Airport Collaborative Decision-Making Task Force (APA-CDM/TF/6, 28 – 30 April 2021) had agreed to develop a regional model for the integration of ATFM and A-CDM. Noting the Decision APANPIRG/32/1 on dissolution of the APA-CDM/TF and the Decision APANPIRG/32/4 on Revised ATFM/SG Terms of Reference, ATFM/SG would undertake A-CDM-related activities.

5.24 ATFM/SG/11 had been provided with an operational analysis and overview of westbound flights through the Kabul FIR associated with the Bay of Bengal Cooperative ATFM (BOBCAT) system for the two-year period from July 2019 to June 2021. **Figure 6** illustrated the BOBCAT slot request volume for the period.

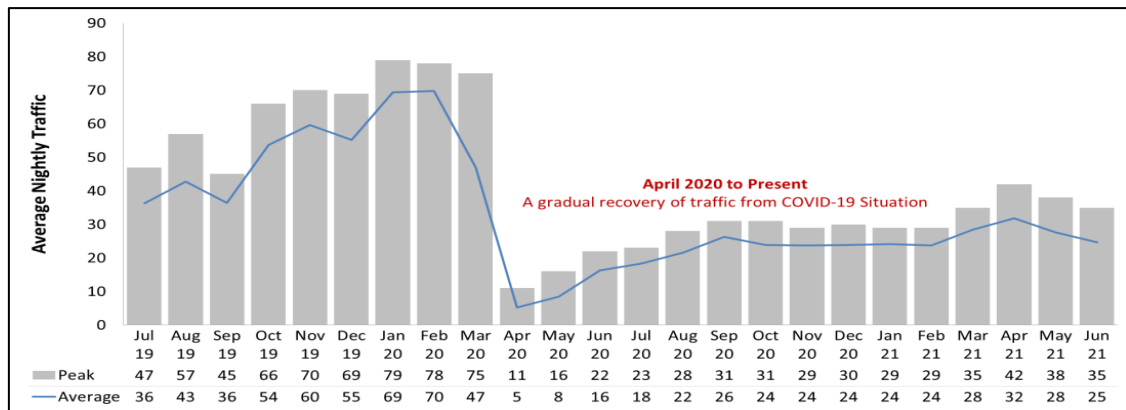


Figure 6: BOBCAT slot request volume from July 2019 to June 2021

5.25 The meeting was informed that due to the current ATM contingency situation in the Kabul FIR BOBCAT system operations had been temporarily suspended until such time as demand for overflights of Afghanistan resumed.

5.26 An update was provided on progress in the Asia/Pacific Cross-Border Multi-Nodal ATFM Collaboration (AMNAC), including post-operations analysis results, the role of collaboration during the COVID-19 pandemic, technical progress on ATFM information exchange via Aeronautical Fixed Telecommunications Network/ATS Message Handling System (AFTN/AMHS), discussion on the progress of SWIM development for ATFM, and the development of a Flight Information Exchange Model (FIXM) 4.2 APAC Extension.

5.27 Hong Kong China had conducted nine GDP operational trials to provide continuous training and familiarization to Hong Kong ATFM personnel and regional partners since January 2021. As there was currently no genuine demand/capacity imbalance at HKIA, only nodelay CTOTs were distributed. The operational trials still had proven to be an important activity, validating the ATFM concept and procedures, facilitating ATFM personnel’s maintenance of currency in common operating procedures and providing training opportunities.

5.28 India’s Central Air Traffic Flow Management System (C-ATFM) was planned to be implemented in three phases. The C-ATFM system would be provided with cross-border multi-nodal ATFM information exchange capability in accordance with the APAC AFTN/AMH-based ICD for ATFM.

5.29 India had estimated that, following the significant impact of COVID-19 on traffic levels, traffic may recover to 70% of December 2019 levels by the end of 2021.

5.30 A summary of the ATFM implementation status of APAC Administrations was provided and reported against the performance objectives of the Regional Framework for Collaborative ATFM. Annual implementation status reports, due by 30 April 2021, were received from 14 APAC Administrations: Australia, Bangladesh, Hong Kong China, India, Indonesia, Japan, Mongolia, Pakistan, Philippines, Republic of Korea, Singapore, Thailand, United States, Viet Nam.

5.31 It was noted that COVID-19-pandemic-related disruption to ICAO meeting planning and associated APAC ANSP activities may have contributed to the lack of reporting in 2020 and 2021.

5.32 Based on reports received States were assessed as having Robust (90-100%), Marginal (70-89%) or Incomplete (0-69%) implementation.

- India, Singapore, Thailand and USA were assessed as having Robust implementation.

- Australia, China, Hong Kong China, Japan, Indonesia, Pakistan and Republic of Korea were assessed as Marginal implementation
- Bangladesh, Cambodia, Macao China, Malaysia, Maldives, Mongolia, Myanmar, Nepal, New Caledonia, New Zealand, Papua New Guinea, Philippines and Viet Nam were assessed as Incomplete

5.33 The following APAC States had never provided an implementation status report, and their implementation status recorded as Did Not Report:

- Afghanistan, Bhutan, Brunei Darussalam, Cook Islands, Fiji, France (French Polynesia), DPR Korea, Kiribati, Lao PDR, Marshall Islands, Micronesia, Nauru, Palau, Samoa, Solomon Islands, Sri Lanka, Timor Leste, Tonga, Tuvalu, and Vanuatu.

5.34 The Meteorological Requirements Working Group (MET/R WG) had developed a way forward to identify and document use cases and user requirements for SWIM-based MET information services supporting ATFM in the APAC Region.

5.35 ATFM information Requirements Small Working Group (ATFM/IR/SWG) had commenced initial planning for an update of the Regional Framework for Collaborative ATFM. It was expected that a final draft of the reviewed document should be provided to ATFM/SG/12 in 2022, and subsequently to ATM/SG/10.

5.36 In response to India's query on the requirement of ATFM measure (Ground Delay Program) compliance window of -5 to +10 minutes. ICAO informed the meeting that as ATFM maturity developed, States might consider a reduction of compliance window for better traffic management at arrival airports. ICAO also noted that the compliance window of -5 to +10 minutes is as per the ICAO APAC regional Collaborative ATFM Framework. The States may look into application of a tighter compliance window for domestic ATFM, taking into factors such as the local procedures, communication capabilities, integration of ATFM and ACDM systems etc. However, for cross border ATFM, the agreed compliance window should be kept as -5 to +10 minutes.

AIS-AIM Implementation Update (WP14)

5.37 Outcomes from the 16th Meeting of the ICAO AIS – AIM Implementation Task Force (AAITF/16, 07 to 11 June 2021), subsequently reviewed by ATM/SG.9, were provided to the meeting.

5.38 AAITF/16 had reviewed APANPIRG Air Navigation Deficiencies in the AIS/AIM field. There was ongoing, deep concern about poor quality management of aeronautical information in the APAC Region, and the apparent lack of organizational priority for this safety-critical obligation of all States. The criteria used by the Regional Office to determine whether an AIS QMS-related Deficiency may be recommended for deletion were provided in **SAIOSEACG/1 WP/14 Attachment A**.

5.39 An update was provided on the status of implementation of the performance expectations of the APAC Regional Plan for Collaborative AIM, which were expected to be implemented in three phases: Phase I (immediately), Phase II (07 November 2019) and Phase III, (27 November 2025).

5.40 Japan and Singapore had reported implementation of all Phase I elements. Only Singapore reported implementation of all Phase II elements. **Figures 7 and 8** illustrated overall regional implementation of Phases I and II.

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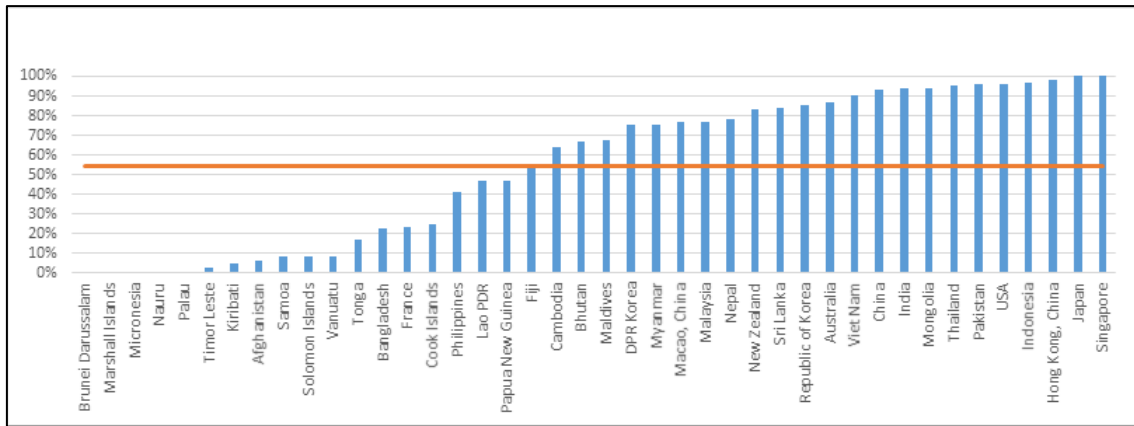


Figure 7: Regional Plan for Collaborative AIM - Phase I Implementation Progress (updated on 21 March 2022)

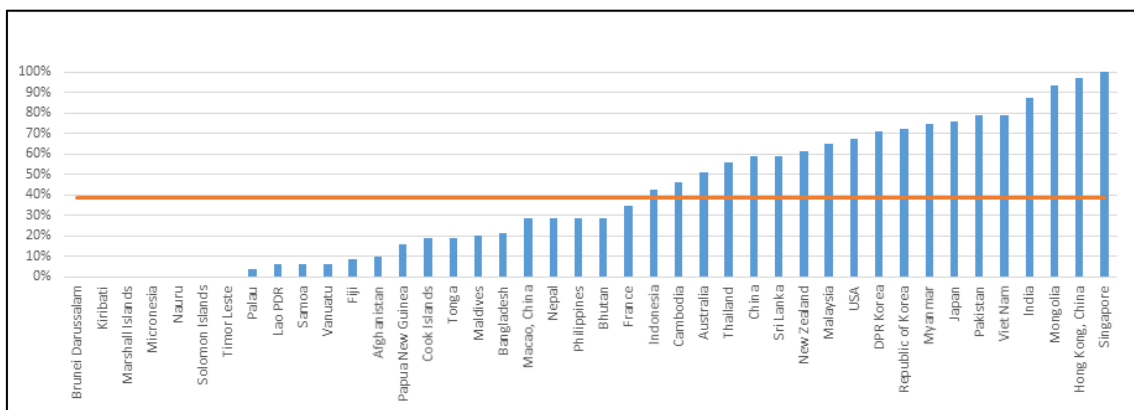


Figure 8: Regional Phase II Implementation Progress (updated on 21 March 2022)

5.41 AAITF/16 had discussed the proliferation of NOTAMs, using information provided by IFAIMA in collaboration with ICAO and referencing the ICAO Global Campaign on NOTAM Proliferation. **Figures 9 and 10** provided information on the total number of NOTAMs ‘old’ NOTAMs (more than three months’ duration) and ‘very old’ NOTAMs (more than one year duration) issued by APAC NOTAM Offices (NOFs).

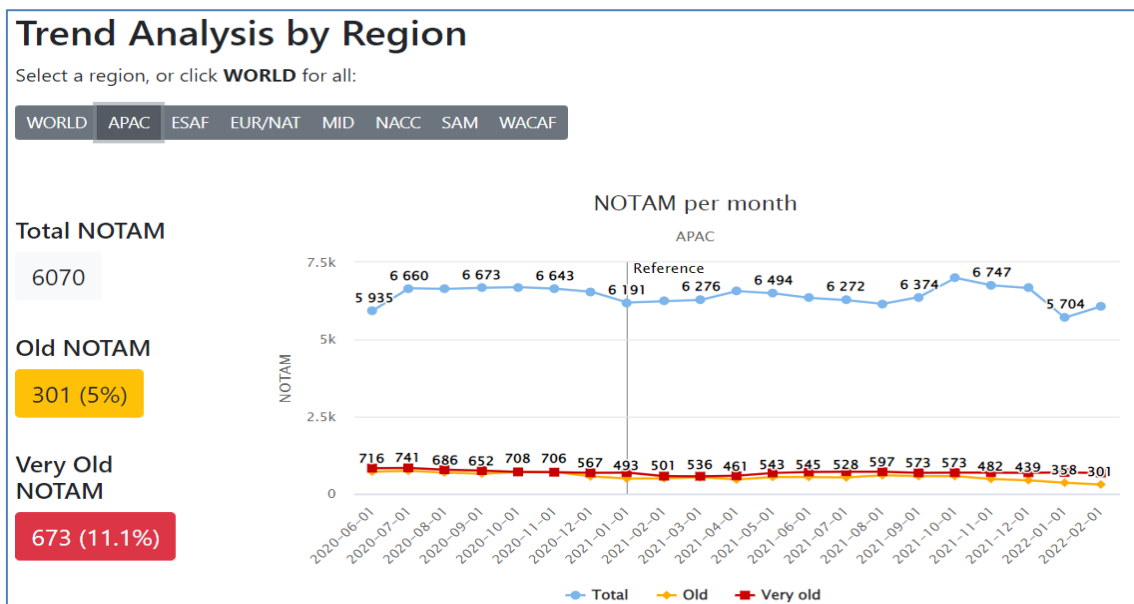


Figure 9: APAC NOTAM Statistics (Total, old and very old) – 01 February 2022

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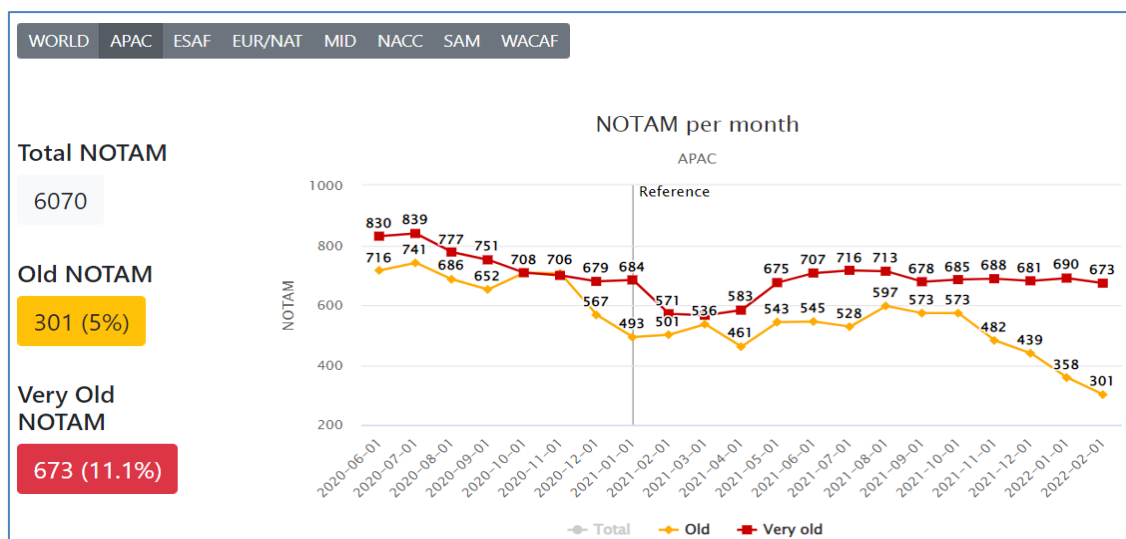


Figure 10: APAC NOTAM Statistics (old and very old) – 01 February 2022

5.42 The meeting was also informed of the percentages of old and very old NOTAMs for the top 10 NOTAM-promulgating APAC Administrations, and the top 10 poorest-performing Administrations which together were responsible for 92.6% of old and very old NOTAMs in the region.

5.43 The meeting was reminded of the applicability of SNOWTAM for reporting runway surface conditions reported under the new Global Reporting Format (GRF), from 04 November 2021. APAC regional guidance was available on the ICAO Asia/Pacific Regional Office eDocuments web-page.

5.44 ATM/SG/9 had adopted *Conclusion ATM/SG/9-5: Update Asia/Pacific OPADD*. The updated OPADD version 4.1 incorporated new procedures for SNOWTAM promulgation in response to the GRF.

5.45 In response to a query on how States should manage very old NOTAMs when the originator was no longer available, or was no longer responsible for the subject of the NOTAM, ICAO informed the meeting that it was a matter for States to determine how to locate the responsible individual or organization, whether original or current, and to determine whether the NOTAM information remained valid or not. In the event that the very old NOTAM information remained valid, it must be migrated into AIP.

Agenda Item 6: ATS Route Developments

Implementing RNP 4 on ATS Route M767 and N884 (IP06)

6.1 The Philippines and Singapore presented an update on the implementation of RNP 4 navigation specification for ATS routes M767 and N884. Operational trial on both ATS routes for aircraft operating between Manila and Singapore FIRs started since 27 January 2022, and planned to implement RNP 4 operations on 21 April 2022 upon completion of the trial.

6.2 This initiative would allow for the tightening of horizontal and lateral separation on both routes, potentially increasing route capacity by up to 60%. The planned key milestones towards the implementation of RNP 4 on ATS routes M767 and N884 is summarized below in **Table 5**.

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Milestone	Timeline	Description
1	Apr 2022	Implementation of RNP 4 operations on ATS routes M767 and N884
2	Q2 2022	Submission of joint Proposal for Amendment (PfA) to ICAO Regional Supplementary Procedures (Doc 7030) by the Philippines and Singapore
3	Q4 2022	Joint WP submission by the Philippines and Singapore to ICAO ATM/SG to update progress and share feedback on the implementation of RNP 4 on ATS routes M767 and N884

Table 5: Key Milestones of RNP 4 Implementation on ATS Routes M767 and N884

6.3 Aligned with the ICAO APAC Seamless ANS Plan, the Philippines and Singapore would study the traffic volume and flight details utilising M767 and N884 before embarking on plans to step forward to RNP 2 implementation in the future.

6.4 ICAO congratulated Philippines and Singapore on the trial in effort of enhancing airspace capacity and taking advantage of the low traffic volume by the pandemic. As Singapore highlighted, all States were urged to consider every available opportunity to implement new improvements to provide better supports for aviation industry to rebound from the huge disruption by the pandemic in coming years.

Optimisation of ATS Routes A461 and A583 (IP07)

6.5 Hong Kong China and Philippines provided progress update on their three-phased implementation plan to enhance the longitudinal spacing to 30 NM on ATS routes A461 and A583. Currently in Phase 1, trial operation had been effective since 2 December until April 2022 tentatively.

Asia/Pacific Region ATS Route Catalogue (WP15)

6.6 WP15 described the review process conducted by the ICAO APAC Regional Sub-Office for the *Asia/Pacific Region ATS Route Catalogue*, including correspondence with all concerned States/Administration requesting status updates on relevant route proposals.

6.7 The *Asia/Pacific Region ATS Route Catalogue* as updated by the meeting (Draft Version 21.1) is provided in **Appendix F** to the Report.

6.8 IATA summarised discussions with ICAO in which the parties agreed to a more streamlined review process for updating the ATS Route Catalogue. The previous parallel review would be replaced by a single in-series process led by ICAO, with IATA support, which would promote more effective consultation between ANSPs and Airspace Users. IATA would seek supporting data (fuel, CO2) from airlines to support proposals and also ask airlines to focus on proposals with most achievable benefits and archive those unachievable in the short-to medium-term for possible consideration at a later date. The ANSPs were asked to consider all permutations of proposals to identify if partial benefits can be achieved if the original proposal cannot.

6.9 For AFG01, Pakistan informed its plan to take 2-phased approach awaiting the response from Afghanistan for further connectivity in Kabul FIR. In response, updating the situation in Afghanistan ICAO proposed a meeting with Pakistan to settle this matter.

6.10 On request for positive consideration on BOB 01/02 by IATA, India responded it would examine the feasibility of this proposal taking account of requiring factors such as fleet equipage. IATA stated it would provide their analysis result of member airlines' readiness; preliminary analysis of pre-COVID 19 air traffic indicates approximately 70% equipped fleet may potentially utilize BOB 01 route.

Agenda Item 7: ATM Contingency Plans and Search and Rescue

Regional ATM Contingency Planning (WP16)

7.1 ICAO presented information on the *Asia/Pacific Regional ATM Contingency Plan* and State reporting of implementation of its performance expectations, a brief outline of recent ATM contingency events in the APAC Region, and a proposed update of the Plan.

7.2 The Plan, available on the ICAO Asia/Pacific Regional Office eDocuments web-page, included among its performance objectives the expectation that States would report their implementation status at least once annually, by not later than 31 May each year, using the Regional ATM Contingency Plan Monitoring and Reporting Form. The performance expectations of the plan were expected to be implemented by 10 November 2016, reflecting the Annex 11 standard that had been applicable since November 2003.

7.3 Implementation status was assessed as *robust* (90 – 100% of expectations implemented), *marginal* (70 – 89%) or *incomplete* (0 – 69%).

7.4 Only Indonesia, Singapore and United States were assessed as having robust implementation.

7.5 22 Administrations had never provided an implementation status report.

Afghanistan, Bhutan, Brunei Darussalam, China, Cook Islands, Fiji, France (French Polynesia), DPRK, India, Kiribati, Lao PDR, Marshall Islands, Micronesia, Nauru, New Zealand, Palau, Samoa, Solomon Islands, Timor Leste, Tonga, Tuvalu, Vanuatu.

7.6 **Figure 11** illustrated the overall regional implementation status:

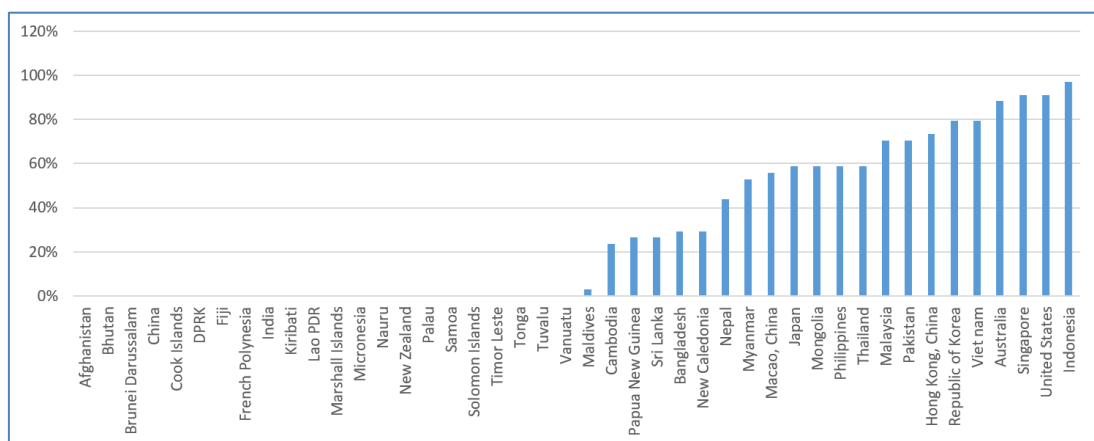


Figure 11: Regional ATM Contingency Plan – Overall Implementation Status

7.7 The meeting was reminded of COVID-19 pandemic-related contingency information, and the APAC Regional Strategy for COVID-19-related ATM Contingency Recovery.

7.8 The meeting was provided with the ICAO APAC Regional Office summary of the Yangon FIR contingency operations of February 2021, including discussion of Annex 11 provisions and the formation of CCTs, the communications (or lack thereof) during the contingency operation, CCT bulletins, the validity, update and publication of the Myanmar Level 2 contingency plan, CCT teleconference, NOTAM management, operational impact and key issues to be considered among

lessons learned.

7.9 A Regional Office summary of the current, ongoing ATM contingency operations in the Kabul FIR was also provided. Information provided included the sequence of events leading up to the withdrawal of all ATS and AIS on 16 August 2021 and the formation of the Kabul FIR CCT, current flight operations in the Kabul FIR, CCT bulletins and key issues for lessons learned.

7.10 The Asia/Pacific Region had experienced three major ATM contingency events in the last three years. Lessons learned would be considered for inclusion in an update of the Regional ATM Contingency Plan which had been, and would continue to be, conducted offline, coordinated by ICAO in consultation with relevant regional experts and airspace user representatives. The first draft of the updated plan was provided in SAIIOSEACG/1 **Flimsy 01**. APAC Administrations wishing to participate in the review were invited to nominate a single POC.

7.11 In response to a query from Indonesia, ICAO informed the meeting that harmonized regional or sub-regional contingency ATS routes and flight level allocation schemes were intended to provide for situations such as pandemics, in which (in worst case scenarios) multiple neighbouring States could simultaneously suffer reduced or withdrawn ATS, requiring the availability of a common, harmonized contingency route structure. It was also important that neighbouring States be closely engaged in the development of ATS contingency routes, due to the need to ensure that traffic operating on normal routes could be safely re-routed to the contingency routes before entering the affected airspace.

7.12 Regarding the strikethrough deletion of item 17 of the contingency plan status reporting form, ICAO informed the meeting that this was intended to highlight that this item duplicated item 7 of the form, and would be removed at the next update of the document.

7.13 On the subject of volcanic ash contingency planning, the meeting was reminded of multiple ATM contingency events caused by volcanic ash cloud (VAC) entering the airspace that did not contain any volcanoes. All States were expected to include consideration of VAC in their ATM contingency plans, regardless of whether there were any volcanoes within the airspace they administered.

Revised ATM Contingency Plan (Level 2) in Kuala Lumpur FIR (WP17)

7.14 Malaysia provided the background information of the revised ATM contingency plan (level 2) in Malaysia as well as details on the routes and flight levels available during the period when ATS services were limited or not available in the Kuala Lumpur FIR.

7.15 This revised ATM Contingency plan was tailored to cater the implementation of new airspace structure in Malaysia, dated 17 June 2021 in support of the GANP performance ambitions where the capacity, cost-effectiveness, interoperability, participation by ATM community, and safety are concerned.

7.16 **Figure 12** shows the illustrated Air Traffic Management Contingency Plan (Level 2) in Kuala Lumpur FIR:

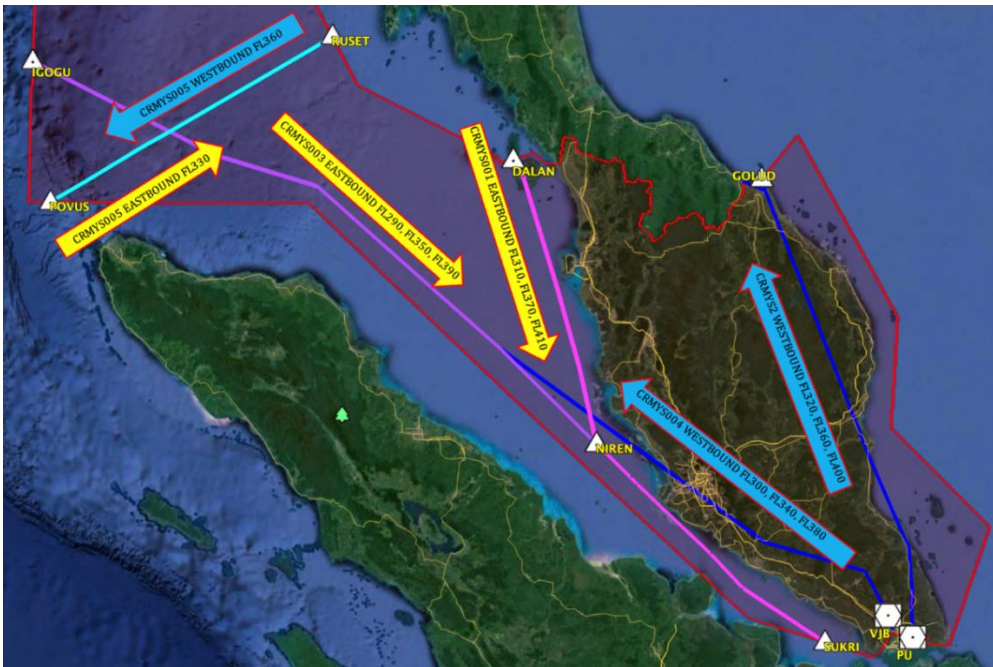


Figure 12: ATM Contingency Plan (Level 2) in Kuala Lumpur FIR

7.17 Malaysia's revised ATM contingency plan level 2 was sent out to the neighbouring States for their review in November 2021. Agreements with neighbour FIRs such as Chennai and Bangkok had been already completed leaving 2 FIRs (Singapore, Jakarta) on-going and 1 FIR (Ho Chi Minh) pending feedback.

7.18 ICAO urged the adjacent States to actively engage in discussion to conclude the necessary work to ensure safe and orderly flow of international air traffic in case of limited or no ATS services and the harmonised regional ATM Contingency Plan in the APAC region.

7.19 Responding to India's suggestion to Malaysia to consider, if possible, inclusion of India in the discussion on the contingency plan with Indonesia. Malaysia informed the meeting that similar comment had been received from Indonesia, and would review the matter internally before engaging with Indonesia and India.

7.20 Malaysia would report the outcomes of the discussion with adjacent States once it was finalised.

Asia/Pacific Search and Rescue Update (WP18)

7.21 The meeting was provided with an update of Search and Rescue (SAR) matters for the Asia/Pacific Region, including outcomes from the Asia/Pacific SAR Working Group (APSAR/WG).

7.22 The meeting was also informed of global SAR developments, Autonomous Distress Tracking (ADT) implementation and the Location of Aircraft in Distress Repository (LADR), the status of the Cospas-Sarsat programme, air operators workshops, and the SAR operation following the crash of Sriwijaya Air flight SJ189 on 09 January 2021.

7.23 Regarding SRR verification (also discussed in **SAIOSEACG/1 WP/11**), the following Administrations (21 of 42 in APAC) had submitted Proposals for Amendment (PFAs) to the Asia/Pacific Regional Air Navigation Plan (ANP) Volume I, which were pending circulation to ICAO Headquarters Secretariat for approval before circulation to all States:

Afghanistan, Australia, China, Fiji, French Polynesia, India, Indonesia, Lao PDR,

Malaysia, Maldives, Mongolia, Nauru, Nepal, New Zealand, Pakistan, Papua New Guinea, Philippines, Singapore, Solomon Islands, Sri Lanka and USA.

7.24 **Figure 13** indicated the status of SRR verification as at 04 May 2021:

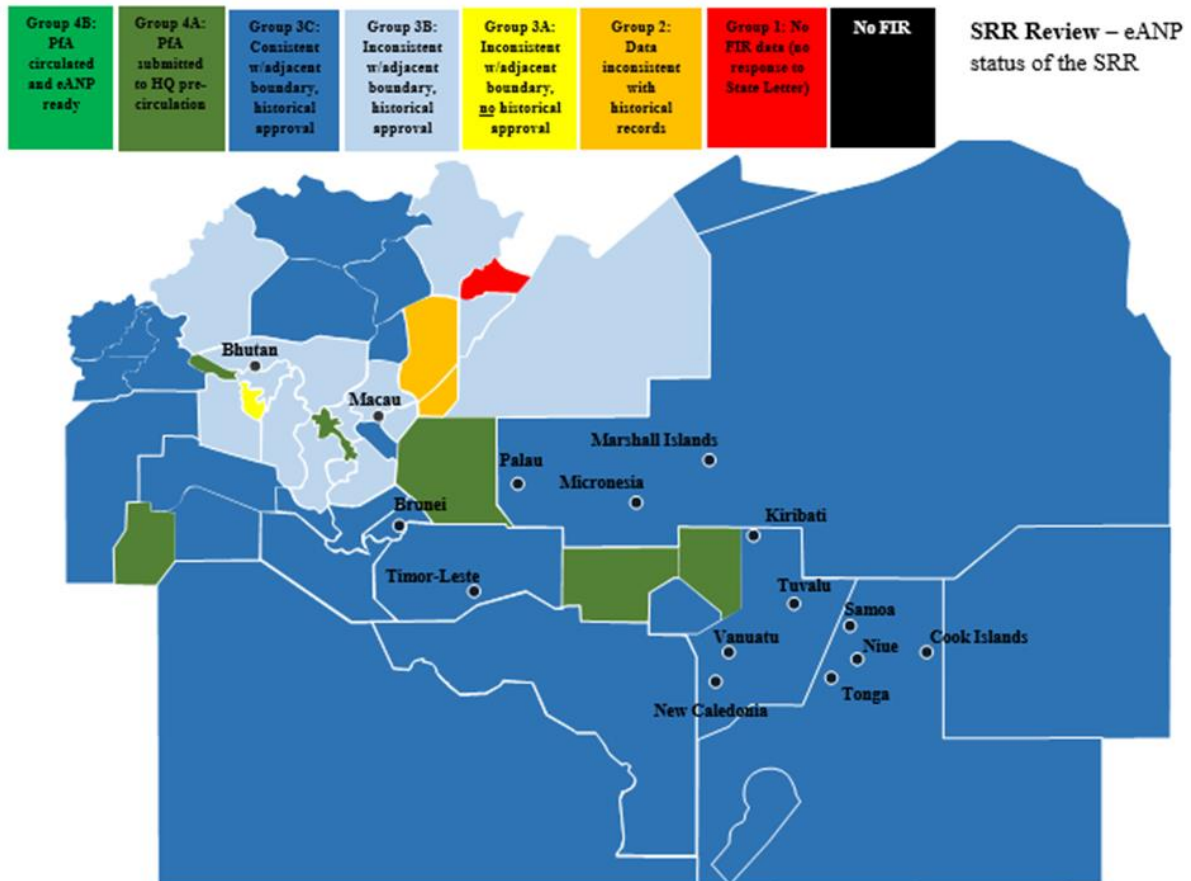


Figure 13: SRR Verification Status as at 04 May 2021

7.25 **Figure 14** illustrated the implementation status of the 41 elements of the Asia/Pacific Regional SAR Plan as at 04 May 2021. Only 10 APAC Administrations had reported *robust* implementation of 90% or more:

Australia, Hong Kong China, India, Indonesia, Japan, New Zealand, Republic of Korea, Singapore, USA and Viet Nam

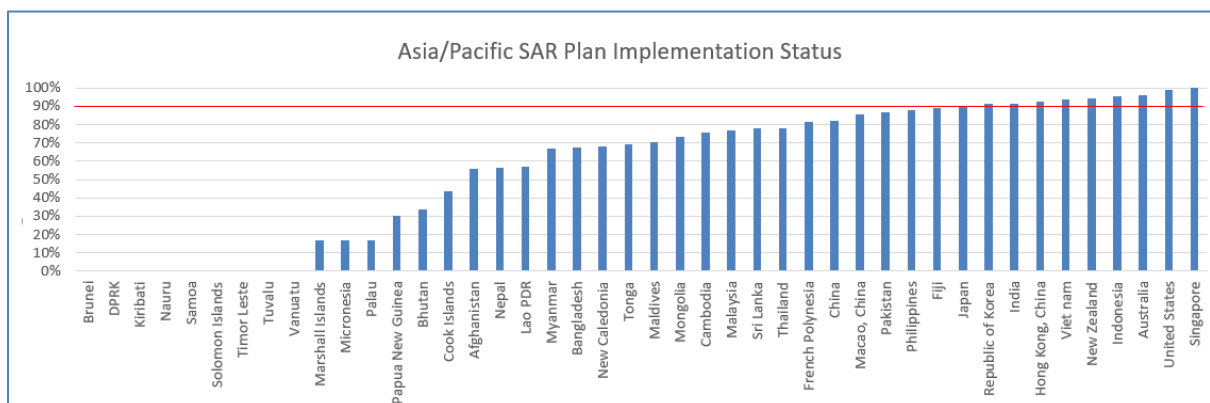


Figure 14: Asia/Pacific SAR Plan Implementation Status as at 04 May 2021

SAIOSEACG/1
Report on Agenda Items

7.26 All other APAC Administrations had APANPIRG Air Navigation Deficiencies recorded in the field of SAR Capability.

7.27 The details of SAR implementation status for each APAC Administration, the SAR Agreements List and the SAR Agreement Matrix were provided in SAIOSEACG/1 WP/18 Attachments A, B and C.

7.28 APSAR/WG was developing a template Memorandum of Understanding (MoU) between national SAR and Accident Investigation authorities for inclusion in the APAC SAR Plan, with a view to its later inclusion in the International Aeronautical and Maritime SAR (IAMSAR) Manual.

7.29 The APAC SAR Plan was due for its triennial update in 2022. The proposed review was considered to be mainly editorial, updating information where necessary but not requiring a major rewrite apart from the items identified by APSAR/WG/6 for inclusion in the Plan.

7.30 The Draft APAC SAR Plan Version 3.2 (**Appendix G**) provided in SAIOSEACG/1 WP/18 Attachment D included comments from ICAO Headquarters, and tracked changes resulting from those comments and other feedback received. The meeting was invited to provide submissions for the update of the Plan.

7.31 In response to a query on methods of disposal of ELTs, which were commonly incorrectly discarded in general rubbish facilities or thrown overboard without having first been disabled, ICAO proposed that a paper on the subject should be considered for presentation to the APSAR/WG/7 meeting, scheduled for late May 2021, where appropriately qualified experts would be available to provide advice.

Agenda Item 8: ANSP Coordination and Civil/Military Cooperation

Benefits of Direct Routing in Kolkata FIR (IP08)

8.1 India provided information on benefits of provision of direct routing in Kolkata FIR in terms of fuel, money and carbon reduction, which could be of importance in revival of aviation sector from the pandemic.

8.2 The meeting noted India had taken initiative to establish many conditional routes under FUA along with fully surveilled airspace and VHF coverage within Kolkata FIR, which led to reduction of operational costs for air operators.

8.3 Major direct routings from 1 January to 31 January 2022 in Kolkata FIR were activated to give more direct routings in dynamic coordination with concerned civil and military units considering the traffic conflict. Despite with conservative analysis, the majority of aircraft operating on routes in the sample data of analysis in January 2021 reduced total fuel, money consumed and carbon emission.

8.4 IATA acknowledged the work India had done on Conditional Routes (CDRs) in the last years, which had generated significant fuel and carbon emissions savings. IATA further noted that there were several routes where direct tracking clearances frequently were being offered, and where India may wish to consider the implementation of additional CDRs.

8.5 ICAO informed the meeting that the ICAO Carbon Emissions Calculator is available for States to calculate the carbon emission based on fuel burn at: <https://www.icao.int/environmental-protection/CarbonOffset/Pages/default.aspx>. APAC Administrations and industry were invited to

utilise it as a harmonised and uniformed methodology for analysing environmental benefits, as well as for monitoring the operational performance indicators in relation to ATM capacity enhancement initiatives such as FUA.

Analysis of the Impact of the Pandemic in Sanya FIR (IP09)

8.6 China provided analysis results on impact of the pandemic in air traffic services in Sanya FIR. Due to huge drop in air traffic by the outbreak of COVID-19e, air traffic services in Sanya ACC had been greatly affected over the past two years. In view of the recovery of traffic demand in 2022, Sanya ACC had developed a post-pandemic work plan in order to provide better air traffic services for stakeholders. All States were also encouraged to joint efforts on cross-border ATM collaborations to help airlines and stakeholders recovering from the pandemic.

8.7 IATA and ICAO thanked China for efforts in supporting the recovery from the pandemic and ICAO also reminded the meeting of the significant volume of information and guidance available through the ICAO Covid-19 Response and Recovery Implementation Centre (CCRIC), and also provided by the ICAO Asia/Pacific Regional Office COVID-19 Business Continuity Planning Measures and Guidelines Information Sharing web-pages.

8.8 IFATCA emphasised on the importance of training to maintain competency of ATCOs in managing the potential return of traffic in terms of safety assurance.

Agenda Item 9: Review of SAIOSEACG Task List

SAIOSEACG Task List (WP19)

9.1 The SAIOSEACG Task List as reviewed by the meeting is provided in **Appendix H**.

Agenda Item 10: Any Other Business

ATM Points of Contact (WP20)

10.1 The Secretariat presented the current ATM Points of Contact List (**Appendix I**), and requested that administrations update this information as required.

The next Meeting Venue and Time

10.2 The meeting agreed to conduct the second meeting of the SAIOSEACG in 2023, tentatively in March 2023 through in-person meeting if the situation permits, the location to be advised.

Closing of the Next Meeting

The Chair thanked the meeting participants for their significant work during a busy meeting program.



International Civil Aviation Organization

The First Meeting of the South Asia, Indian Ocean and Southeast Asia ATM Coordination Group (SAIOSEACG/1)

(Video Conference, 28 March – 01 April 2022)

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LIST OF WORKING AND INFORMATION PAPERS

WORKING PAPERS

Number	Agenda	WORKING PAPERS	Presented By
WP01	1	Election of the Chair and Provisional Agenda	Chair
WP02	2	Review of SAIOSEACG TOR	Secretariat
WP03	3	Review of Outcomes of Relevant Meeting	Secretariat
WP04	3	Bay of Bengal Traffic Flow Review Group Outcomes	Secretariat
WP05	3	South China Sea Traffic Flow Review Group Outcomes	Secretariat
WP06	4	Air Navigation Service Deficiencies List	Secretariat
WP07	4	Airspace Safety Monitoring	Secretariat (RO)
WP08	4	Application of ATC Separation Standards	Secretariat (RO)
WP09	4	Application of 10 minutes separation on crossing tracks in oceanic airspace of Mumbai FIR	India
WP10	4	Departure (DEP) Messages	Secretariat (RO)
WP11	5	Regional Air Navigation Plan Update	Secretariat (RO)
WP12	5	Seamless ANS Plan Update	Secretariat (RO)
WP13	5	Air Traffic Flow Management Update	Secretariat (RO)
WP14	5	AIS - AIM Implementation Update	Secretariat (RO)
WP15	6	ATS Route Catalogue	Secretariat
WP16	7	Regional ATM Contingency Planning	Secretariat (RO)
WP17	7	Revised regional ATM contingency plan (Level 2) in Kuala Lumpur FIR	Malaysia
WP18	7	Asia/Pacific Search and Rescue Update	Secretariat (RO)
WP19	9	Review of SAIOSEACG Task List	Secretariat
WP20	10	ATM Points of Contact	Secretariat

INFORMATION PAPERS

Number	Agenda	INFORMATION PAPERS	Presented By
IP01	1	Provisional List of Working and Information Papers	Secretariat
IP02	4	Air Navigation Services USOAP Update	Secretariat (RO)
IP03	4	Implementation of 10 NM surveillance spacing between Jakarta ACC and Ujung Pandang ACC	Indonesia
IP04	5	Trail implementation of AIDC between Jakarta ACC and Ujung Pandang ACC	Indonesia

Number	Agenda	INFORMATION PAPERS	Presented By
IP05	5	New Kuala Lumpur FIR airspace (KL FIR) and Kuala Lumpur CNS/ATM complex (KL ATCC)	Malaysia
IP06	6	Implementation of RNP 4 on ATS Routes M767 and N884	Philippines, Singapore
IP07	6	Optimisation of ATS Route A461 and A583	Hong Kong China, Philippines
IP08	8	Benefits of direct routing in Kolkata FIR	India
IP09	8	Analysis of the Impact of the Pandemic in Sanya FIR	China

FLIMSIES

Number	Agenda	FLIMSIES	Presented By
Flimsy 01	7	First Draft of the updated APAC Regional ATM Contingency Plan	Secretariat (RO)

PRESENTATIONS

Number	Agenda	PRESENTATIONS	Presented By
PR01	6	IATA Airline Equipage and Capability Survey	IATA
PR02	9	Analysis of the Impact of the Pandemic in Sanya FIR	China

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TERMS OF REFERENCE

South Asia, Indian Ocean and Southeast Asia ATM Coordination Group (SAIOSEACG)

- 1) The objective of the SAIOSEACG is to identify the need for, plan and implement Air Traffic Management (ATM) improvements in the Indian Ocean, South Asia and Southeast Asia areas.
- 2) To meet this objective, the Group shall:
 - a. promote and facilitate implementation of the provisions of ICAO Doc 7030 – *Regional Supplementary Procedures* and the *Asia/Pacific Regional Air Navigation Plan*, and the performance expectations of the *Asia/Pacific Seamless ANS Plan*, by:
 - i. reviewing and recommending improvements to airspace and Air Traffic Services (ATS) route structures, in order to optimise safety and efficiency;
 - ii. review and recommend improvements to ATS facilities such as communication and surveillance capability in support of flight operations; and
 - iii. research and plan airspace and facility requirements based on future technologies, Performance-based Navigation (PBN) and other advanced capabilities;
 - b. assist SAIOSEACG Administrations in the development of action plans to rectify APANPIRG Air Navigation Service (ANS) Deficiencies.
 - c. coordinate and collaborate with other APANPIRG groups and relevant technical groups from other ICAO regions as required; and
 - d. form Small Working Groups as required to conduct specific ATM-related projects.
- 3) The SAIOSEACG reports to the Air Traffic Management Subgroup of APANPIRG (ATMSG).

SAIOSEACG comprises representatives from the following, but not limited to Afghanistan, Bangladesh, Bhutan, Brunei Darussalam, Cambodia, China, Hong Kong China, Macao China, India, Indonesia, Lao PDR, Malaysia, Maldives, Myanmar, Nepal, Pakistan, Papua New Guinea, Philippines, Singapore, Sri Lanka, Thailand, Timor-Leste, Viet Nam, CANSO, IATA, IFALPA and IFATCA.

TERMS OF REFERENCE

BAY OF BENGAL TRAFFIC FLOW REVIEW GROUP (BOBTFRG)

1. Objective

1.1. The objectives of the BOBTFRG are to:

- a) identify requirements and improvements for optimising airspace capacity and maintaining an efficient route network across the Bay of Bengal airspace and routes leading towards Afghanistan's airspace;
- b) monitor the status of implementation of the agreed ATS routes and airspace improvement projects; and
- c) report outcomes of the review and recommendations to SAIOACG the South Asia, Indian Ocean and Southeast Asia ATM Coordination Group (SAIOSEACG).

2. Tasks

2.1. To meet this objectives, with reference to the *Asia/Pacific Region Seamless ATM ANS Plan* and expected traffic growth, the BOBTFRG shall:

- a) Review the existing route structures and airspace improvement projects in the concerned airspaces (Bangkok, Chennai, Colombo, Dhaka, Jakarta, Kabul, Karachi, Kuala Lumpur, Kolkata, Lahore and Yangon Flight Information Regions);
- b) Identify current CNS/ATM capabilities and determine the CNS/ATM requirements which would be needed in order to optimise the airspace to support the implementation of more efficient route network that accommodated enroute traffic (and also departures from India and Pakistan that would join this traffic flow);
- c) Identify the most efficient horizontal separations to be utilised, based on the current and planned CNS/ATM capabilities, taking into account aircraft approval status of the traffic operating on the relevant routes as well as the new CNS capabilities available;
- d) Review the existing Flight Level Allocation Scheme (FLAS) operating within the Bay of Bengal airspace with a view to enhancing efficiencies;
- e) Establish appropriate timelines/milestones/dependencies for activities planned under this Review Group;
- f) Make recommendations to SAIOACG SAIOSEACG on implementation plans for route structures, airspace, FLAS and separation solutions to meet the expectations of the *Asia/Pacific Seamless ATM ANS Plan*; and
- g) Make recommendations to SAIOACG SAIOSEACG on the future status of the Bay of Bengal Cooperative ATFM System (BOBCAT) tool.

3. Participation

- 3.1. Participation of the BOBTFRG includes Afghanistan, Bangladesh, India, Indonesia, Malaysia, Myanmar, Pakistan, Singapore, Sri Lanka, Thailand and IATA, and any other body that the BOBTFRG deems appropriate.

Approved by ~~SAIOACG/9, 29 March 2019~~ SAIOSEACG/1, (date TBC)

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TERMS OF REFERENCE

SOUTH CHINA SEA TRAFFIC FLOW REVIEW GROUP (SCSTFRG)

1.1 Objective

The objective of the SCSTFRG is:

- a) to analyse the traffic flows in the overall South China Sea airspace, ~~at~~ ~~ATS~~ routes and the suitability of the ~~FLOS~~ Flight Level Allocation Scheme (FLAS) and Flight Level Orientation Scheme (FLOS) to optimise airspace capacity and enhance flight safety in the long term; and
- b) to report outcomes of the review and recommendations to ~~SEACG~~ the South Asia, Indian Ocean and Southeast Asia ATM Coordination Group (SAIOSEACG).

1.2 Tasks

To meet this objective, ~~the Review Group~~, with reference to the *Asia/Pacific Region Seamless ATM ANS Plan* and expected traffic growth, ~~the SCSTFRG~~ shall:

- a) Review the existing ~~TF~~ route structures in the ~~SCS Airspace~~ South China Sea airspace to establish priorities;
- b) Identify current and planned CNS/ATM capabilities and implementation timelines of States concerned;
- c) Identify ~~reduced~~ the most efficient horizontal separation to be utilised, based on the current and planned CNS/ATM capabilities, taking into account aircraft approval status of the traffic operating on the relevant routes as well as the new CNS capabilities available;
- d) Review the existing FLAS/FLOS operating within the ~~SCS~~ South China Sea with a view to enhancing efficiencies;
- e) Establish appropriate timelines/milestones/dependencies for activities planned under this ~~Review~~ Group; and
- f) Make recommendations to ~~SEACG~~ SAIOSEACG on implementation plans for route structures, airspace, FLOS and separation solutions to meet the expectations of the *Asia/Pacific Seamless ATM ANS Plan*.

ASIA/PACIFIC REGION ATS ROUTE CATALOGUE



INTERNATIONAL CIVIL AVIATION ORGANIZATION
ASIA/PACIFIC REGIONAL OFFICE

VERSION 21.1

April 2022

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Foreword

1.1 The *Air Navigation Plan – Asia and Pacific Regions* (Doc 9673) has been superseded, in electronic form by the electronic Air Navigation Plan (eANP), which contains a table of regional ATS routes in Volume II (*Table ATM II- APAC- 1 – Asia and Pacific Regions ATS Routes*).

1.2 The Fourteenth Meeting of the Asia/Pacific Air Navigation Planning and Implementation Regional Group (APANPIRG/14, August 2004) under Conclusion 14/5 established the ATS Route Network Review Task Force (ARNR/TF) to review the Asia and Pacific ATS route network to determine present and future route requirements. To facilitate the amendment process and keep track of route implementation and future requirements, and with the objective of providing more up to date information on route developments, ARNR/TF prepared the draft Asia/Pacific Region ATS Route Catalogue.

1.3 APANPIRG/16 (August 2005, Bangkok), recognizing the value of a consolidated reference document for the regional ATS routes and future route requirements of States and airspace users, accepted the Asia/Pacific Region ATS Route Catalogue under Decision 16/9. The ATS Route Catalogue is intended to be a living document, supplementing the eANP and maintained by the ICAO Asia and Pacific (APAC) Regional Sub-Office on behalf of the ICAO Asia and Pacific Office. Communication related to the ATS Route Catalogue should be made via email to apac-rso@icao.int.

1.4 A Contracting State or qualifying International Organization identifying a need for a new route requirement to be included in the eANP or to change an existing route contained in the eANP, may submit an amendment proposal to the ICAO APAC Regional Office in accordance with established procedures summarized below and the template provided on the ICAO APAC website.

1.5 Appropriately presented and documented proposals to amend the eANP are submitted to the ICAO Secretary General through the Regional Office and circulated to States and International Organizations for comment. If, in reply to the ICAO Regional Office's inquiry, no objection is raised to the proposal by a specified date, it will be deemed that a regional agreement (involving the relevant PIRG) on the subject has been reached. The Regional Office will inform States and International Organizations concerned of the approval and the eANP will be amended accordingly.

1.6 If, in reply to the ICAO Regional Office's inquiry, any objection is raised, and if objection remains after further consultation, the matter will be documented for discussion by APANPIRG and, ultimately for formal consideration by the Air Navigation Commission, if it remains unresolved. If the Commission concludes that the amendment is acceptable in its original or other form, it will present appropriate recommendations to the Council.

1.7 The APAC Regional Sub-Office, which is responsible for maintaining the ATS Route Catalogue, will update the ATS Route Catalogue from time to time as amendment proposals are presented, progressed and agreed or not agreed. The revision number and date shown on the cover page of the Catalogue. The Asia/Pacific Region ATS Route Catalogue is posted on the ICAO APAC website at (<https://www.icao.int/APAC/Pages/default.aspx>).

1.8 The Asia/Pacific Region ATS Route Catalogue is now as follows: Chapter 1: South Asia; Chapter 2: Southeast Asia; Chapter 3: East Asia; Chapter 4: Trans-Regional (South Asia); Chapter 5: Trans-Regional (East Asia); and Chapter 6: Pacific.

1.9 Regional ATS route proposals affecting Asia/Pacific airspace should be presented as part of a paper to ATM coordination groups or other suitable bodies, and then may be entered into the Asia/Pacific Region ATS Route Catalogue by the Regional Office. The APAC Regional Office or

Regional Sub-Office will periodically present to appropriate ATM coordination groups or other suitable bodies the proposals within their geographical area of interest for review.

1.10 The Asia/Pacific Region ATS Route Catalogue contained proposals for route changes that had not yet been agreed and implemented.

1.11 States in APAC were required to reclassify the routes as:

- **Priority A – Short Term** i.e. it could be implemented within 12 months;
- **Priority B – Medium Term** i.e. it could be implemented within 13 to 36 months;
- **Priority C – Long term** i.e. more than 36 months; and
- **Priority D – Cannot be implemented** (reasons to be provided).

As some States were not represented, these routes were classified as Priority C and will be updated when more information becomes available.

1.12 IATA has also prioritised the routes in terms of efficiency and environmental benefits as:

- **HIGH** – one of top priorities for airlines; or
- **MEDIUM** – has significant benefits but can wait until high priority proposals are implemented; or
- **LOW** – the route proposal may be deleted if the State cannot implement within 36 months.

1.13 After review, the Asia/Pacific Region ATS Route Catalogue may be updated by:

- deletion of the proposal when the proposal has been agreed and entered into the eANP; or
- deletion of the proposal when it has been decided that there is no possibility of implementation in the foreseeable future [i.e.: the proposal has had no progress in the past five years, or it is a Priority C or D (more than 36 months) by States and is assigned a LOW priority by IATA]; or
- amendment with the addition of supplementary information; or
- addition of a new ATS route proposal.

Amendment Record

Version	Date	Amended by	Comments
0.1	14 February 2005	-	ARNR/TF/2 developed draft version.
0.2	5 May 2005	ARNR/TF/3	Finalized format following contribution from members.
0.3	29 July 2005	ATM/AIS/SAR/SG/15	Sub-Group concluded the Catalogue be adopted (Draft Conclusion 15/3).
1	26 August 2005	APANPIRG/16	APANPIRG/16 decided that the Catalogue be accepted (Decision 16/9).
2	24 January 2006	BBACG/17	Reviewed and updated the Catalogue.
3	19 May 2006	SEACG/13	Reviewed and updated the Catalogue.
4	26 January 2007	BBACG/18	Reviewed and updated the Catalogue.
5	23 May 2008	SEACG/15	Reviewed and updated the Catalogue.
6	15 May 2009	SEACG/16	Reviewed and updated the Catalogue.
7	27 May 2010	SEACG/17	Reviewed and updated the Catalogue.
8	10 March 2011	BBACG/21	Reviewed and updated the Catalogue.
9	6 May 2011	SEACG/18	Reviewed and updated the Catalogue.
10	22 September 2011	SAIOACG/1	Reviewed and updated the Catalogue.
11	22 June 2012	ATM/AIS/SAR/SG/22 APANPIRG/23	Reviewed, reformatted, and updated the Catalogue, approved by APANPIRG/23.
12	26 June 2013	SAIOACG/SEACG, ATM/SG	Reviewed, reformatted, and updated the Catalogue, approved by APANPIRG/24.
13	11 September 2014	SAIOACG/SEACG, ATM/SG APANPIRG/25	Reviewed subsequent to Easter Island being transferred out of the Region; added trans-regional proposals
14	September 2015	SAIOACG/SEACG, ATM/SG APANPIRG/26	Removal of Chapter A (BANP routes).
15	September 2016	SAIOACG/SEACG, ATM/SG APANPIRG/27	Reviewed and updated the Catalogue.
16	August 2017	SAIOACG/SEACG, ATM/SG	Reviewed and updated the Catalogue.
17	September 2018	SAIOACG/SEACG, ATM/SG	Reviewed and updated the Catalogue, incorporated IATA inputs, added State and IATA priority label.
18	April 2019	SAIOACG/9, SEACG/26	Reviewed and updated the Catalogue.
19	September 2019	ATMSG/7, AIRARD TF/4	Reviewed and updated the Catalogue.

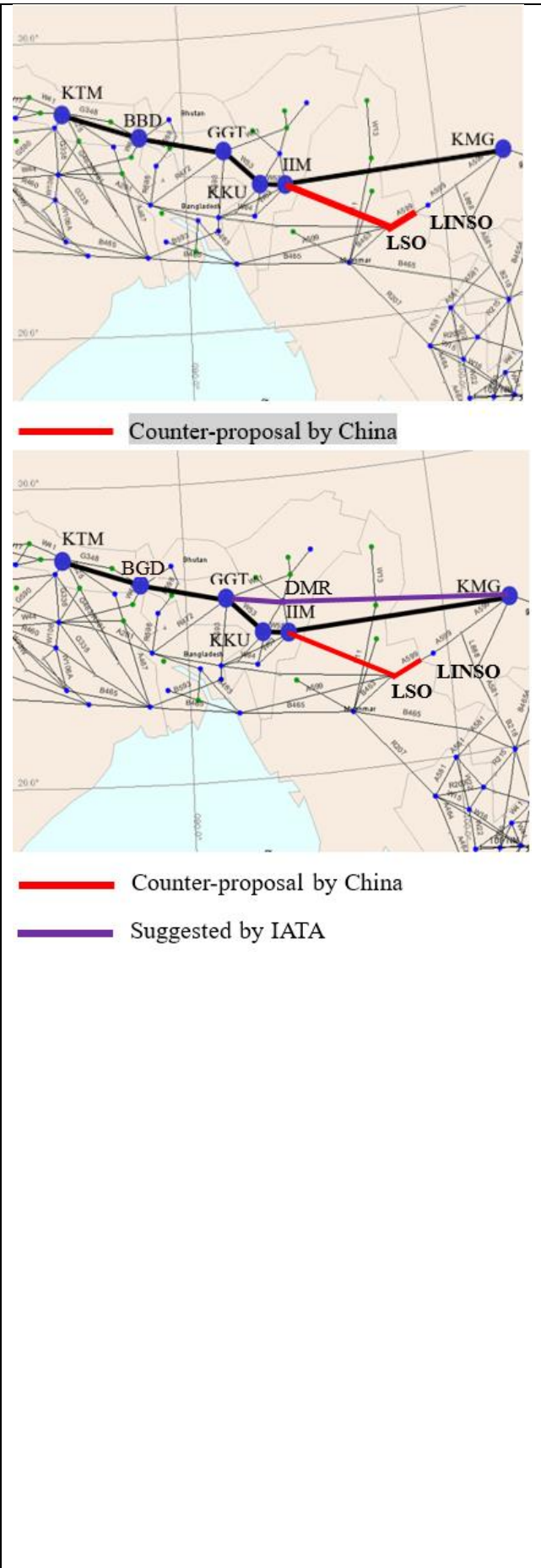
20	December 2020	ATMSG/8	Reviewed and updated the Catalogue.
21	November 2021	SAIOACG/10, SEACG/27, ATM/SG/9	Reviewed and updated the Catalogue.

Chapter 1: South Asia

**(referred to: SAIOACG, BOBASIO, ASIOACG as
appropriate for review)**

ATS Route Name	HIMALAYA 02
State Priority	D
IATA Priority	HIGH
Requested by (when)	Nepal (01/09/2018)
States/Administrations Involved	Nepal, India, Myanmar, China (Kathmandu, Kolkata, Yangon, Kunming FIRs)
Route Description	<p>Kathmandu (KTM) 2740.5N 08521.0E – Bagdogra (BGD) 264118N 0881934E – Guwahati (GGT) 2606.1N 09135.3E – Silchar (KKU) 2454.8N 09258.9E – Imphal (IIM) 2446.0N 09354.5E – Kunming (KMG) 2501N 10244E</p> <p>Alternate proposal by IATA: Kathmandu (KTM) 2740.5N 08521.0E – Bagdogra (BGD) 264118N 0881934E – Guwahati (GGT) 2606.1N 09135.3E – Dimapur (DMR) 255251.30N 0934655.29E – Kunming (KMG) 2501N 10244E</p>
Flight Level Band	
Benefit (fuel, environmental)	110 NM / 15 minutes, 520 kg fuel, 1640 kg CO ₂ per flight Potential to save 19 to 25 minutes per flight and assist in decongesting A599/Lashio.
Operational Information (potential airlines, flight frequency, potential city pairs)	
Remarks: IATA North Asia Office approached China who have indicated this route will be considered as part of the overall China route review – no timeline was given. China advised that they would seriously look at the proposal and would coordinate with Nepal (ref. para 8.4 of the SEA-RR/TF/4 report). At SAIOACG/9: with the improvement of surveillance capability, Myanmar would review this proposal. At ATMSG/7: Under consideration by China; and Myanmar commented this route proposal would be dependent on the enhancement of surveillance and communication coverage in the area. 26/09/2020: Nepal updated this route proposal was under discussion with Myanmar, and they were optimistic that communication and surveillance capabilities would be available in Yangon FIR in the near future to support the implementation of this route. 20/11/2020: China commented that it was not possible to establish a new entry/exit point, and counter-	

proposed to re-align IIM – LSO – LINSO (existing entry/exit point between Yangon and Kunming FIRs). At ATM/SG/8: In response to China’s counter-proposal, Myanmar provided their disagreement; and India commented the existing established routes in Kolkata FIR (i.e. W137, W53 and W55) was for domestic operations only, and India would need to review the possibility of opening these routes for international operations. India also suggested that in light of this, and the delay of more than nine years and the positions of Myanmar and China, Nepal may wish to consider a new proposal. At ATM/SG/9: IATA commented that based on detailed re-assessment conducted by airlines, it confirmed a ‘HIGH’ priority to HIMALAYA 02. In addition, IATA suggested an alternate proposal which had potential to save up to 19 to 25 minutes, and would also help to decongest ATS route A599/Lashio (LSO) and save additional 88 NM compared with IIM – LSO – LINSO route. IATA also requested India to consider keeping ATS route J7 (CDR2/3 route between GGT – DMR) available based on traffic demand timings. Nepal supported the alternate proposal as suggested by IATA, and would coordinate and hold a consultation meeting with the various stakeholders. China commented that it was not possible to establish a new entry/exit point. At BOBTFRG/3: Myanmar supported the proposal by IATA; India expressed its concern in getting a favourable response from its military authorities for the route between Guwahati (GGT) – Dimapur (DMR) – Kunming (KMG). According to India, implementing the route from Imphal (IIM) to Kunming (KMG) was more feasible. Given the fact that China had revised the priority as “D”, IATA was requested to consider the position of China

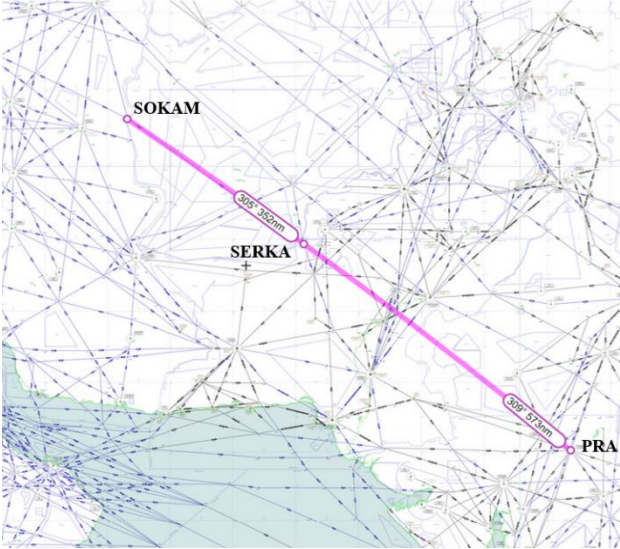


before pursuing the proposal; and Bangladesh suggested IATA to consider: Kathmandu (KTM) – Saidpur (SDP) – Silchar (KKU) – Imphal (IIM) – Kunming (KMG).

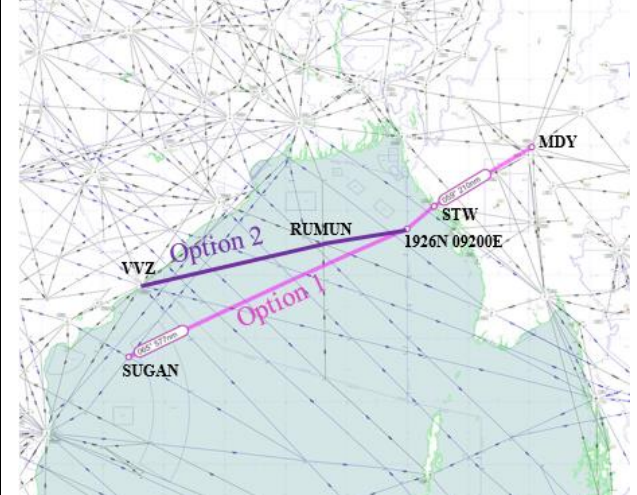
27/1/2022: Nepal is having in-house discussion and consultation with different stakeholders and planning to coordinate with the affected States soon.


1/3/2022: IATA may request that China explores possibility in near future of opening up additional entry/exit as this has direct savings to flights from Nepal an China.

3/3/2022: China commented there is no status update.

ATS Route Name	IND 07 (N877 Extension)
State Priority	D
IATA Priority	MEDIUM
Requested by (when)	IATA (01/09/2018)
States/Administrations Involved	India, Pakistan, Afghanistan (Mumbai, Delhi, Karachi, Kabul FIRs)
Route Description	Pratarh (PRA) 2401.8N 07445.0E – SERKA 2951.0N 06615.0E – SOKAM 3313.3N 06037.9E
Flight Level Band	28,000 - 46,000 ft
Benefit (fuel, environmental)	51 NM / 7 minutes, 835 kg fuel, 2,630 kg CO ₂ per flight, 3,387 tonnes fuel, 10,668 tonnes CO ₂ annually
Operational Information (potential airlines, flight frequency, potential city pairs)	LH, KL KUL/SIN – Middle East – East/Europe
Remarks: This proposal predates the extension of UL333 through Kabul FIR and has been under consideration for a number of years. The extension of UL333 is under utilised against other Kabul routes largely due the 45 NM ‘penalty’ in track mileage the current route structure requires. The routes primary benefit at this stage will be westbound and during BOBCAT traffic flow. Extension completed SERKA to SOKAM. Update 08/02/13: PRA – SERKA has been approved by India after lengthy consultation with the military, complementary action from Pakistan awaited. At SAIOACG/9: Pakistan commented this route proposal was very unlikely to be implemented. Future of this route would be decided at SAIOACG/10 in 2020. Update from India on 02/08/2019: Since the proposal is pending concurrence of Pakistan for a long time, India need to renegotiate the proposal with military after comments from Pakistan. 17/08/2020: <u>The designated established military areas in Karachi FIR and route structure (crosser routes near the boundary with Delhi and Kabul FIRs) does not allow the establishment of this route. Pakistan proposed for deletion.</u> At ATMSG/8: IATA preferred this route proposal to be retained in the Catalogue. At BOBTFRG/3:	

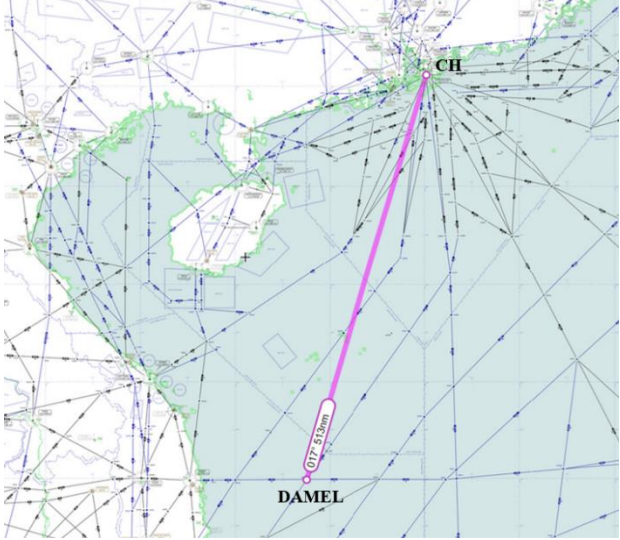
<p>Pakistan re-affirmed that the designated established military areas in Karachi FIR and route structure (crossing routes near the boundary with Delhi and Kabul FIRs) would not permit the establishment of this route.</p> <p>1/3/2022:IATA wants this proposal to be archived and reintroduced if/when future possibilities permit its success.</p> <p>They should have their own archive system to keep the proposal not in this Catalogue.</p>	
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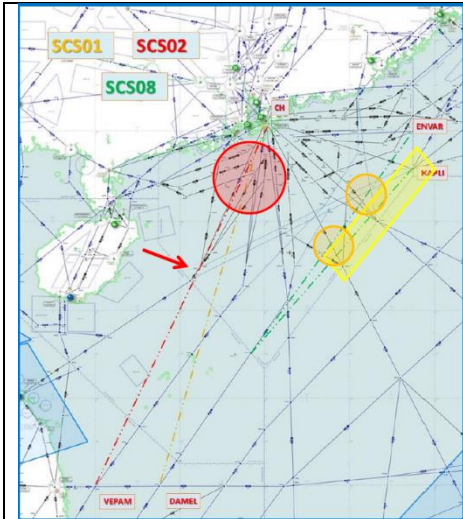
ATS Route Name	BOB 01
State Priority	
IATA Priority	HIGH
Requested by (when)	IATA (05/11/2021: ATM/SG/9)
States/Administrations Involved	India, Myanmar (Chennai, Kolkata, Yangon FIRs)
Route Description	<p>Option 1: SUGAN 152500N 0825045E – New Waypoint 192600N 0920000E (FIR BDRY between Kolkata and Yangon) – Sittwe (STW) – Mandalay (MDY)</p> <p>Option 2: Vishakhapatnam (VVZ) 174003.90N 0831510.00E – RUMUN 185805N 0891420E – New Waypoint 192600N 0920000E (FIR BDRY between Kolkata and Yangon) – Sittwe (STW) – Mandalay (MDY)</p>
Flight Level Band	All suitable bi-directional flight levels. Else, at least suitable eastbound flight levels. (airline operators preferred flight level would be FL330 as primary and FL310 as secondary)
Benefit (fuel, environmental)	<p>Option 1: Narrow body fleet: 94 NM / 12 minutes, 456 kg fuel, 1.5 tonnes CO₂ per flight, 166 tonnes fuel, 548 tonnes CO₂ annually Wide body fleet: 94 NM / 12 minutes, 900 kg fuel, 3.0 tonnes CO₂ per flight, 329 tonnes fuel, 1095 tonnes CO₂ annually</p> <p>Option 2: Narrow body fleet: 71 NM / 9 minutes, 344 kg fuel, 1.1 tonnes CO₂ per flight, 126 tonnes fuel, 402 tonnes CO₂ annually Wide body fleet: 71 NM / 9 minutes, 679 kg fuel, 2.2 tonnes CO₂ per flight, 248 tonnes fuel, 803 tonnes CO₂ annually</p>
Operational Information (potential airlines, flight frequency, potential city pairs)	About 110 flights per week Africa/South Asia – Far East, Southern India – East Coast of the United States
Remarks: The proposed routes would efficiently connect South West Bay of Bengal traffic and Far East. At BOBTFRG/3: In order to conduct better assessment, India requested IATA to provide the analysis of the fleet equipage in ADS-C/CPDLC and PBCS.	 <p>The map displays two proposed flight routes, Option 1 and Option 2, connecting several key locations. Option 1 is shown as a purple line starting from SUGAN (152500N 0825045E), passing through a new waypoint at 192600N 0920000E, then to STW (Sittwe) and finally to MDY (Mandalay). Option 2 is shown as a blue line starting from VVZ (Vishakhapatnam) at 174003.90N 0831510.00E, passing through RUMUN (185805N 0891420E), then through the same new waypoint, STW, and ending at MDY. The map also shows a network of existing flight routes and geographical features like the Bay of Bengal and the Indian subcontinent.</p>

ATS Route Name	BOB 02
State Priority	
IATA Priority	HIGH
Requested by (when)	IATA (05/11/2021: ATM/SG/9)
States/Administrations Involved	India, Myanmar (Kolkata, Yangon FIRs)
Route Description	KAKID 203833N 0865951E – TEBOV 202504N 0915949E – Mandalay (MDY)
Flight Level Band	All suitable flight levels
Benefit (fuel, environmental)	Narrow body fleet: 50 NM / 6 minutes, 228 kg fuel, 750 kg CO ₂ per flight, 83 tonnes fuel, 274 tonnes CO ₂ annually Wide body fleet: 50 NM / 6 minutes, 450 kg fuel, 1.5 tonnes CO ₂ per flight, 164 tonnes fuel, 548 tonnes CO ₂ annually
Operational Information (potential airlines, flight frequency, potential city pairs)	About 110 flights per week Africa/South Asia – Far East, Southern India – East Coast of the United States
Remarks: The proposed route would not only provide efficient connection over Bay of Bengal, but it would also help in de-congesting ATS routes A791, B465, Q19 and Q20. At BOBTFRG/3: In order to conduct better assessment, India requested IATA to provide the analysis of the fleet equipage in ADS-C/CPDLC and PBCS.	

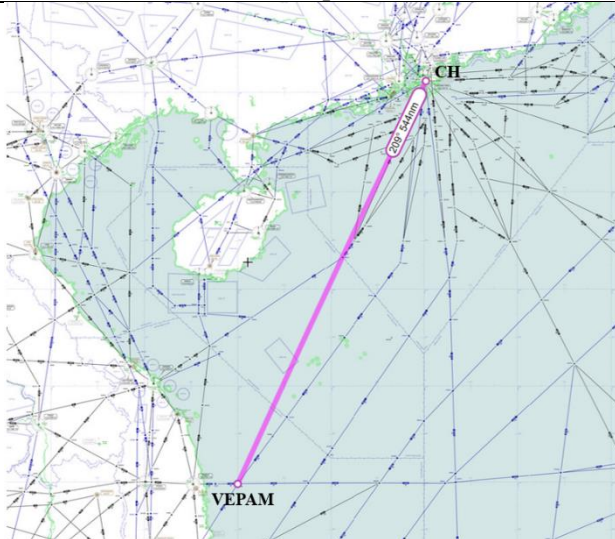
Chapter 2: Southeast Asia

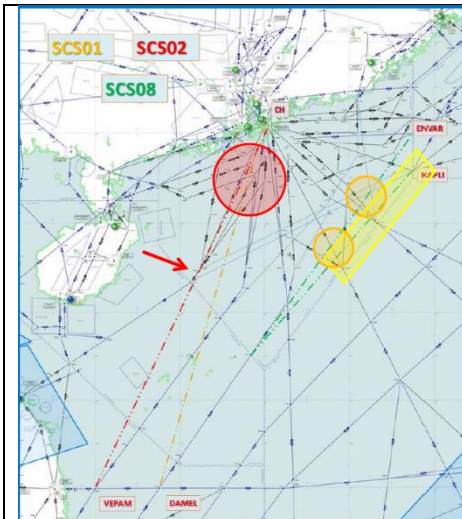
(referred to SEACG for review)

ATS Route Name	SCS 01
State Priority	D
IATA Priority	HIGH
Requested by (when)	IATA (01/09/2018)
States/Administrations Involved	Viet Nam, China, Hong Kong China (Ho Chi Minh, Sanya, Hong Kong FIRs)
Route Description	DAMEL 1358.7N 11130.6E – Cheung Chau (CH) 2213.2N 11401.8E
Flight Level Band	28,000 – 46,000 ft
Benefit (fuel, environmental)	23 NM / 4 minutes, 300 kg fuel per flight, 1,560 tonnes fuel, 4,914 tonnes CO ₂ annually
Operational Information (potential airlines, flight frequency, potential city pairs)	CX, KA, MH, SQ More than 100 flights per week SIN – Pearl River Delta airports
Remarks: Proposed route shortening for M771 into the Pearl River Delta area. During SEACG/19 in WP09 Hong Kong China advised they had studied the proposal for track shortening and advised the proposed change would reduce capacity of A1/P901. It would also require an extensive change in the flight route system and ATC sectors in Hong Kong FIR. However, Hong Kong China would continue to study this proposal for the implementation of RNP4/2. At SEACG/26: Hong Kong China commented they would need to review the integration of this route proposal with its planned airspace enhancement projects. Update from Viet Nam on 22/07/2019: Viet Nam has no objection, subject to agreement from China and Hong Kong China. 23/10/2020: China commented the proposal was under consideration. 30/10/2020: <u>Hong Kong China commented SCS 01 and SCS 02 were conflicting with each other (see the red circle in the figure below). The two routes would create additional conflict points in the most congested ATC sector and ATS route segment in the Hong Kong FIR (see the red circle and arrow in the figure below). Therefore, these two routes were not recommended.</u>	

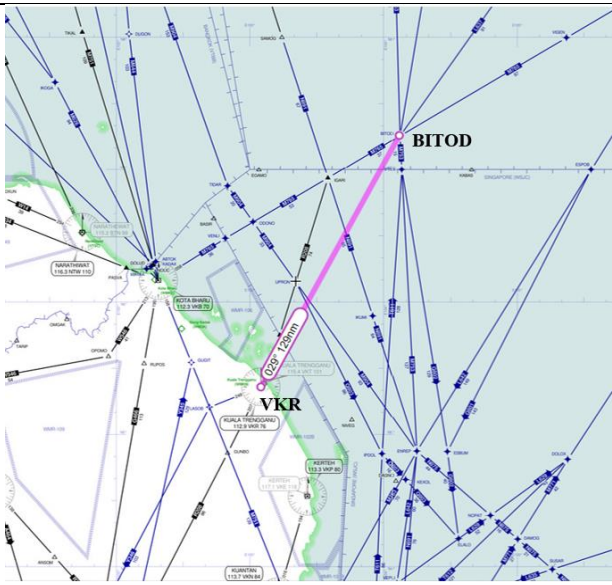
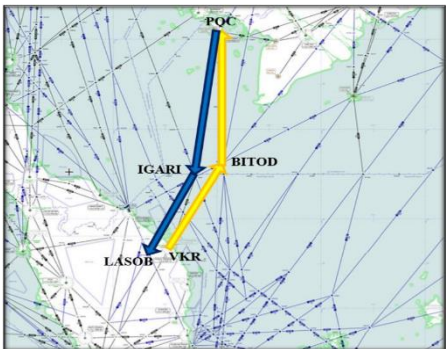


At ATMSG/8: IATA provided updates on IATA priority; implementation benefits; and operational information. 29/09/2021: China commented SCS 01 would create conflict with existing ATS routes A1, L642 and M771, and therefore not recommended for implementation. At ATM/SG/9: IATA provided update on the route operational information.


ATS Route Name	SCS 02
State Priority	D
IATA Priority	HIGH
Requested by (when)	IATA (01/09/2018)
States/Administrations Involved	Viet Nam, China, Hong Kong China (Ho Chi Minh, Sanya, Hong Kong FIRs)
Route Description	VEPAM 1358.0N 11000.0E – Cheung Chau (CH) 2213.2N 11401.8E
Flight Level Band	28,000 – 46,000 ft
Benefit (Environmental)	12 NM / 1 minutes, 200 kg fuel per flight, 2,080 tonnes fuel, 8,580 tonnes CO ₂ annually
Operational Information (potential airlines, flight frequency, potential city pairs)	CX, KA, MH, SQ More than 200 flights per week SIN – Pearl River Delta airports
Remarks: Proposed route shortening for L642 out of the Pearl River Delta area. During SEACG/19 in WP09 Hong Kong China advised they had studied the proposal for track shortening and advised the proposed change would reduce capacity of A1/P901. It would also require an extensive change in the flight route system and ATC sectors in Hong Kong FIR. However Hong Kong, China would continue to study this proposal for the implementation of RNP4/2. At SEACG/26: Hong Kong China commented they would need to review the integration of this route proposal with its planned airspace enhancement projects. Update from Viet Nam on 22/07/2019: Viet Nam has no objection, subject to agreement from China and Hong Kong China. 23/10/2020: China commented the proposal was under consideration. 30/10/2020: <u>Hong Kong China commented SCS 01 and SCS 02 were conflicting with each other (see the red circle in the figure below). The two routes would create additional conflict points in the most congested ATC sector and ATS route segment in the Hong Kong FIR (see the red circle and arrow in the figure below). Therefore, these two routes were not recommended.</u>	

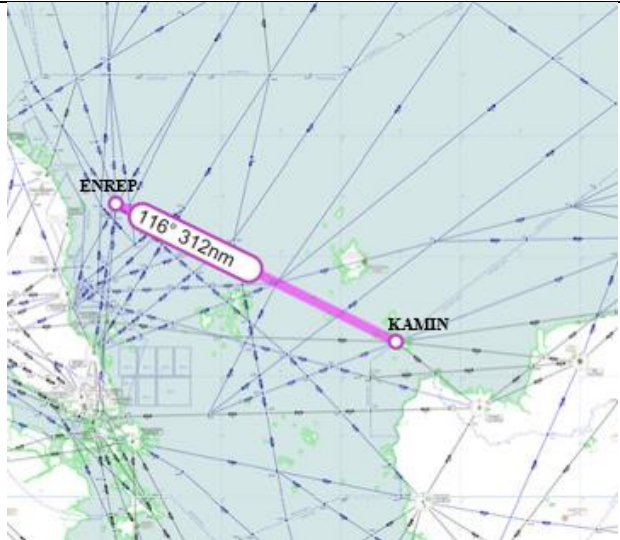


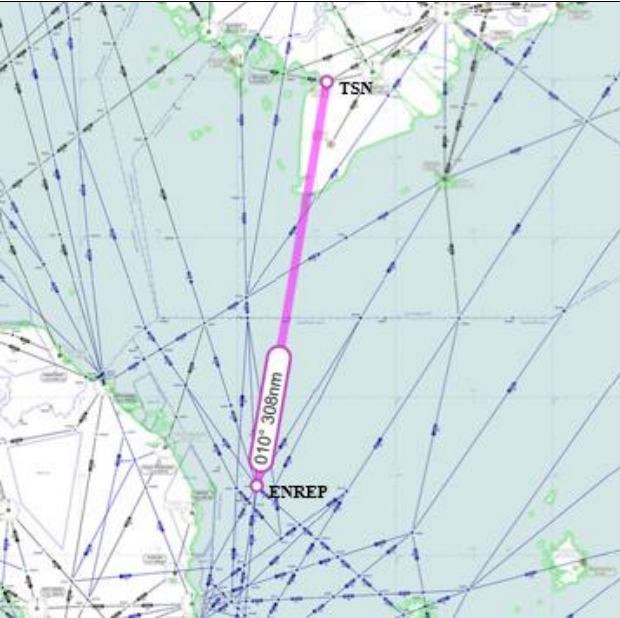
At ATMSG/8: IATA provided updates on implementation benefits; and operational information.
 29/09/2021: China commented SCS 02 would create conflict with existing ATS routes A1, L642 and M771, and therefore not recommended for implementation.
 At ATM/SG/9: IATA provided update on the route operational information.


ATS Route Name	SCS 11
State Priority	B
IATA Priority	LOW
Requested by (when)	IATA (10/03/2015: SEACG/22)
States/Administrations Involved	Viet Nam, Singapore, Malaysia (Ho Chi Minh, Singapore, Kuala Lumpur FIRs)
Route Description	Kuala Terengganu (VKR) 0521.6N 10304.9E – BITOD 0715.4N 10407.1E
Flight Level Band	
Benefit (fuel, environmental)	6 NM / 0 minutes, 23 kg fuel per flight, 167 tonnes fuel, 527 tonnes CO ₂ annually
Operational Information (potential airlines, flight frequency, potential city pairs)	MH, VN At least 20 flights per week KUL – HAN/PNH/SGN
Remarks: At SEACG/26: Malaysia, Singapore and Viet Nam had agreed in principle the feasibility of the route proposal. The States concerned would meet to further discuss the proposal in due time, and Malaysia agreed to become the lead coordinator. Update from Viet Nam on 22/07/2019: Viet Nam proposed the following route proposals for consideration by Malaysia and Singapore: Uni-directional eastbound route VKR – BITOD – PQC; and uni-directional westbound route PQC – IGARI – LASOB.	
	
At ATMSG/7: Malaysia would lead the tripartite meeting, expected during the SCSTFRG/8 in September 2019. At ATMSG/8: This route proposal was under consideration by Viet Nam; and IATA provided updates on IATA priority, implementation benefits and operational information. 08/10/2021: Malaysia commented they would host the meeting between Malaysia, Singapore and Viet Nam in Q4 2021 or Q1 2022. 22/2/2022: the tripartite meeting btw Malaysia, Singapore and Viet Nam	


was canceled and will be rescheduled to report the discussion outcome to SCSTFRG/10 meeting (scheduled 31/5 – 1/6 2022)	
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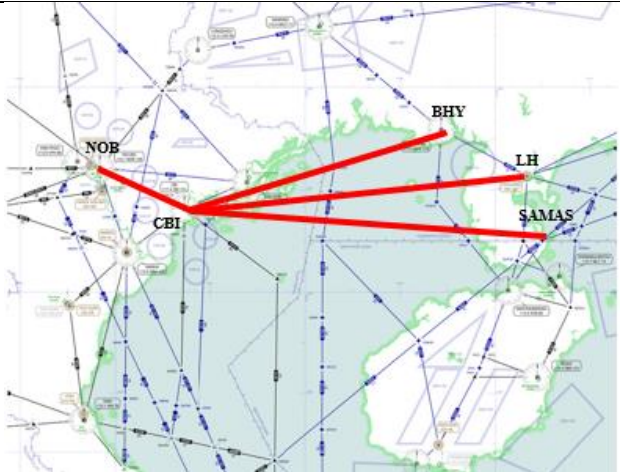
ATS Route Name	SCS 14
State Priority	B
IATA Priority	LOW
Requested by (when)	Malaysia (26/03/2018: SAIOACG/8 & SEACG/25)
States/Administrations Involved	Malaysia, Singapore (Kota Kinabalu, Singapore FIRs), Indonesia
Route Description	ENREP 045223.88N 1041442.00E – OLKIT 045012.12N 1115118.00E or ENREP 045223.88N 1041442.00E – TERIX 041520.88N 1093455.92E
Flight Level Band	At or below 29,000 ft
Benefit (fuel, environmental)	107 NM / 12 minutes, 365 kg fuel, 1,153 kg CO ₂ per flight, 266,450 kg fuel, 841,982 kg CO ₂ annually
Operational Information (potential airlines, flight frequency, potential city pairs)	BKI – KBR
Remarks: Purpose is to circumnavigate major confluence of air traffic at VPK thus providing better efficiency for flight operating from/to KBR. Operation at 29,000 ft and below to avoid crossing traffic within the South China Sea airspace. At SEACG/26: Singapore commented implementation of this route would be possible with the implementation of space-based ADS-B in Singapore FIR, planned by end of 2019; and IATA would assign its priority after a comprehensive review of the Catalogue by its focus group. 15/05/2020: discussion on this route proposal would be conducted when the COVID-19 situation improved, and a face-to-face meeting could be conducted between Malaysia and Singapore. At ATMSG/8: Indonesia commented future discussion on this route proposal would require their involvements; and IATA assigned “ LOW ” priority and recommended for deletion. 16/09/2021: Singapore commented that, as the COVID-19 situation had not improved, the face-to-face meeting between the States involved had yet to materialise.	

ATS Route Name	SCS 15
State Priority	B
IATA Priority	LOW
Requested by (when)	Malaysia (26/03/2018: SAIOACG/8 & SEACG/25)
States/Administrations Involved	Malaysia, Singapore (Kota Kinabalu, Singapore FIRs)
Route Description	ENREP 045223.88N 1041442.00E – KAMIN 023441.88N 1085536.12E
Flight Level Band	At or below 29,000 ft
Benefit (fuel, environmental)	107 NM / 12 minutes, 365 kg fuel, 1,153 kg CO ₂ per flight, 266,450 kg fuel, 841,982 kg CO ₂ annually
Operational Information (potential airlines, flight frequency, potential city pairs)	KCH – KBR
Remarks: Purpose is to circumnavigate major confluence of air traffic at VPK thus providing better efficiency for flight operating from/to KBR. Operation at 29,000 ft and below to avoid crossing traffic within the South China Sea airspace. At SEACG/26: Singapore commented implementation of this route would be possible with the implementation of space-based ADS-B in Singapore FIR, planned by end of 2019; and IATA would assign its priority after a comprehensive review of the Catalogue by its focus group. 15/05/2020: discussion on this route proposal would be conducted when the COVID-19 situation improved, and a face-to-face meeting could be conducted between Malaysia and Singapore. At ATMSG/8: Indonesia commented future discussion on this route proposal would require their involvements; and IATA assigned “ LOW ” priority and recommended for deletion. 16/09/2021: Singapore commented that, as the COVID-19 situation had not improved, the face-to-face meeting between the States involved had yet to materialise.	

ATS Route Name	SCS 16
State Priority	C
IATA Priority	MEDIUM
Requested by (when)	Viet Nam (01/04/2019: SEACG/26)
States/Administrations Involved	Singapore, Viet Nam (Singapore, Ho Chi Minh FIRs)
Route Description	Implementation of new uni-directional northbound ATS route: ENREP 045223.88N 1041442.00E – New Waypoint (FIR BDRY between Singapore and Ho Chi Minh) – Tan Son Nhat (TSN) 104859.20N 1063844.10E
Flight Level Band	
Benefit (fuel, environmental)	48 NM / 6 minutes, 252 kg fuel, 794 kg CO ₂ per flight, 576,576 kg fuel, 1,816 tonnes CO ₂ annually. Reduction in Distance/Time/Fuel/CO ₂ by 19NM/2MIN/600LBS/860KGS per flight with B744ERF for SIN/SGN portion on the basis of annual average wind conditions, and About 300kg, 3 mins, 20 NM savings per SIN-SGN flight on the A350.
Operational Information (potential airlines, flight frequency, potential city pairs)	SIN – SGN
Remarks: Update from Viet Nam on 22/07/2019: Due to crossing routes, this route proposal would be possible subject to the enhancement of surveillance and ATFM capabilities in the concerned area. At ATMSG/8: Viet Nam commented this route proposal was under consideration; and IATA assigned “ MEDIUM ” priority. 11/2/2022: Singapore commented the concerned area is fully covered by ADS-B to support the proposal and ready to discuss on the implementation. 11/02/2022: Viet Nam commented they will continue to assess a necessity of this ATS/PBN route requirement adding ATS surveillance (SSR and ADS-B) capability has been enhanced by cooperation btw Viet Nam and Singapore, and new ATM automation/AFTM capability will be enhanced with a long-term plan	

ATS Route Name	SCS 18
State Priority	C
IATA Priority	LOW
Requested by (when)	Viet Nam (01/04/2019: SEACG/26)
States/Administrations Involved	Viet Nam, China, Hong Kong China (Ho Chi Minh, Sanya, Hong Kong FIRs)
Route Description	Phu Cat (PCA) 135726.00N 1090233.60E – IKELA 183942.00N 1121442.00E or Phu Cat (PCA) 135726.00N 1090233.60E – LENKO 172456.88N 1101800.00E
Flight Level Band	
Benefit (fuel, environmental)	52 NM / 5 minutes, 220 kg fuel per flight, 435 tonnes fuel, 1,370 tonnes CO ₂ annually
Operational Information (potential airlines, flight frequency, potential city pairs)	KA, MH At least 30 flights per week KUL – SGN – East Asia
Remarks: At ATMSG/7: China proposed to concentrate on the implementation of parallel route to A1 (SCSTFRG Priority Area 1). This route proposal may not be needed, if the parallel route to A1 is implemented. 23/10/2020: No update (SCSTFRG/9 postponed to 2021). At ATMSG/8: IATA provided updates on IATA priority; implementation benefits; and operational information. At ATM/SG/9: No update (discussion on planned implementation of parallel route to A1 was still ongoing at the SCSTFRG meeting).	

ATS Route Name	SEA 12
State Priority	C
IATA Priority	HIGH
Requested by (when)	IATA (01/09/2018)
States/Administrations Involved	Thailand, Lao PDR, Viet Nam, China (Bangkok, Vientiane, Hanoi, Sanya, Guangzhou FIRs)
Route Description	Roiet (ROT) 1607.0N 10346.7E – Huguang (LH) 2107.9N 11020.2E
Flight Level Band	29,000 – 46,000 ft
Benefit (fuel, environmental)	14 NM / 2 minutes, 208 kg fuel, 655 kg CO ₂ per flight, 1,731 tonnes fuel, 5,451 tonnes CO ₂ annually
Operational Information (potential airlines, flight frequency, potential city pairs)	CX 160 flights per week JKT/KUL/PNH/SIN – HKG/SYX
Remarks: Provide parallel to the A202 route. At SEACG/26: Viet Nam proposed to concentrate on SCSTFRG Priority Area 1: parallel route to A1 proposal. This route proposal to be reviewed at a later stage. 23/10/2020: No update (SCSTFRG/9 postponed to 2021). At ATM/SG/9: No update (discussion on planned implementation of parallel route to A1 was still ongoing at the SCSTFRG meeting).	

ATS Route Name	VIET NAM 02
State Priority	D
IATA Priority	HIGH
Requested by (when)	Viet Nam (01/09/2018)
States/Administrations Involved	Viet Nam, China (Hanoi, Sanya, Guangzhou FIRs)
Route Description	Noi Bai (NOB) 2112.8N 10550.1E – Cat Bi (CBI) 2049.1N 10642.5E – SAMAS 2030.3N 11029.7E or Noi Bai (NOB) 2112.8N 10550.1E – Cat Bi (CBI) 2049.1N 10642.5E – Huguang (LH) 2107.9N 11020.2E or Noi Bai (NOB) 2112.8N 10550.1E – Cat Bi (CBI) 2049.1N 10642.5E – Nankang (BHY) 2135.2N 10925.9E
Flight Level Band	28,000 – 46,000 ft
Benefit (fuel, environmental)	48 NM / 6 minutes, 252 kg fuel, 794 kg CO ₂ per flight, 576,576 kg fuel, 1,816 tonnes CO ₂ annually For ZGGG-VVNB with B789, Vietnam02 can reduce the flight distance by 73NM, reduce the flight time by 9 minutes, and save 700Kg of fuel.
Operational Information (potential airlines, flight frequency, potential city pairs)	CX 44 flights per week
Remarks: Because of small traffic demand and cost/benefit considerations, this route is impossible and cannot be implemented at present. Retain proposal for long-term planing (Viet Nam). Retention discussed at SEACG/22. At SEACG/26: China commented that this route proposal was very unlikely to be implemented, and recommended for this route proposal to be deleted from the Catalogue; and Viet Nam proposed alternate option: Noi Bai (NOB) 2112.8N 10550.1E – Cat Bi (CBI) 2049.1N 10642.5E – Nankang (BHY) 2135.2N 10925.9E to serve traffic between Ha Noi/Cat Bi/Van Don (new international airport in Viet Nam) and destinations in China and beyond. 23/10/2020: China commented the proposal was under consideration. At ATMSG/8: IATA preferred this route proposal to be retained in the Catalogue. 29/09/2021: China commented the proposal was still under consideration. 1/3/2022:IATA preferred this route proposal to be retained in the Catalogue. Despite currently low traffic due to the epidemic, as traffic	

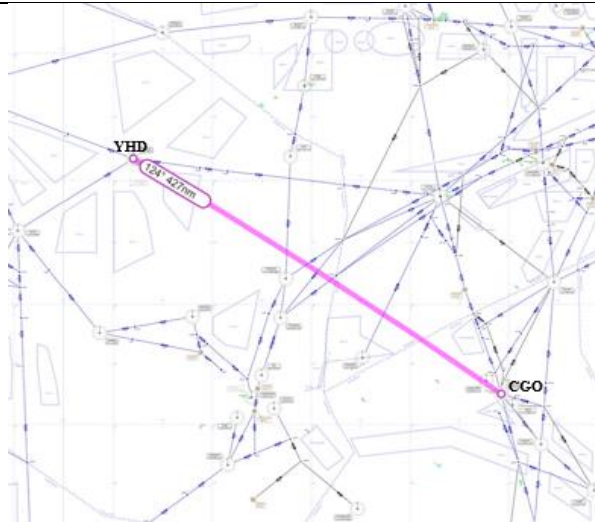
returns this proposed route can give airlines more flight route options between China and Vietnam and beyond.

3/3/2022: China proposed for deletion due to inconsistency with overall flight flow.

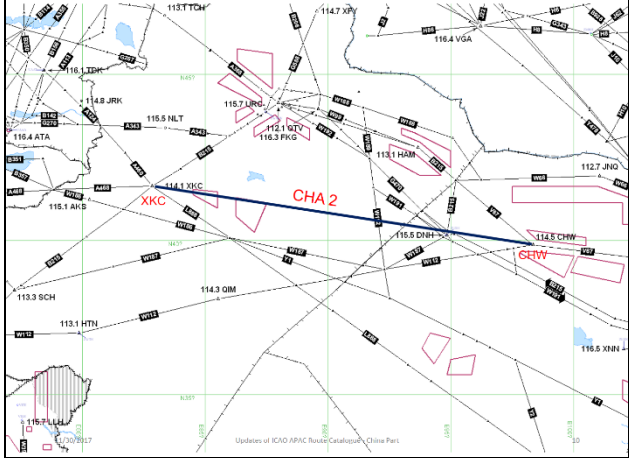
Chapter 3: East Asia

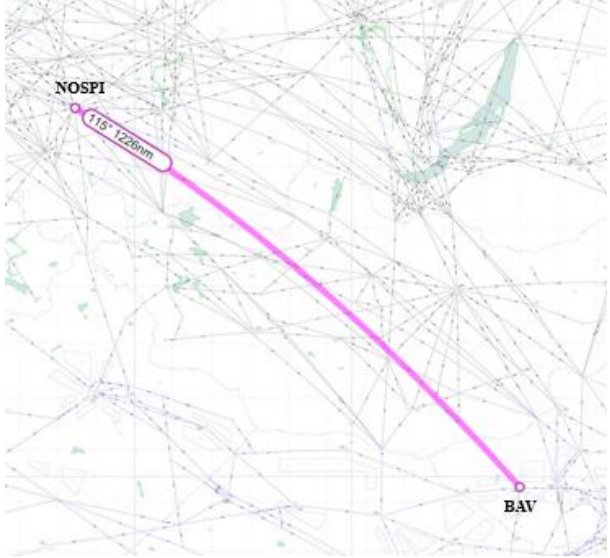
(referred to: States or EATMCG as appropriate for review)


ATS Route Name	CHA 01
State Priority	D
IATA Priority	HIGH
Requested by (when)	IATA (01/09/2018)
States/Administrations Involved	China (Lanzhou, Beijing, Wuhan FIRs)
Route Description	Yinchuan (YHD) 3820.8N 10624.6E – Zhengzhou (CGO) N3431.1 E11350.6
Flight Level Band	8,400 – 15,000 meters
Benefit (fuel, environmental)	73 NM / 9 minutes, 26,645 kg fuel, 825,995 kg CO ₂ annually
Operational Information (potential airlines, flight frequency, potential city pairs)	Europe – Shanghai
Remarks: Original proposal: YHD – YAV – CGO – ZHO – SB/HFE. The route segment between CGO – ZHO – HFE has been implemented as part of ATS route B208 since 2008. Therefore, the route description was amended as YHD – CGO accordingly. <u>At ATMSG/7: China commented the proposed route would create numerous conflicts, and was not consistent with its planned route network.</u> 23/10/2020: China commented there was no progress on this proposal. At ATMSG/8: IATA preferred this route proposal to be retained in the Catalogue, and proposed the route segment between CGO – ZHO – HFE to be made available for eastbound too. In response to IATA’s proposal, China commented the following uni-directional routing systems had been implemented for flight planning: (a) eastbound: <u>HFE – FYG – ZHO – CGO.</u> (b) westbound: <u>CGO – W129/KAMDA – W128/FYG.</u> At SAIOACG/10 and SEACG/27: China proposed for deletion. 3/3/2022: China commented how the current uni-directional routing system work in actual operation (see the Map provided by China) adding that it could reduce heavy traffic and conflict over ZHO.	



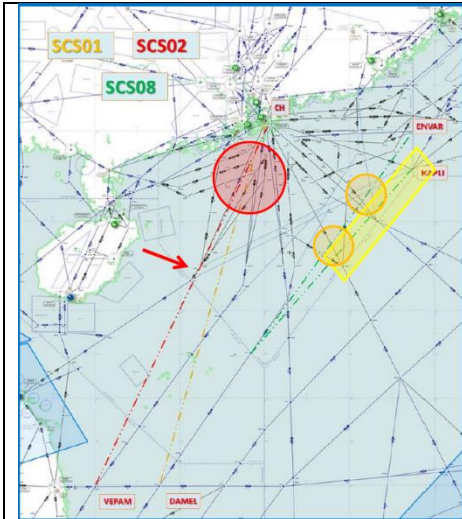
[Map provided by China]

ATS Route Name	CHA 02
State Priority	D
IATA Priority	HIGH
Requested by (when)	IATA (01/09/2018)
States/Administrations Involved	China (Urumqi, Lanzhou FIRs)
Route Description	Qiuci (XKC) 4140.6N 08250.6E – Jiayuguan (CHW) 3951.3N 09821.0E
Flight Level Band	8,400 – 15,000 meters
Benefit (fuel, environmental)	93 NM / 12 minutes, 4,426 tonnes fuel, 1,372,202 tonnes CO ₂ annually
Operational Information (potential airlines, flight frequency, potential city pairs)	63 flights per week Middle East/Pakistan – China/Japan/Korea
Remarks: China comment: there are existing routes between XKC and CHW. At ATMSG/7: China commented the proposed route was not possible for implementation, and proposed for deletion; and IATA would provide feedback after a comprehensive review of the Catalogue by its focus group, expected in March 2020. <u>23/10/2020: China proposed for deletion.</u> At ATMSG/8: IATA preferred this route proposal to be retained in the Catalogue.	


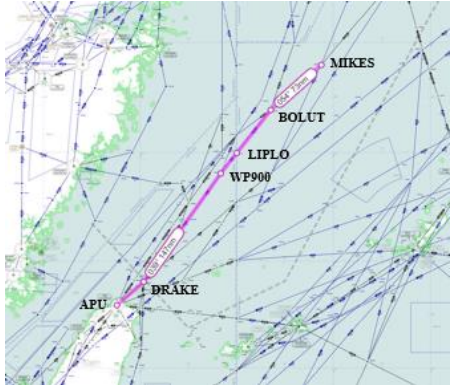
ATS Route Name	CHA 12
State Priority	D
IATA Priority	HIGH
Requested by (when)	IATA (29/08/2018)
States/Administrations Involved	Russia, Mongolia, China (Novosibirsk, Krasnoyarsk, Ulaanbatar, Beijing FIRs)
Route Description	NOSPI 534912.00N 0865248.00E – New Waypoint (FIR BDRY between Novosibirsk and Krasnoyarsk) – New Waypoint (FIR BDRY between Krasnoyarsk and Ulaanbatar) – New Waypoint (Entry/Exit Point: FIR BDRY between Ulaanbatar and Beijing) – Baotou (BAV)
Flight Level Band	28,000 – 46,000 ft
Benefit (fuel, environmental)	5 minutes, 6,090 tonnes fuel, 19,185 tonnes CO ₂ annually
Operational Information (potential airlines, flight frequency, potential city pairs)	85 flights per week
Remarks: New route proposal replacing the previous from Weixian to Novokuznetsk. At ATMSG/7: China and Mongolia commented the proposed route was not possible for implementation; and IATA would provide feedback after a comprehensive review of the Catalogue by its focus group, expected in March 2020. <u>23/10/2020: China proposed for deletion.</u> At ATMSG/8: IATA preferred this route proposal to be retained in the Catalogue.	

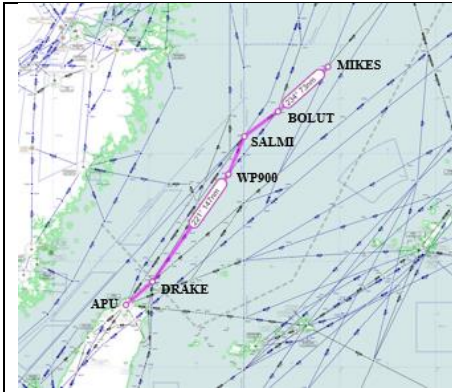
ATS Route Name	IATA 02
State Priority	D
IATA Priority	HIGH
Requested by (when)	IATA (01/09/2018)
States/Administrations Involved	China (Kunming, Guangzhou FIRs)
Route Description	OMBON 3321.4N 10416.3E – Sanjiang (SJG) 2546.6N 10936.6E
Flight Level Band	8,400 – 15,000 meters
Benefit (fuel, environmental)	14 minutes, 6,657 tones fuel, 20,636 tonnes CO ₂ annually
Operational Information (potential airlines, flight frequency, potential city pairs)	56 flights per week Europe – Pearl River Delta airports
Remarks: China comments: There are existing routes between OMBON and RO. Direct route is impossible at present. <u>23/10/2020: China proposed for deletion.</u> At ATMSG/8: IATA preferred this route proposal to be retained in the Catalogue.	

ATS Route Name	SCS 08
State Priority	D
IATA Priority	HIGH
Requested by (when)	IATA (01/09/2018)
States/Administrations Involved	Hong Kong China, Taibei ACC (Hong Kong, Taibei FIRs)
Route Description	DULOP 1814.2N 11432.6E – ELATO 2220.0N 11730.0E – A1 or DULOP 1814.2N 11432.6E – ENVAR 2159.5N 11730.0E – M750 or DULOP 1814.2N 11432.6E – KAPLI 2110.0N 11730.0E – G86
Flight Level Band	28,000 – 46,000 ft
Benefit (fuel, environmental)	6 minutes, 850 kg fuel, 2,687 kg CO ₂ per flight, 1,863 tonnes fuel, 5,868 tonnes CO ₂ annually Note: Savings based on DULOP – ENVAR.
Operational Information (potential airlines, flight frequency, potential city pairs)	BR, CI At least 42 flights per week Southeast Asia – North Asia airports
Remarks: Supports traffic Northeast Asia – Southeast Asia. Potentially problematic as will impact South China Sea’s traffic arrangements (IATA to review). During SEACG/19 in WP09, Hong Kong China advised they had studied the proposal for track shortening and advised that allowing flights to proceed from M771 DUMOL to ELATO/ENVAR/KAPLI will likely create a bottle neck at these points and result in flights not getting optimum levels or increase ground delay to departures from Hong Kong and Macao to East Asia. However, Hong Kong China would continue to study this proposal. Most preferred: DULOP – ENVAR. <u>30/10/2020: Hong Kong China commented these two routes are too close to the Hong Kong and Manila FIR boundary (see the yellow shaded areas in the figure below). New confliction points would be created and the distance/time available for traffic resolution is not sufficient. There are safety concerns and these proposed routes were not recommended. Therefore, the two routes are not recommended.</u>	



At ATMSG/8: IATA preferred this route proposal to be retained in the Catalogue.

ATS Route Name	TPE 01
State Priority	C
IATA Priority	HIGH
Requested by (when)	IATA (01/09/2018)
States/Administrations Involved	Taibei ACC, Japan (Taibei, Fukuoka FIRs)
Route Description	Anbu (APU) 2510.6N 12131.3E – New Waypoint (FIR BDRY between Taibei and Fukuoka) – MIKES 2935.2N 12544.9E
Flight Level Band	28,000 – 46,000 ft
Benefit (fuel, environmental)	16 NM / 2 minutes, 107 kg fuel, 337 kg CO ₂ per flight, 1,168 tonnes fuel, 3,680 tonnes CO ₂ annually
Operational Information (potential airlines, flight frequency, potential city pairs)	BR, CI 210 flights per week Southeast Asia/HKG/TPE – Fukuoka
<p>Remarks: Supports traffic between APU and Japan. Update from Japan on 29/06/2019: Under consideration. 23/10/2020: Japan commented this proposal was under consideration. At ATMSG/8: IATA preferred this route proposal to be retained in the Catalogue. 16/09/2021: Based on information provided by the IFATCA, the proposed route TPE 01 partially overlaps ATS route Q11 and several other ATS routes that already existed in the area, and therefore it was not possible to implement a new route in Taibei FIR. Counter-proposal: Northbound traffic: APU – A1 – DRAKE – Q11 – WP900 – L4 – LIPLO – Y741 – BOLUT – MIKES.</p>   <p>Southbound traffic: MIKES – BOLUT – B576 – SALMI – Q11 – DRAKE – APU.</p>	

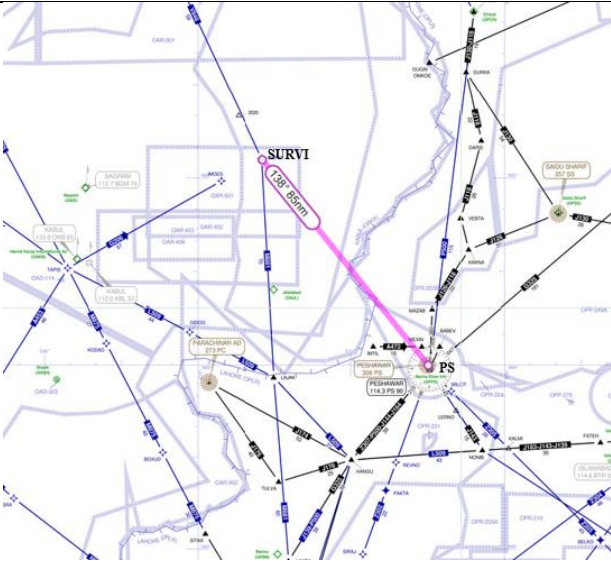


15/10/2021: Japan commented this proposal was still under consideration.

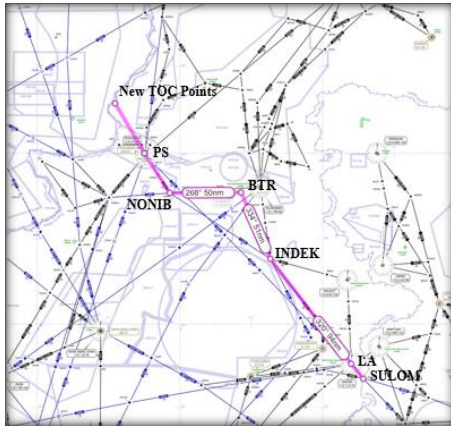
25/2/2022: Japan commented no progress at this state, although this proposal is recognized as one of the business coordination projects by both Taipei and Fukuok ACCs.

Chapter 4: Trans-Regional (South Asia)

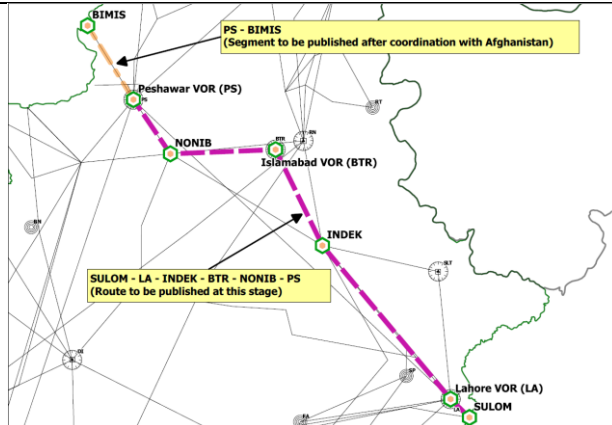
(referred to: States or AIRARD TF as appropriate for review)

ATS Route Name	AFG 01
State Priority	B
IATA Priority	MEDIUM
Requested by (when)	Afghanistan (03/08/2019: AIRARD TF/4)
States/Administrations Involved	Pakistan, Afghanistan (Lahore, Kabul FIRs)
Route Description	Peshawar (PS) 335841.50N 0713100.90E – SURVI 350606.12N 0702512E
Flight Level Band	
Benefit (fuel, environmental)	32 NM / 4 minutes, 400 kg fuel per flight, 957 tonnes fuel, 3,014 tonnes CO ₂ annually
Operational Information (potential airlines, flight frequency, potential city pairs)	AI, AY, TG About 46 flights per week (some operating during winter season only) HEL – BKK/SIN
Remarks: This is an alternative proposal to INDEK-BABEV-SURVI, which will shorten the flight distance. Original proposal: IMTIL – SURVI. At ATMSG/7: Pakistan counter-proposed for this route via SURVI – Peshawar (PS). Pakistan informed the meeting the proposed route between SURVI and PS had been submitted to the relevant authorities of Pakistan for approval. 17/08/2020: Pakistan informed this route proposal was still under consideration by the relevant authorities. At ATMSG/8: IATA assigned “ MEDIUM ” priority; implementation benefits; and operational information. IATA also proposed to review the time restrictions LAJAK-SULOM (1500-2359Z) to make proposal beneficial to more traffic. At SAIOACG/10 and SEACG/27: Pakistan informed this route proposal was still under consideration by the military authority. 15/09/2021: Pakistan informed that the military authorities of Pakistan had approved the following ATS route proposal (bi-directional), on the request of Tajikistan and Uzbekistan: SULOM – Lahore (LA) – INDEK – Islamabad (BTR) – NONIB – Peshawar (PS) – 343433N 0710533E (new TOC points between Afghanistan and Pakistan). The above route proposal was under approval process of Pakistan Federal Government and coordination process with Afghanistan and Tajikistan regarding further route connectivity in	

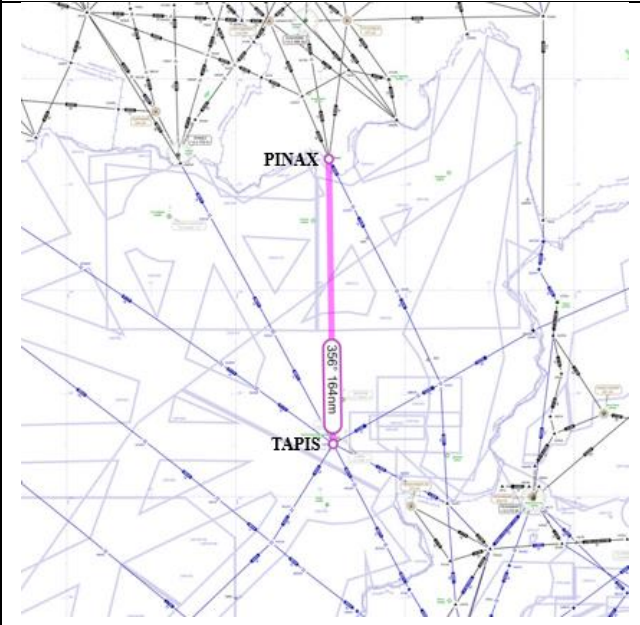
Afghanistan airspace and beyond from the new TOC points was ongoing.

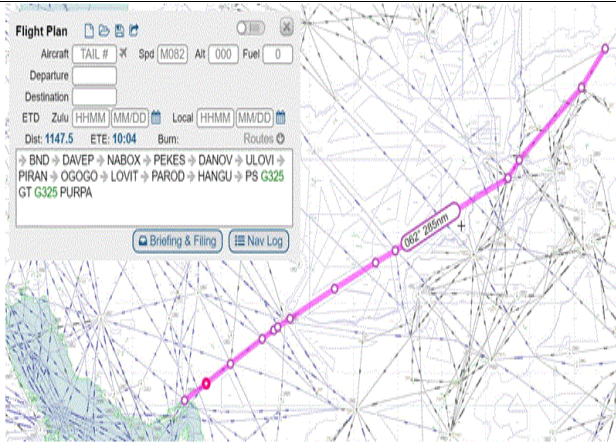


18/02/2022: Upon approval on a new RNAV bi-directional int. ATS route in Lahore FIR by the Federal Government of Pakistan, Pakistan requested a new RNAV Route designator to APAC RO awaiting the response from Afghanistan for further connectivity in Kabul FIR (the last segment from Peshawar VOR to PAK/AFGHAN new TCP BIMIS (Lahore FIR)), and saying a joint PfA will be processed



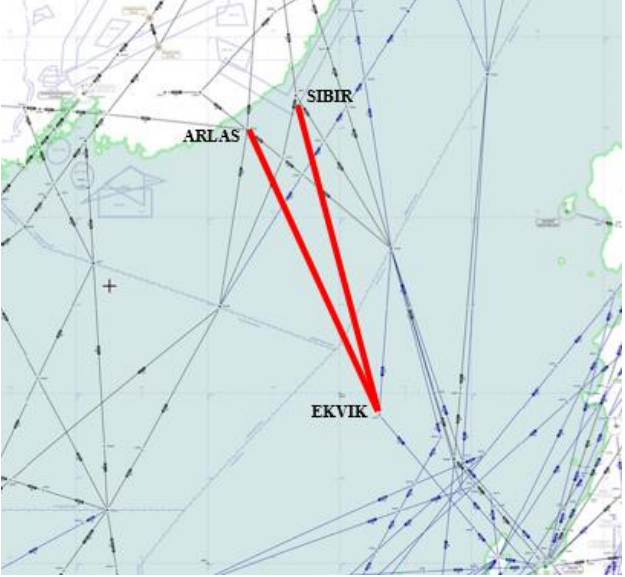
SULOM – Lahore VOR – INDEK - Islamabad VOR (BTR) – NONIB – Peshawar VOR (PS) – BIMIS 34343N, 0710533E (Pak/Afghan new proposed TCP boundary waypoint), Vertical Limit FL300 – FL410

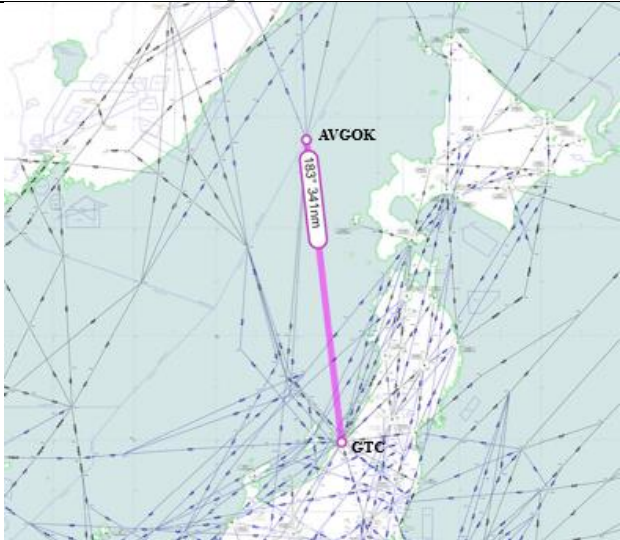
ATS Route Name	AFG 02
State Priority	C
IATA Priority	LOW
Requested by (when)	Tajikistan (03/08/2019: AIRARD TF/4)
States/Administrations Involved	Afghanistan, Tajikistan (Kabul, Dushanbe FIRs)
Route Description	TAPIS 343100.12N 0690900E – PINAX 371500N 0690600E
Flight Level Band	
Benefit (fuel, environmental)	
Operational Information (potential airlines, flight frequency, potential city pairs)	
<p>Remarks: Afghanistan commented that waypoint TAPIS is a converging point for two congested routes, and would review this proposal. At ATMSG/8: IATA assigned “LOW” priority and recommended for deletion.</p> <p><i>Note: continuation of this proposal is 29.007 “TAPIS-PINAX-SORAM-TENRO” in RDGE Middle Asia ATS Route Catalogue.</i></p>	

ATS Route Name	MID 02 (a)
State Priority	B D
IATA Priority	HIGH
Requested by (when)	AIRARD TF/2 (04/05/2018)
States/Administrations Involved	Iran, Pakistan, Afghanistan (Tehran, Karachi, Kabul, Lahore FIRs)
Route Description	Bandar Abbas (BND) 2711.8N 05622.0E – DAVEP 2742.4N 05720.1E – NABOX 2816.5N 05826.0E – PEKES 2859.5N 05952.3E – DANOV 2914.7N 06023.9E – ULOVI 2919.8N 06034.5E – PIRAN 2934.1N 06108.1E – OGOGO 3024.9N 06309.1E – LOVIT 3109.1N 06500.4E – PAROD 3129.0N 06554.0E – A453 – HANGU 3329.1N 07100.3E – Peshawar (PS) 3358.7N 07131.0E – G325 – Gilgit (GT) 3555.2N 07420.1E – G325 – PURPA 3656.5N 07524.4E
Flight Level Band	
Benefit (fuel, environmental)	40 NM / 3 minutes, 600 kg fuel per flight, 1,342 tonnes fuel, 4,262 tonnes CO ₂ annually
Operational Information (potential airlines, flight frequency, potential city pairs)	EK, EY, QR About 43 flights per week
Remarks: High Priority MID 02 (a) preferred over MID 02 (b) if only one route is chosen. <u>17/08/2020: The proposed entry into Pakistan airspace allows very minimal response time (less than two minutes) for traffic de-confliction at DOBAT and SITAX and other crosser routes.</u>	 <p><u>Pakistan proposed for deletion.</u> At ATMSG/8: IATA assigned “HIGH” priority; implementation benefits; and operational information. IATA preferred this route to be retained in the Catalogue and commented this route could be used for contingency and for aircraft with limited oxygen requirements. At BOBTFRG/3: Pakistan re-affirmed that the proposed route was not feasible.</p>

Chapter 5: Trans-Regional (East Asia)

(referred to: AIRARD/TF, RDGE or EATMCG as appropriate for review)

ATS Route Name	FE0008 / RDGE 15.003 / APAC RUS 5
State Priority	C
IATA Priority	MEDIUM
Requested by (when)	Russia, IATA (01/09/2018)
States/Administrations Involved	Russia, Japan (Khabarovsk, Fukuoka FIRs)
Route Description	Implementation of two new bi-directional ATS routes: a. SIBIR 432154.00N 1352024.00E – New Waypoint (FIR BDRY between Khabarovsk and Fukuoka) – New EKVIK Waypoint b. ARLAS 425906.00N 1343553.88E– New Waypoint (FIR BDRY between Khabarovsk and Fukuoka) – New EKVIK Waypoint
Flight Level Band	
Benefit (fuel, environmental)	No fuel gain but could help to reduce ground delays for HND/KIXNRT operations to Europe.
Operational Information (potential airlines, flight frequency, potential city pairs)	AF, BA, KL, LH
Remarks: To improve north-south traffic flows between Khabarovsk FIR and Fukuoka FIR, Original SIBIR – LURED – EKVIK proposal will be changed due to new position of EKVIK further east as a result of the planned airspace structure change in Japan, when both new ATS routes will be implemented, the existing B451 ARLAS – LAKTA – LURED – IGROD will be withdrawn. Based on the results from the coordination meeting between the Russian Federation and Japan in February 2017, <u>the implementation could not be progressed as Japan indicated that no further airspace changes for the Fukuoka FIR are acceptable before the 2020 timeframe (RDGE/27).</u> Russian Federation: New waypoint needed 404751N 1361021E (FIR Boundary), coordination with Japan (Fukuoka FIR) required. Alternative bi-directional route to EN15. 23/10/2020: Japan commented no update. At ATMSG/8: IATA assigned “ MEDIUM ” priority and recommended for this route to be retained in the Catalogue. 15/10/2021: Japan commented no update.	

ATS Route Name	FE0021 / RDGE 13.028 / APAC RUS 4
State Priority	C
IATA Priority	HIGH
Requested by (when)	Russia, IATA (01/09/2018)
States/Administrations Involved	Russia, Japan (Khabarovsk, Fukuoka FIRs)
Route Description	Implementation of new bi-directional ATS route: AVGOK – Niigata (GTC) 375729.90N 1390653.60E
Flight Level Band	
Benefit (fuel, environmental)	20 NM / 4 minutes, 440 kg fuel per flight, 2,400 tonnes fuel, 7,550 tonnes CO ₂ annually
Operational Information (potential airlines, flight frequency, potential city pair)	AF, AY, JL, KL, NH About 105 flights per week HND/NRT to Europe
Remarks: During a bi-lateral meeting between the State ATM Corporation and the JCAB Japan (in Tokyo, November 2012), a <u>difference in coordinates of the AVGOK waypoint was identified in the aeronautical information publications of Russia and Japan. The incorrect coordinates were confirmed by Japan and a decision was made to report this issue to the appropriate Regional ICAO Offices. The Russian Federation proposes the following coordinates (4336N and 13815E) for the AVGOK waypoint.</u> Based on the results from the coordination meeting between the Russian Federation and Japan in February 2017, the implementation of the bi-directional ATS Route AVGOK – GTC requires further studies due to the involved military area. RDGE/27 meeting in 2017: could become a conditional route. Further discussion with Japan required through the ICAO APAC Office. To reduce route distance of 13NM as compared to current routing AVGOK – KADBO – GTC. 23/10/2020: Japan commented no update. At ATMSG/8: IATA assigned “ HIGH ” priority and recommended for this route to be retained in the Catalogue. 15/10/2021: Japan commented no update.	

ATS Route Name	FE0049 / RDGE 20.010
State Priority	C
IATA Priority	
Requested by (when)	DPRK, Russia (01/09/2018)
States/Administrations Involved	Russia, DPRK (Khabarovsk, Pyongyang FIRs)
Route Description	Implementation of new uni-directional eastbound ATS route: KICHA 404103N 1291140E – ADNUR 421230N 1304810E – Vladivostok (KN) 432303N 1320708E
Flight Level Band	17,000 – 53,000 ft
Benefit (fuel, environmental)	
Operational Information (potential airlines, flight frequency, potential city pairs)	
Remarks: Planned implementation date as part of project in 2015. Khabarovsk/Vladivostok airspace re-organisation project, (in map No. 6)	

ATS Route Name	FE0050 / RDGE 20.011
State Priority	C
IATA Priority	
Requested by (when)	DPRK, Russia (01/09/2018)
States/Administrations Involved	Russia, DPRK (Khabarovsk, Pyongyang FIRs)
Route Description	Implementation of new uni-directional westbound ATS route for B355: Muraveyka (BG) 435303N 1331511E – VATIS 425143N 1320851E – TERNI 422213N 1314003E – BUMEP 415350N 1311255E – KICHA 404106N 1291140E
Flight Level Band	18,000 – 51,000 ft
Benefit (fuel, environmental)	
Operational Information (potential airlines, flight frequency, potential city pairs)	
Remarks: Planned implementation date as part of project in 2015. Khabarovsk/Vladivostok airspace re-organisation project, (in map No. 7).	

ATS Route Name	FE0051 / RDGE 20.012
State Priority	C
IATA Priority	
Requested by (when)	DPRK, Russia (01/09/2018)
States/Administrations Involved	Russia, DPRK (Khabarovsk, Pyongyang FIRs)
Route Description	Implementation of new uni-directional eastbound ATS route segment: MESOV 383800N 1302300E – ADNUR 421230N 1304810E
Flight Level Band	29,000 – 53,000 ft
Benefit (fuel, environmental)	
Operational Information (potential airlines, flight frequency, potential city pairs)	
Remarks: Planned implementation date as part of project in 2015. Khabarovsk/Vladivostok airspace re-organisation project, (in map No. 8). Implementation has not progressed as the connection/continuation of this ATS route (implemented ATS routes end at FIR border over High Seas) into Incheon FIR still missing. No information was received from DPRK and South Korea (ROK) via the ICAO APAC Office. Implementation could not be progressed as no information from DPRK at RDGE/28.	

ATS Route Name	FE0052 / RDGE 20.013
State Priority	C
IATA Priority	
Requested by (when)	DPRK, Russia (01/09/2018)
States/Administrations Involved	Russia, DPRK (Khabarovsk, Pyongyang FIRs)
Route Description	BUMEP 415350N 1311255E – MESOV 383800N 1302300E
Flight Level Band	28,000 – 51,000 ft
Benefit (fuel, environmental)	
Operational Information (potential airlines, flight frequency, potential city pairs)	
Remarks: Khabarovsk/Vladivostok airspace re-organisation project, (in map No. 9). Implementation has not progressed as the connection/continuation of this ATS route (implemented ATS routes end at FIR border over High Seas) into Incheon FIR still missing. No information was received from South Korea (ROK) via the ICAO APAC Office. Implementation could not be progressed as no information from DPRK at RDGE/28.	

ATS Route Name	FE0053 / RDGE 20.014
State Priority	C
IATA Priority	
Requested by (when)	DPRK, Russia (01/09/2018)
States/Administrations Involved	Russia, DPRK (Khabarovsk, Pyongyang FIRs)
Route Description	New G711 BISUN 431400N 1311148E – TERNI 422213N 1314003E – RIVAT 412900N 1321600E
Flight Level Band	21,000 – 53,000 ft
Benefit (fuel, environmental)	
Operational Information (potential airlines, flight frequency, potential city pairs)	
Remarks: Khabarovsk/Vladivostok airspace re-organisation project, (in map No. 10). <i>Note: to verify has this route been implemented as G705?</i>	


ATS Route Name	FE0054 / RDGE 20.015
State Priority	C
IATA Priority	
Requested by (when)	DPRK, Russia (01/09/2018)
States/Administrations Involved	Russia, DPRK (Khabarovsk, Pyongyang FIRs)
Route Description	Implementation of new bi-directional ATS route: RIVAT 412900N 1321600E – MESOV 383800N 1302300E
Flight Level Band	21,000 – 53,000 ft
Benefit (fuel, environmental)	
Operational Information (potential airlines, flight frequency, potential city pairs)	
Remarks: Khabarovsk/Vladivostok airspace re-organisation project, (in map No. 11). Planned implementation date 11 December 2014. <i>Note: to verify has this route been implemented as N513?</i>	

ATS Route Name	FE0055 / RDGE 20.016
State Priority	C
IATA Priority	
Requested by (when)	DPRK, Russia (01/09/2018)
States/Administrations Involved	Russia, DPRK (Khabarovsk, Pyongyang FIRs)
Route Description	Implementation of new bi-directional ATS route: NULAR 405912N 1341100E – MESOV 383800N 1302300E
Flight Level Band	28,000 – 53,000 ft
Benefit (fuel, environmental)	
Operational Information (potential airlines, flight frequency, potential city pairs)	
Remarks: Khabarovsk/Vladivostok airspace re-organisation project, (in map No. 12). Planned implementation date 11 December 2014. <i>Note: to verify has this route been implemented as L771?</i>	

ATS Route Name	FE0056 / RDGE 20.017
State Priority	C
IATA Priority	
Requested by (when)	DPRK, Russia (01/09/2018)
States/Administrations Involved	Russia, DPRK, Japan (Khabarovsk, Pyongyang, Fukuoka FIRs)
Route Description	Implementation of new bi-directional ATS route segment: RIVAT 412900N 1321600E – New Waypoint (FIR BDRY between Pyongyang and Fukuoka)
Flight Level Band	
Benefit (fuel, environmental)	
Operational Information (potential airlines, flight frequency, potential city pairs)	
Remarks: Khabarovsk/Vladivostok airspace re-organisation project, (in map No. 13), for further discussion with JCAB, Japan. Planned implementation date as part of project in 2015. Implementation could not be progressed as no information from China at RDGE/28.	

Chapter 6: Pacific

(referred to: IPACG, ISPACG as appropriate for review)

ATS Route Name	WPC 01
State Priority	D
IATA Priority	HIGH
Requested by (when)	IATA (30/07/2018)
States/Administrations Involved	Papua New Guinea, Indonesia, USA, Philippines, Japan, Taipei ACC (Port Moresby, Ujung Pandang, Oakland Oceanic, Manila, Fukuoka, Taipei FIR)
Route Description	Port Moresby (PY) 0927.2S 14712.9E – Vanimo (VNO) 0240.7S 14118.2E – Koror (ROR) 0722.1N 13433.0E – ENDAX 1415.0N 13000.0E – BISIG 2027.0N 12500.0E – TINHO 2421.2N 12201.7E
Flight Level Band	FL250 – FL430
Benefit (fuel, environmental)	163 NM / 15 minutes, 1,604 kg fuel, 5,053 kg CO ₂ , 5,000 tonnes fuel, 15,700 tonnes CO ₂ annually
Operational Information (potential airlines, flight frequency, potential city pairs)	60 flights per week Taipei and beyond – Australia, New Zealand, and Papua New Guinea
Remarks: BISIG replaces the waypoint that was published in the ICAO route catalogue as that waypoint no longer exists. May also be useable as an offload route for flights between Manila and Australasia. At ATM/SG/6: PNG positive, Indonesia positive, Japan was reviewing, Philippines and Taipei yet to be discussed. At ATMSG/7: Under consideration by Philippines. 17/01/2020: Philippines supported the implementation of this route. 23/10/2020: Japan commented this route proposal was under consideration. 16/09/2021: Based on information provided by the IFATCA, implementation of this proposed route in Taipei FIR was not possible because it would cross ATS routes G581 and Q13, and traverse restricted area RCR 17. Proposed for deletion. 15/10/2021: Japan commented this route proposal was still under consideration. 25/2/2022: Japan commented no discussion, but if necessary it would be put on the agenda at future meeting.	

INTERNATIONAL CIVIL AVIATION ORGANIZATION



ASIA/PACIFIC SEARCH AND RESCUE (SAR) PLAN

Version 3.0-12 August 2019 May 2020 April 2021 **MARKUP VERSION**

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

Approved by the ATM/SG/7 and published by the
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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 Regional Air Navigation Plan (RANP, ICAO Doc 9673) objectives.

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

1.3 The scope of the Plan is the identification of:

- the current status of SAR preparedness of Asia/Pacific Region States and State SAR arrangements; and
- 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 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 APANPIRG and its contributory bodies conduct a complete review every three years from 2019 (or a shorter period determined by Asia/Pacific Air Navigation Planning and Implementation Regional Group - 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 Organisations and technical bodies.

OBJECTIVES

Introduction

2.1 Asia/Pacific States who are signatories to the Chicago Convention accept the responsibility for the provision of SAR services per the requirements of 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 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. A number of States have not reported their status at all to ICAO. 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.
- 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 Air Asia QZ8501 was lost on a flight from Surabaya 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 have highlighted vulnerabilities in the current air navigation system, including the SAR system, which have hampered timely identification and localisation 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 Organisations. 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. ICAO Document 10088 – Civil/Military Cooperation is focused on airspace management and includes SAR matters relevant to civil-military coordination in airspace management.

2.8 The 2019 edition of the IAMSAR Manual, Volume II, Chapter 7 Multiple Aircraft Operations has guidance on 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 Document 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 term, medium term 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 or other acceptable term indicating a lower form of arrangement for operational matters between SAR service providers (such as RCCs and/or 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 SAR 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 - *Search and Rescue*, 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 ATM Plan*, the *Asia/Pacific Plan for Collaborative Aeronautical Information Management* (AIM), the *Asia/Pacific 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 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 Joint Working Group on Harmonisation of Aeronautical and Maritime SAR (JWG) and related forums for issues that may affect the Plan;
- l) facilitation of a continuous reporting mechanism of State SAR capability, Annex 12 compliance and SAR performance data to the APAC 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 The Asia/Pacific Region had the largest share of Passenger Kilometres Performed (PKP), accounting for more than one third of the global total at 34.5% (Europe and North America were the two other key regions, with shares of 26.7% and 22.4% respectively). As the world's major manufacturing and distribution hub, the Asia/Pacific Region also accounted for the largest share of global air freight traffic in 2018, at 35.5%.

3.2 For the maritime industry, the United Nations Conference on Trade and Development (UNCTAD) Review of Maritime Transport 2017 reported that Asia remained the main global cargo loading and unloading area in 2016 with the largest world shipping tonnage share of 40% Loaded and 61% Unloaded. Growth in the cruise ship industry together with the many other forms of maritime transport such as fishing vessels and passenger ferries creates 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 who are signatories to the Chicago Convention accept the responsibility for the provision of SAR services per the requirements of 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.

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:

- Association of Southeast Asian Nations (ASEAN) and ASEAN Regional Forum (ARF);
- Asia Pacific Economic Cooperation (APEC);
- South Asian Association for Regional Cooperation (SAARC);
- Secretariat of the Pacific Community (SPC); and
- 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 ARCCs/ARSCs and MRCC/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 Rescue Sub-Centres (JRSCs) of the other partner States which may not necessarily need to be manned 24 hours but could be activated when required.

Commented [SS1]: ICAO HQ Comment:

FYI, JWG26 included moves to amend IAMSAR manual to promote the use of a 'virtual' JRCC, whereby the systems etc are joined-up/shared, even though for whatever reason the physical RCCs are not co-located. Should be added to the 2022 Manual. Will appear as: **Note:** A JRCC may be established either by physical co-location or by the integration of communications, information and computer technology between an ARCC and an MRCC to achieve full search and rescue coordination functionality." in section 2.3

ABBREVIATIONS AND ACRONYMS

ADS-B	Automatic Dependent Surveillance-Broadcast
ADS-C	Automatic Dependent Surveillance-Contract
ADT	Autonomous Distress Tracking
ANRF	Air Navigation Reporting Form
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
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
CONOPS	Concept of Operations
COSPAS-SARSAT	Cosmicheskaya Sistema Poiska Avariynyh Sudov-Search and Rescue Satellite-Aided Tracking
EI	Effective Implementation
ELT	Emergency Locator Transmitters
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)
IMO	International Maritime Organization
IORA	Indian Ocean Rim Association
iSTARS	Integrated Safety Trend Analysis and Reporting System
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
LOA	Letter of Agreement
MCC	Mission Control Centres
MEOSAR	Medium-altitude Earth Orbit Search and Rescue
MRCC	Maritime Rescue Coordination Centre
MRO	Mass Rescue Operations
MRSC	Maritime Rescue Sub-Centre
OJT	On-the-Job Training
PQs	Protocol Questions
PSCS	Preferred SAR Capability Specifications
RANP	Regional Air Navigation Plan
RCC	Rescue Coordination Centre
RPK	Revenue Passenger Kilometres
RPAS	Remotely Piloted Aircraft Systems
SAR	Search and Rescue
SARPs	Standards and Recommended Practices
SAARC	South Asian Association for Regional Cooperation
SAREX	SAR Exercises

Asia/Pacific SAR Plan V3.0

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	Secretariat of the Pacific Community
SPOC	SAR Point of Contact
SRR	Search and Rescue Region
SRU	Search and Rescue Unit
SWIM	System Wide Information Management
UNCLOS	United Nations Convention on the Law of the Sea
USOAP-CMA	Universal Safety Oversight Audit Programme – Continuous Monitoring Approach
VSP	Variable Set Parameter

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 ~~Annex 12 — Search and Rescue~~^{12 Search and Rescue}, and associated procedures and guidance material.

5.2 ICAO APAC Regional Office maintains an Air Navigation Deficiencies List. 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 ANS Deficiency information had been populated into the ICAO iSTARS (Integrated Safety Trend Analysis and Reporting System) CHECK database and was accessible through the ICAO Secure Portal. The intention is to merge this data with the CMA Data, and manage the deficiencies using a single web-based process.

Asia/Pacific SAR System Monitoring

5.4 Significant Annex 12 compliance weaknesses had been identified within the Asia/Pacific region based upon information provided (and in many cases not provided) by States to the ICAO Regional Office. This regional information status of the SAR capability and SAR agreements was recorded in tables made available to APANPIRG, which was expected to be enhanced with the integration of SAR elements into the Seamless ATM on-line monitoring system.

ICAO Global Aeronautical Distress and Safety System (GADSS)

5.5 The tragedies of Malaysia Airlines flight MH370 in 2014 and Air France flight AF447 in 2009 highlighted vulnerabilities in the air navigation system which hampered timely identification and location of aircraft in distress, particularly in remote oceanic areas. This significantly hindered effective SAR efforts and recovery operations.

5.6 As part of the response to the Conclusions and Recommendations from the 2014 ICAO Multi-disciplinary Meeting on Global Tracking, ICAO developed a Concept of Operations (CONOPS) for a GADSS. The implementation of this target concept affects the provision of services such as air traffic control, SAR and accident investigation. It contained a large number of measures targeting improvements in SAR system response integrated within the wider ATM and aircraft/airline operations systems.

5.7 The CONOPS notes that the effectiveness of the current alerting systems and SAR services should be addressed by a number of key improvement areas. The CONOPS also included aspects which potentially involve use of different distress systems, including for example 406 MHz Emergency Locator Transmitters (ELTs) and the Cospas-Sarsat system as part of the proposed GADSS solution.

5.8 Guidance on the aircraft tracking function is provided in ICAO Circular 347, *Aircraft Tracking Implementation guidelines*. Chapter 8 outlines procedures to be followed when an operator notifies an ATSU of a missed aircraft 15 minute tracking report. This circular is for aircraft operators and civil aviation authorities, and applies to the aircraft tracking function that commenced 8 November 2018. Of particular relevance is Section 8.2 and Appendix C *Missed 4D/15 Position*

Report Form for Operator. The operator is required to notify the air traffic services unit (ATSU) of a missed aircraft 4D/15 tracking report (four-dimensional position of individual aircraft in flight at 15-minute intervals). The information that the operator has to provide the ATSU closely aligns with what the ATSU has to provide the RCC. However, the ATSU-to-RCC requirement does not have a standard form and it is not automated (machine-to-machine).

5.9 The ADT device notifies the aircraft operator (the airline) of the last known position of an aircraft that may be in a distress condition in flight. ADT activation is a notification, not a distress alert. This would be at one-minute intervals while the aircraft is in flight. The operator is responsible to make the position information available to the ATSUs and RCCs. ICAO is leading the effort to create an ADT ~~distress tracking repository (DTR)~~ Location of Aircraft in Distress Repository (LADR) as a database for storing the ADT information. The ~~DTR-LADR~~ would then notify the aircraft operator, and if subscribed, the ATSU and RCC that ADT information relevant to them is in the ~~DTR~~LADR for those stakeholders to pull the data.

5.10 The ATS unit may already be informed by other means of an emergency situation, such as -from the aircrew. The aeronautical alerting process is based on the ATS unit making the decision about whether or not the aircraft is in distress and, if determined to be a distress situation, must notify the RCC immediately before contacting the operator per Annex 11. ICAO has not prescribed a specific technology for the ADT device but one of the technologies will be a new version of the aeronautical 406 MHz emergency locator transmitter – the ELT Distress Tracking ELT(DT)

5.11 ADT notifications from the ELT(DT) will be delivered directly to SAR services using the existing Cospas-Sarsat ground segment infrastructure. Having the

5.12 Having the ADT notifications from the ELT(DT) going directly to an RCC was not the original intent of ICAO and is a major change in the aeronautical alerting process envisaged under the GADSS. RCCs need to prepare for the ADT capability and that the aircraft could remain in flight across multiple SAR regions. Appendix 1 contains specific guidance on RCC procedures for ADT signals.

5.13 ADT notifications from the ELT(DT). RCCs may need to update SAR practices and procedures before 1 January 2021 for concerns such as:

- accurate delimitation of SAR regions to ensure proper transfer of the SAR operation to the next responsible RCC;
- effective and efficient coordination between the ATS unit (or aeronautical RCC) and the maritime RCC;
- harmonized operations between aeronautical and maritime SAR services; and
- initial response to an ADT notifications from the ELT(DT) includes rapid contact with the ATS unit to notify and confirm if the aircraft is in distress.

Cospas-Sarsat System

5.14 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 2020, 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 be part of the Cospas-Sarsat Space Segment. –

5.15 This architecture would permit determination of an end-of-flight distress incident location (independent of any location data transmitted in the beacon message) beginning with the first

Commented [SS2]: ICAO HQ Comment:

There is work ongoing to put an updated version of this form (mostly editorial changes for clarity) into PANS-OPS, with a proposed applicability date of 5 Nov 2020. The work should go before the ANC in the next session I believe.

Commented [SS3]: ICAO HQ Comment:

It should be. They should be using the ALR message on the AFTN. PANS-ATM Appendix 3 refers.

Commented [SS4]: ICAO HQ Comment:

Renamed following comments that the name was confusing (made it seem like an alert!) at a workshop in April this year.

Commented [JW5]: My view is that lots of RCCs and ATSU will not subscribe to these notifications, as they're going to get lots that will be unnecessary, since the operator will verify them as non-events. Also, the ATSU/RCC can do nothing with the information until the operator calls, so it's just a distraction. However, I may be wrong!

Commented [SS6]: ICAO HQ Comment:

My view is that lots of RCCs and ATSU will not subscribe to these notifications, as they're going to get lots that will be unnecessary, since the operator will verify them as non-events. Also, the ATSU/RCC can do nothing with the information until the operator calls, so it's just a distraction. However, I may be wrong!

Commented [SS7]: ICAO HQ Comment:

Be careful! We don't want the RCC pestering the ATSU. The question is, how much time is appropriate for RCC to wait (assuming RCC receives notification of ADT... they will from ELT(DT) but perhaps not from other ADT sources?)

burst from the distress beacon.- This could mean near real-time and very frequent delivery of distress alerts.

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

5.17 The technical specifications for the second generation 406 MHz distress beacon has been approved, including ELTs. -This new generation of beacons should further improve speed and accuracy in locating an activated distress beacon. -The period from beacon activation to first transmission was expected to be reduced from 50 seconds to three seconds.- The specification would consider in-flight activation of ELTs when certain flight parameters were exceeded. -Consequently, false alerts would affect real SAR events significantly.

5.18 States needed to continue to ensure that aviators were aware that 121.5 MHz and 243 MHz beacons cannot be detected by the global Cospas-Sarsat System and the low-power 121.5 MHz signal on the 406 MHz distress beacon was only intended as a final homing signal.

5.19 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 on beacon registration is at: <http://www.cospas-sarsat.int/en/beacons-pro/beacon-regulations-pro/ibrd-user-information-for-professionals>).

5.20 Entries in the beacon register should be available to both aeronautical and maritime RCCs on a 24 hour basis (Annex 12 – *Search and Rescue* refers, although Annex 10 establishes the registration requirement).

ICAO Annexes

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

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);
and

Annex 19 – *Safety Management* (particularly SAR services under the authority of an ATS provider).

CURRENT SITUATION

Global Situation

6.1 The ICAO USOAP Report of audit results, 3rd Edition, April 2005 to August 2010 revealed a number of SAR deficiencies during the audits of 165 Member States: [REVIEW AND UPDATE](#)

- 38% of States had not laid down provisions for entry into their territory of SAR units (SRU) of other States for the purpose of search for the site of aircraft accidents and rescuing survivors;
- 44% of States had not developed a detailed plan on operation for the conduct of SAR operations within their respective Search and Rescue Regions (SRRs); and
- 67% of States had not established the necessary coordination of their SAR organisations with those of neighbouring States, including the conclusion of bi-lateral SAR agreements in order to coordinate SAR operations; and
- regarding RCCs –
 - i. about 40% of States had not developed job descriptions for their technical staff;
 - ii. 45% did not ensure that RCC personnel using radiotelephony communications were proficient in the use of the English language; and
 - iii. about 56% of States do not regularly train their SAR personnel, and nor did they conduct SAREXs.

Asia/Pacific SAR Analysis

6.2 The last decade has seen a steady increase in air traffic in the Asia/Pacific Region. Maritime traffic is also increasing, adding further urgency to ensure that States with oceanic SAR responsibilities in the region meet the requirements of both ICAO and IMO for the provision of aviation and maritime SAR services.

6.3 An analysis of the 26 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 50.7% in July 2015 to 58.99% in March 2019. **Figure 1** provides the EI of individual SAR-related PQs in March 2019.

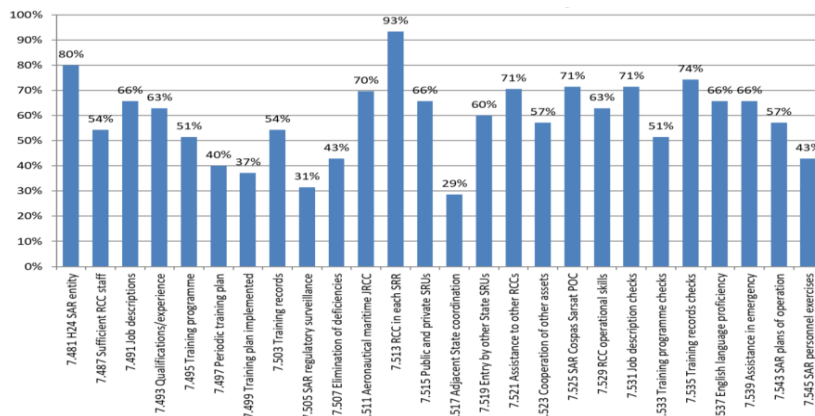


Figure 1: APAC USOAP CMA SAR PQ Compliance (average: 59%, **March 2019**)

6.4 From this analysis, it appeared that the major areas of weakness is in coordination with adjacent States, effective SAR oversight, and training of SAR staff that provide the SAR services. 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. -Finally, there was a 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 did not require SAR-specific technical training, but was more focused on effective audit and inspection techniques, etc.

6.5 The current analysis indicated significant Annex 12 compliance weaknesses remained in the South Asia area and the Southwest Pacific.- In addition, there were parts of Southeast Asia and East Asia that indicated a need for compliance improvement.

6.6 With the advent of the Asia/Pacific SAR Plan and its more comprehensive expectations, an accurate assessment of capability aligned with the SAR 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, noting that implementation was scheduled for 2019.

Asia/Pacific SAR Coordination Forums

6.7 The Asia/Pacific Region will benefit from the cooperation and coordination of States and International Organizations involved in the APSAR-SAR Working Group.- 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.

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

6.9 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 ~~xxx~~-2 provides a summary of benefits to the SAR System of States assisting other States.

Barriers

6.10 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;

Commented [SS8]: ICAO HQ Comment:

Is one of these set up already? [ICAO HQ] has given this idea some initial consideration. Coordination may be needed to avoid duplication of effort.

- 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

6.11 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 JWG, ICAO High Level Safety Conferences, etc.

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

- a) Financial-
 - funding for 24 hour RCC facility and staff;
 - funding for use/hire of search and rescue units; and
 - 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, 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, etc.;
 - information technology-
 - RCC workstation computers;
 - Software including basic databases, drift modelling, incident management, etc.;
- e)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)d) Search and Rescue Units (SRUs)-
 - available and suitable SAR aircraft and crews;

Commented [SS9]: This item was previously listed as paragraph 6.12 sub-paragraph d). ICAO HQ suggested it should instead be a bullet point under 6.12 c) for consistency. Change made accordingly.

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- funding arrangements/agreements for hiring/payment/sharing of SRUs to permit rapid deployment; and
- 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.);

e) Training support-

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

• Other SAR Units-

- ~~–~~ aeronautical units
- maritime units
- land units
- specialised units (paramedical, divers, etc.)

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PERFORMANCE IMPROVEMENT PLAN

Preferred SAR Capability Specifications (PSCS)

Note: PSCS are the non-mandatory expectations on all Asia/Pacific Region 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 Annex 12 standards.

PSCS (expected implementation by 07 November 2019)

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;
 - iii. International Convention for the Safety of Life at Sea (SOLAS), 1974;
 - iv. Convention on the High Seas, 1958; and
 - v. United Nations Convention on the Law of the Sea (UNCLOS), 1982;
- 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 SAR Mission Coordinators with the authority to adequately carry out their responsibilities;
- e) establish an Administrative Single Point of Contact for SAR (ASPOCS) for non-urgent, administrative matters, such details to be submitted to the ICAO Regional Office;
- f) conduct studies to check the feasibility for, and develop an implementation plan if practicable, the integration of aviation and maritime SAR activities, and as far as practicable, civil and military activities, including joint training and familiarisation of staff and review of documentation to ensure harmonisation of procedures, and joint exercises;
- g) conduct studies to align, as far as practicable, aeronautical and maritime Search and Rescue Regions (SRRs); and SRRs and Flight Information Regions (FIRs); and
- h) establish a single State SAR Plan that –
 - i. designates the responsible RCC(s), RSC(s) and ~~ASPOC/24-hour SPOC/ASPOC~~;
 - ii. describes the relevant SRRs, including the coordinates and geographical chart depiction of the SRR and neighbouring SRRs;
 - iii. details the National SAR Committee;

Commented [JW10]: I'd change the order here to emphasise the difference between SPOC and ASPOC

Commented [SS11]: Change proposed by ICAO HQ to emphasize the difference between ASPOC and 24-hour SPOC.

- iv. details the governmental and non-governmental agencies with authority and responsibility for SAR coordination within its territories and designated area of responsibility;
- v. details required and available SAR facilities, personnel, and equipment;
- vi. details the SAR manuals, plans and procedures for national and regional cooperative SAR response arrangements;
- vii. details the SAR personnel training and competency programme, qualification standards, SAR certification if applicable and SAR cooperation training;
- viii. details the SAR agreements required;
- ix. is electronic and accessible on the Internet, such details to be submitted to the ICAO Asia/Pacific Regional Office; and
- x. is monitored by quality assurance processes.

7.2 SAR Standards and Procedures: All States should:

- a) establish aerodrome emergency plans that provide for co-operation and co-ordination with RCCs;
- 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-adjointing aeronautical and maritime SRRs);
- c) provide up to date cross-border information on SAR capability (this should be included in bilateral SAR agreements);
- d) pre-arrange procedures for cross-border SAR responses (this should be included in bilateral SAR agreements);
- e) establish a program for regular SAREX, which may be a desktop communications exercise, with each alternate SAREX being a full exercise (this expectation may be fulfilled by participating in a sub-regional SAREX that tests the State's SAR system); ~~and~~
- f) establish RCC plans for response to Mass Rescue Operations (MROs) integrated with national disaster plans;
- g) establish SAR Operations Plans between the State's SAR Authorities and Government, Military and Commercial operators, including those with an over-water rotary wing or sea plane capability, to include:
 - 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, email, fax, etc.); and
- h) 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; and
- iii. where applicable, include protocols for civil and military support and sharing of information.

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 a major search 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 SRR, neighbouring SRRs, FIR(s), SAR resources and made available for all relevant aeronautical and maritime RCCs, ATS units, aircraft operators; and
 - iii. provide a means of plotting;
- d) ability to reliably receive and acknowledge distress alerts 24 hours a day;
- e) maritime broadcast facilities;
- f) a means of recording, playback and archiving of communications;
- g) shipping/vessel communications and maritime broadcast facilities such as Coastal Radio Stations, RCC radio and satellite communications, marine radio networks;
- h) aircraft communications – via ATS units, aircraft operators, satellite communications or direct between RCC and aircraft;
- i) access to aircraft and ship tracking data, e.g. ATS surveillance data, Automatic Identification System and Long Range Identification and Tracking of Ships (LRIT) allowing rapid identification of potential aircraft and vessels that may divert to assist;
- j) a means of obtaining meteorological information – forecast, present and historical data;
- k) if applicable, drift modelling software;
- l) if applicable, ocean data including sea temperature, currents, winds, tides, etc.;
- m) if applicable, SAR Datum Buoys, preferably with satellite tracking capability; ~~and~~
- n) RCC documentation and reference material such as plans of operation, procedures manuals, guidance material, ICAO and IMO references, SAR agreements;

- o) Cospas-Sarsat equipment and reference material; and
- p) SWIM-enabled systems that can evolve the sharing of Flight Data, Aeronautical Information and MET 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 ATSES resources (either an ATS supervisor or other staff) that can provide relief within Area Control Centres (ACCs) to allow timely response to SAR alerts and information to RCCs;
- b) provide sufficient RCC staffing;
- c) provide a sufficient number of trained specialist RCC officers including SMCs and Assistant SMCs (A/SMCs);
- d) 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 during SAR incident response;
- e) develop SAR personnel position descriptions that detail responsibilities and eligibility criteria for recruitment of operational staff;
- f) develop a comprehensive training programme that includes SAR training for:
 - i. RCC SAR Coordinators (SCs) based on a competency-based assessment approach to ensure technical and English language proficiency, cyclical (periodic) instruction that provides continuous training to ensure competency is maintained, and a system for maintaining training records; and
 - ii. SRU staff, including military personnel.
- g) facilitate RCC staff to be proficient in the English language; and
- h) facilitate a programme of regular liaison visits between relevant RCCs, ATSE units and airline operating centres in order to understand those organizations, facilities and capabilities (reference Annex 12, paragraph 3.1.9).

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*: All States should establish capabilities enabling:

- a) availability and deployment of suitably crewed, trained and equipped SRUs (including 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 cross-border (requiring diplomatic pre-approval) or cross-SRR boundary (which may not require diplomatic approval if operating within international airspace); and
- h) aircraft with the ability and regulatory approval to safely conduct SAR missions.

Note: guidance material on SAR aircraft capability is found in the IAMSAR manual.

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;
- 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, EPIRBs and PLBs, and update the registration data as information changes (e.g., change in ownership);
 - ii) is available to RCCs 24 hours a day and includes up-to-date registration details for all national civil and military ELTs, 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, 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 promotional programmes, including, where appropriate, with airworthiness agencies and civil aviation authorities, related to the minimization of false alerts.–

Note 1: Information on beacon registration is 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 when a SAR service is not able to be provided, 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:
 - 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 System Wide Information Management – 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, and provide the Internet link to that list to the ICAO Asia/Pacific Regional Office.

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/>); and
- 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 SAR Plan/electronic Air Navigation Plan; and
 - v. 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 web site 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 Air Navigation Service Providers (ANSPs) and Airline Operations Centres (AOCs);
- b) where appropriate, cross-aeronautical SRR boundary coordination (SAREX should routinely involve SAR authorities of adjacent SRRs); and
- 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.

Note 1: a SAREX template is provided in the 2019 edition of 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.

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 to the Head of the entity responsible for SAR services on matters of quality assurance; and
- e) where appropriate, provides submissions to the JWG 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: Provisions of Annex 19 for a Safety Management System (SMS) may apply where a SAR service is provided under the authority of an ATS provider (Annex 19, Chapter 3, 3.1.3 e refers).

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 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.
- 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 Vol I Appendix H and the ICAO USOAP-CMA Protocol Questions for SAR may assist States with their reviews.

Note 2: 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 public safety campaigns aimed at preventing persons getting into distress situations (i.e.: 'preventative SAR');
- b) ensure the support of government decision-makers for SAR facilities and improvements, in particular adequate funding availability;
- c) assist media to understand SAR operations in order to minimise the need for explanations during SAR responses;
- d) recognise improvement in State SAR systems;
- e) enhance cooperation between SAR services and –
 - i. civil, military and police agencies;
 - ii. ANSPs;
 - iii. aerodrome and port operators;
 - iv. aircraft and shipping operators;
 - v. meteorological agencies;
 - vi. accident investigation agencies;

- vii. government and non-government agencies affected by SAR operations, in particular large scale national and international responses involving whole of government agencies; and
- viii. other States.

Note: social media may be an effective means of SAR promotion that reduces the workload of SAR staff during major SAR responses.

EMERGING ISSUES AND FUTURE DEVELOPMENTS

Planning for the Future

~~8.1~~ ~~(New numbering required)~~ 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:

- the need to cater for increased growth or changes in air and maritime traffic through SAR regions 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; and
- new technology such as UAS, autonomous vessels, new distress alerting devices and systems.

Research and Development

~~8-18.2~~ 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 Seamless ATM Principle 36 (*Inter-regional cooperation ('clustering') for the research, development and implementation of ATM projects*), and may manifest itself in joint projects such as:

- ICAO and/or IMO regional SAR training opportunities, where provided, to assist States that are unable to provide their own SAR training;
- 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
- Regional online eLearning packages.

Note: Appendix 2 provides a summary of benefits to the SAR System of States assisting other States.

~~8-28.3~~ 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. – The following are possible areas that should be considered for future SAR research and development, in order to promote the maximum possible harmonisation 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;

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- d) inclusion of the SAR system and RCC access as a component of the ~~new~~ 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; 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, effective 07 November 2019.

9.2 States should commence planning for the various PSCS elements from the approval of this Plan, to ensure a smooth transition by 07 November 2019, and should include consideration of issues such as:

- safety/operational analysis and assessment;
- cost-effectiveness;
- budgetary issues;
- development of operational procedures; and
- training.

9.3 Section 8 (*Research and Future Development*) provides, subject to future agreement by concerned parties, possible SAR improvements beyond 2020 until 2030.

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. -All States should note the importance of SAR status monitoring, which is expected to be conducted as part of the Seamless ATM on-line monitoring. -Reporting of implementation progress of SAR elements from this Plan is expected to be conducted by the on-line Seamless ANS Reporting and Monitoring system, once this system is enabled to include the subsidiary plan such as the Asia/Pacific SAR Plan.

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 and 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 Asia and Pacific Regional Office was responsible for coordinating with adjacent ICAO regional offices on an ad hoc basis or at relevant trans-regional meetings.

APPENDIX 1: RCC PROCEDURES FOR AUTONOMOUS DISTRESS TRACKING (ADT) SIGNALS

Asia/Pacific States and territories need to prepare for the implementation of functions of the Global Aeronautical Distress and Safety System (GADSS). GADSS applies to certain passenger and cargo aircraft. The first phase commenced 8 November 2018 for the aircraft tracking function of automated reporting of position at least every 15 minutes. The next phase commences 1 January 2021 for the autonomous distress tracking (ADT) function of reporting at least once every minute. It is possible for the ADT to transmit as the aircraft flies across multiple SAR regions and flight information regions. [WP13 US comments change ADT to ...](#)

The sharing of GADSS alerting information requires global coverage and a global interoperable systems approach. Aircraft tracking and ADT ~~alert-notification~~ information for aircraft emergency conditions need rapid distribution to the aircraft operator, ~~and possibly the~~ responsible ATSU and the responsible RCC. Effective sharing of this information to the responsible stakeholders requires well defined, accurate and readily accessible global flight information region and SAR region data, plus reliable 24-hour contact details for the aircraft operators, ATSUs and RCCs. For many States, these are key areas needing improvement to enable effective SAR response. ~~And, Territories which may not have an RCC but have an international airport, need to be prepared to correctly react when an RCC or ATSU informs it of such a possible inflight emergency.~~

RCC Procedures for no later than 1 January 2021

The RCC will greatly benefit from autonomous distress tracking (ADT), which provides timely detection of an aeroplane in distress and the last known location of the aeroplane. Current RCC processes are established under the provisions of ICAO Annex 11 and ICAO Annex 12 – *Search and Rescue*, and apply to the aeronautical RCC (ARCC). However, the International Convention on Maritime SAR also established a global maritime search and rescue system but uses maritime RCCs (MRCCs). To ensure close coordination between the aeronautical and maritime SAR services, States are expected to either establish a joint RCC (JRCC) or to ensure the closest practicable coordination between the ARCC and MRCC.

Note: In this plan, the term RCC will be used to apply to an ARCC, MRCC or JRCC.

While the ADT process is new, it is anticipated that the alerting process for the RCC will not ~~fundamentally~~ change.

The distress ~~alert~~ notification processes associated with ADT, based on ICAO Annex 11, Chapter 5 can be summarized as follows:

- if an ATSU detects an aeroplane in distress it will notify the RCC and the operator;
- if the operator detects an aeroplane in distress, it will notify the ATSU who will in turn notify the RCC;
- if an ELT is activated, the RCC will be notified via the Cospas-Sarsat system and the RCC will subsequently notify the ATSU and the aircraft operator;
- ADT notifications, including- from the ELT(DT), provide the last known position of an aircraft that may be in a distress condition in flight; and, the aircraft operator, ATSU and RCC will be notified when the information is available from the ADT distress tracking repository; and

- The RCC should confer with the ATSU to decide if the ADT notification is a distress alert. It may be appropriate to consider this as in at least the uncertainty phase until further information is provided by the ATSU or aircraft operator.

As specified in Annex 11, Chapter 5, not only is the ATSU expected to notify the RCC immediately when an aeroplane is considered to be in a state of emergency, the notification is expected to contain as much as is available of information listed in that chapter. This list of information closely aligns with content of the "Missed 4D/15 Position Report Form for Operator" that the operator should provide in notifying an ATSU, as identified in ICAO Circular 347, *Aircraft Tracking Implementation Guidelines*, Chapter 8 – *Operator Missed Reports Notifications to ATS Unit*. [CHECK WITH HQ](#)

Once notified of a distress, the RCC will initiate action based on preparatory measures and operating procedures set forth in Annex 12. Under preparatory measures, the RCC is required to have readily available at all times up-to-date information concerning its search and rescue region, including ATSU's addresses and telephone numbers of all operators, or their designated representatives, engaged in operations in the region, and MRCCs which are not part of a JRCC.

If the ATSU was not the notification source, the RCC should contact the ATSU to confirm the possible distress and have the ATSU gather further information, which would be the list of information in Annex 11 and the most recent 4D aeroplane position data leading up to the ADT activation. These actions are taken concurrently as the RCC immediately initiates search and rescue actions. When the information concerning the emergency is received from another source, such as the ELT alert going directly to the RCC via the Cospas-Sarsat system, the RCC will notify the associated ATSU and also notify the operator, where possible, and keep the operator informed of all developments. (The MRCC does not have a requirement to notify the operator but should try to have arrangements in place to notify or seek the support of the ARCC or ATSU to notify the operator.)

The responsible RCC and the associated ATSU serving the flight information region (FIR) in which the aeroplane is operating coordinate their activities and work closely together. The RCC is expected to provide that ATSU with planned SAR action initiated by the RCC so that such information can be passed to the aeroplane.

If the aeroplane in distress continues in flight and crosses into other SAR region(s), the first RCC originally notified will contact and coordinate with the other RCC(s) to decide which RCC will have responsibility to coordinate the SAR operation. If coordination is handed off to another RCC then its associated ATSU would be expected to support that RCC.

The RCC and ATSU will keep each other informed as to changes in the emergency phase after the initial declaration as well as if the aeroplane has resumed normal operations or safely landed, and, as soon as practicable, notify the operator concerned.

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Provisions are with the Commission (as at 18 October 2019) that will update this form and insert it into PANS-OPS.

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As a theoretical subscriber to the LADR, the RCC should be able to get this position data itself, not need to ask the ATSU for it.

APPENDIX 2: BENEFITS TO THE SAR SYSTEM OF STATES ASSISTING OTHER STATES

APAC States Face Demanding SAR Responsibilities with Few Resources

2.1 Many APAC 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 Annex 12 requirements.

Taking A Regional Approach Improves Effectiveness and Efficiency

2.2 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

2.3 Sometimes simple measures can reduce the incidence of SAR operations in a State's Area of Responsibility.

2.4 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.

2.5 Another example is where Australia has recognised 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 has commenced a new project 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.

2.6 States who aren't compliant with Annex 12 SARPs and who are unable to meet the minimum SAR service requirements could consult and seek assistance from 'champion' States who are compliant and have well developed SAR systems in place.

2.7 Examples of assistance that could be provided by States, International Organisations (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.-

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SAIOSEACG/1
Appendix H to the Report

SAIOSEACG — TASK LIST

(Last updated at the SAIOSEACG/1)

ACTION ITEM	DESCRIPTION	TIME FRAME	RESPONSIBLE PARTY	STATUS	REMARKS
3 (SEACG)	Radar data sharing	SEACG/28 SAIOSEACG/2	Lao PDR, Thailand	Open	<p>Raised at SEACG/16.</p> <p>Lao PDR and Thailand agreed to share the radar data. Lao PDR and Thailand will further coordinate. To discuss at the Mekong meeting, and report to SEACG24.</p> <p>Task updated at SEACG/26. No report received.</p> <p>MEKONG to discuss and report to SEACG/27.</p> <p>Task updated at SAIOACG/10 and SEACG/27. No report received.</p> <p>Updated at SAIOSEACG/1: Thailand may need to reconsider cost and benefit of the project before going to the next step due to COVID-19 impacts.</p>
2/10 (SAIOACG)	<p>Investigate capability and timeline to implement 30NM longitudinal and 23NM performance-based lateral separation minima</p> <p>BOB States to present the analysis outcomes of local fleet equipage and the expected PBCS implementation date for RNP4 with 30NM longitudinal and 23NM lateral performance-based separation minima. IATA to survey member airlines on their RNP and PBCS readiness for possible non-exclusive mandate of January 2024.</p>	BOBTFRG/3 BOBTFRG/4	BOB States, IATA	Open	<p>India has implemented 30/30NM on four ATS routes in the near term. Adjacent States should consider a coordinated implementation of similar performance-based separations, taking into account PBCS requirements. This task is also part of the BOBTFRG.</p> <p><u>BOBTFRG/2 developed and agreed the implementation timeline for 30NM longitudinal spacing over BOB airspace, expected by 2024, which also require the mandating of ADS-C/CPDLC by 1 January 2023.</u> Due to the COVID-19 impact on airline operators, IATA requested for the discussion on the mandate proposal to be deferred until Q2-Q4 2021.</p> <p>Discussed at BOBTFRG/3 on a non-exclusive mandate of implementation timelines for the BOBTFRG Priority Areas. (Refer to Appendix E to the Report of BOBTFRG/3)</p> <p>Updated on 17 Mar 2022 by IATA – survey for analysis is on-going, showing majority of its member airlines are mostly PBCS capable and approved.</p> <p>Updated at SAIOSEACG/1 WP04</p>

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ACTION ITEM	DESCRIPTION	TIME FRAME	RESPONSIBLE PARTY	STATUS	REMARKS
4/4 (SAIOACG)	India to present paper on the follow up actions of tasks identified in SAIOACG/4 SEACG/21 Appendix E (2014)	BOBTFRG/3 BOBTFRG/4	India	Open Closed	No progress or update since 2014
17 (SEACG)	L642/M771 to reduce longitudinal spacing 50NM to 20NM	SCSTFRG/9 SCSTFRG/10	China, Hong Kong China, Singapore, Viet Nam	Open	SEACG/21 - Reduce longitudinal separation from 50NM to surveillance-based separation on L642/M771. Hong Kong agreed to in 2016, subject to a moratorium period of six months after the NATS review 2018. Updated at SEACG/26. Discussion between Hong Kong and Sanya ACCs for implementation of 20NM longitudinal spacing in progress. SCSTFRG/9 Report re: WP/02. Updated on 14 Feb 2022 by HK China – Discussion on-going with positive progress btw Sanya and HK China, and Singapore is ready, pending Viet Nam’s active engagement. Updated on 16 Feb 2022 by Viet Nam – already agreed to 20NM implementation on 23 Nov 2021
8/1 (SAIOACG) 27/1 (SEACG)	Resolve FIR and SRR boundary data. Report status to Regional Office	October 2022	Bangladesh, Cambodia, China, Hong Kong China, India, Japan, Myanmar, Pakistan, Thailand, Viet Nam	Open	SAIOACG/8 and SEACG/25 Report re: WP07. Regional Office to Report to ATM/SG/6. SAIOACG/10 and SEACG/27 Report re: WP12. SAIOSEACG/1 Report re: WP11
8/5 (SAIOACG)	Revise PfAs for Arabian Sea ATS Routes, and coordinate with ESAF Region	SAIOACG/11 SAIOSEACG/2	India, Secretariat	Open	SAIOACG/8 and SEACG/25 Report re: WP29.
8/8 (SAIOACG)	Present final planning assurances (bypass plans) and update Contingency Coordination Team information for Afghanistan Contingency Plan	SAIOACG/11 SAIOSEACG/2	India, Pakistan	Open	SAIOACG/8 and SEACG/25 Report re: WP19.

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8/9 (SAIOACG)	Bay of Bengal Danger Areas – tactical coordination, reduced vertical limits, correction of AIP and NOTAM promulgation to align with Annex 15	ATM/SG/9 ATM/SG/10	Bangladesh, India, ICAO	Open	SAIOACG/8 and SEACG/25 Report re: WP28. SAIOACG/10 and SEACG/27 Report re: WP23.
25/11 (SEACG)	Phnom Penh ATS Contingency Routes and FLAS	SEACG/28 SCSTFRG/10	Cambodia, Lao PDR, Thailand, Viet Nam	Open	SAIOACG/8 and SEACG/25 Report re: WP32. Updated SEACG/26. Task updated at SAIOACG/10 and SEACG/27. Updated at SAIOSEACG/1 – Thailand provide feedback that Cambodia, Lao PDR, Malaysia and Myanmar signed on ATS LOA for ATM Contingency Routes and FLAS, and new version published in the AIP-Thailand. Cambodia – drafted ATM Contingency Plan (effective date 1 Apr 2022) with plan for LOA coordination with Thailand, Lao PDR for revision and Viet Nam for new.
26/2 (SEACG)	Philippines to report on activity to rectify HF voice communications reliability/availability problems	SEACG/28	Philippines	Open Completed	SEACG/26 Report IP03. Post- SAIOACG/10 and SEACG/27 Meeting Update 12 April 2021: Philippines advised Manila Sector 9 has been implemented. Airspace users indicate CPDLC communications satisfactory in Manila FIR, but long-term unreliability/unavailability of HF voice communications persists. (refer to SCSTFRG/9 FL01)
26/7 (SEACG)	Finalize ANP PfA for SCS bypass route north from Biak	ATM/SG/9 ATM/SG/10	Indonesia, USA, Secretariat	Open	SEACG/26 Report WP26. Task updated at SAIOACG/10 and SEACG/27. Task updated at SAIOSEACG/1

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ACTION ITEM	DESCRIPTION	TIME FRAME	RESPONSIBLE PARTY	STATUS	REMARKS
26/8 (SEACG)	Coordinate implementation plan RNP 2 nav spec on ATS routes L642, M771, N892	SCSTFRG/9 SCSTFRG/10	China, Hong Kong, China, Philippines, Singapore, Viet Nam, IATA	Open	SEACG/26 Report WP27. SAIOACG/10 and SEACG/27 Report re: WP16 No update at SCSTFRG/9 Update by Singapore (14 Feb 2022) – ready to implement Update by Viet Nam (16 Feb 2022) – fully support, or alternatively RNP4 if not air operators equipage issue Updated at SAIOSEACG/1 - HK China wishes to go for RNP 2 after 20NM longitudinal separation
10/1 (SAIOACG)	Engage in three party discussion between India, Indonesia and Malaysia to support the mitigating of LHDs at Chennai – Kuala Lumpur interface (Hot Spot A2).	BOBTFRG/3 BOBTGRT/4	India, Indonesia, Malaysia	Open Completed	SAIOACG/10 and SEACG/27 Report re: WP04. BOBTFRG/3 Report re: WP/02. BOBTFRG/3 – Indonesia, India and Malaysia agreed to make offline discussion and would report update at SAIOSEACG/1. Updated on 8 Mar 2022 by India: LHD issue had reduced to near Zero after AIDC implementation and SB ADS-B coverage. Updated at SAIOSEACG/1 – This task to be completed with LOA amendment between States concerned regarding the coordination procedures as required. Update by Malaysia: LOA between KL and Chennai had been amended to reflect the changed coordination procedures with AIDC implementation.
10/2 (SAIOACG)	Conduct a review of Myanmar Level 2 Contingency Plan, which include an additional contingency ATS route and flight levels.	SAIOACG/11 BOBTFRG/4	Bangladesh, China India, Lao PDR, Myanmar, IATA	Open	SAIOACG/10 and SEACG/27 Report re: WP18. Updated at SAIOSEACG/1 - India's discussion with Myanmar is on going
10/3 (SAIOACG) 27/3 (SEACG)	Develop a consolidated Term of Reference for ATM/SG consideration.	ATM/SG/9	ICAO RSO	Open Completed	SAIOACG/10 and SEACG/27 Report re: WP26. Endorsed by APANPIRG/32

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ACTION ITEM	DESCRIPTION	TIME FRAME	RESPONSIBLE PARTY	STATUS	REMARKS
1/1 (SAIOSEACG)	Provide updates on BOB FLAS Chart, and review LOAs with adjacent FIRs if there is discrepancy in flight levels for allocation.	30 April 2022	BOB States	Open	SAIOSEACG/1 WP04

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UPDATED: 07 April 2022

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SAR	Mr. Megat Ahmad Zuhri Bin Megat Ahmad Zubir	Senior Assistant Director, Civil Aviation Authority of Malaysia Kuala Lumpur Air Traffic Control Centre Jalan CTA 3 (KLIA) Kuala Lumpur International Airport 64000 Sepang, Selangor Malaysia	Tel: +60 3 8529 1225 Fax: +603 8787 8600	megat@caam.gov.my ;
CCT	Mr. Nasuruddin Bin Zainol Abidin	Director Civil Aviation Authority of Malaysia Kuala Lumpur Air Traffic Control Centre Jalan CTA 3 (KLIA) Kuala Lumpur International Airport 64000 Sepang, Selangor Malaysia	Tel: +603 8529 1301 Fax: +603 8529 1210	nasuruddin@caam.gov.my
CCT	Mr. Hood Bin Mustapha	Director Civil Aviation Authority of Malaysia Kuala Lumpur Air Traffic Control Centre Jalan CTA 3 (KLIA) Kuala Lumpur International Airport 64000 Sepang, Selangor Malaysia	Tel: 603 8529 1201 Fax: 603 8529 1210	hood@caam.gov.my
CCT	Mr. Johnli Bin Idek	Director Civil Aviation Authority of Malaysia Regional Office Sabah Jalan Bunga Raya P.O. Box 2065 88618 Kota Kinabalu, Sabah Malaysia	Tel: 088 224911 Fax: 088 219198	johnli@caam.gov.my

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CCT	Mr. Abdul Rali Bin Kassim	Principal Assistant Director, Civil Aviation Authority of Malaysia Kuala Lumpur Air Traffic Control Centre Jalan CTA 3 (KLIA) Kuala Lumpur International Airport 64000 Sepang, Selangor Malaysia	Tel: +603 8529 1311 Fax: +603 8529 1210	abdulrali@caam.gov.my ;
CCT	Mr. Muhammad Hafidz Bin Ibrahim	Senior Assistant Director, Civil Aviation Authority of Malaysia Kuala Lumpur Air Traffic Control Centre Jalan CTA 3 (KLIA) Kuala Lumpur International Airport 64000 Sepang, Selangor Malaysia	Tel: +603 8529 1211 Fax: +603 8529 1210	mhafidz_ibrahim@caam.gov.my ;

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ATC	Mr. Johnli Bin Idek	Director Civil Aviation Authority of Malaysia Regional Office Sabah Jalan Bunga Raya P.O. Box 2065 88618 Kota Kinabalu, Sabah Malaysia	Tel: 088 224911 Fax: 088 219198	johnli@caam.gov.my ;

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ATC	Ms. Noorashikin Binti Haron	Principal Assistant Director, Civil Aviation Authority of Malaysia Regional Office Sarawak LTAB Kuching P.O.BOX 1359 93728 Kuching, Sarawak Malaysia	Tel: 082 616532 Fax: 082 454523	noorashikin@caam.gov.my
AIS	Mr. Mohd Fitri Bin Ishak	Principal Assistant Director Civil Aviation Authority of Malaysia Kuala Lumpur Air Traffic Control Centre Jalan CTA 3 (KLIA) Kuala Lumpur International Airport 64000 Sepang, Selangor Malaysia	Tel: +603 8529 1318 Fax: +603 8529 1210	fitri@caam.gov.my ;

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SAF	Mr. Mohd Rashidi Bin Abd Rahim	Principal Assistant Director Civil Aviation Authority of Malaysia Kuala Lumpur Air Traffic Control Centre Jalan CTA 3 (KLIA) Kuala Lumpur International Airport 64000 Sepang, Selangor Malaysia	Tel: +603 8529 1313 Fax: +603 8529 1210	rashidi@caam.gov.my ;
SAF	Ms. Farhana Binti Mohamad Khairrudin	Senior Assistant Director, Civil Aviation Authority of Malaysia Kuala Lumpur Air Traffic Control Centre Jalan CTA 3 (KLIA) Kuala Lumpur International Airport 64000 Sepang, Selangor Malaysia	Tel: +603 8529 1314 Fax: +603 8529 1210	farhana@caam.gov.my ;
ARC	Mr. Abdul Rali Bin Kassim	Principal Assistant Director, Civil Aviation Authority of Malaysia Kuala Lumpur Air Traffic Control Centre Jalan CTA 3 (KLIA) Kuala Lumpur International Airport 64000 Sepang, Selangor Malaysia	Tel: +603 8529 1311 Fax: +603 8529 1210	abdulrali@caam.gov.my ;
ARC	Mr. Muhammad Hafidz bin Ibrahim	Senior Assistant Director, Civil Aviation Authority of Malaysia Kuala Lumpur Air Traffic Control Centre Jalan CTA 3 (KLIA) Kuala Lumpur International Airport 64000 Sepang, Selangor Malaysia	Tel: +603 8529 1211 Fax: +603 8529 1210	mhafidz_ibrahim@caam.gov.my

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ADM	Ms. Hajjah Binti Mohd Bujang	Deputy Director Air Navigation Services Standards Division Civil Aviation Authority of Malaysia No. 27 Persiaran Perdana, Level 3, Podium Block B, Precinct 4 62618 Putrajaya Malaysia	Tel : +603 8529 1301 Fax : +603 8529 1210	nasuruddin@caam.gov.my
ADM	Mr. Nasuruddin Bin Zainol Abidin	Director Civil Aviation Authority of Malaysia Kuala Lumpur Air Traffic Control Centre Jalan CTA 3 (KLIA) Kuala Lumpur International Airport 64000 Sepang, Selangor	Tel: +603 8871 4225 Fax: +603 8881 0510	nasuruddin@caam.gov.my ;
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	MALDIVES			

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SAF	Ibrahim Khalid	Associate General Manager, Air Traffic Services, Maldives Airports Company Limited, Velana International Airport, Hulhule'22000	Mobile: +960 777 1963	i.khalid@macl.aero

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ARC	Mr. Stanley Myazoe	Director Directorate of Civil Aviation Ministry of Transport and Communications		rmdca@yahoo.com ;
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MONGOLIA				
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CCT	Mr. Erdenebat Yondon	Deputy Director National Civil Aviation Services Center, Civil Aviation Authority of Mongolia, Buyant-Ukhaa, Khan-Uul district, Ulaanbaatar 17120	Tel: +976 71 285100 Fax: +976 70 049640	yo_erdenebat@mcaa.gov.mn ;
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AIS	Mrs. Ariungerel Purev	Director AIS Division, National Civil Aviation Center, Civil Aviation Authority of Mongolia, Buyant-Ukhaa, Khan-Uul district, Ulaanbaatar 17120	Tel: +976 11 283131 Fax: +976 70049838	ariungerel@mcaa.gov.mn ;
AIS	Mr. Ulemj Davaa	Deputy Director AIS Division, National Civil Aviation Center Civil Aviation Authority of Mongolia Buyant-Ukhaa, Khan-Uul district, Ulaanbaatar 17120	Tel: +976 71 283129 Fax: +976 70049838	ulemj@mcaa.gov.mn ;

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SAF	Mr. Odgerel Davaadorj	Safety Manager National Civil Aviation Services Center, Civil Aviation Authority of Mongolia, Buyant-Ukhaa, Khan-Uul district, Ulaanbaatar 17120	Tel: +976 71 285559 Fax: +976 70 049640	odgerel@mcaa.gov.mn ;
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NAURU				
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CCT	Mr. Mukul Mishra	Chief, CNS P & D Department Civil Aviation Authority of Nepal, Head Office, Babarmahal, Kathmandu	Tel: +977 1 4249379 Fax: +977 1 4262516 Mobile: +977 9849496700	mishramukul@hotmail.com ;
ATC	Mr. Suwarn Raj Upadhyay	Chief, ATM Department, Civil Aviation Authority of Nepal, Head Office, Babarmahal, Kathmandu	Tel: +977 1 4266139 Fax: +977 1 4262516 Mobile: +977 9841540578	suwarnr.upadhyay@caanepal.gov.np ;
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SAF	Mrs. Nabina Karmacharya	Director, ANS Safety & Standard Department, Civil Aviation Authority of Nepal, Head Office, Babarmahal, Kathmandu	Tel: +977 1 4267784 Fax: +977 1 4262516 Mobile: +977 9841485092	Nabina2008@live.com ;
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<i>ADM= Administration, AIS= Aeronautical Information Service, ARC= Asia/Pacific Region ATS Route Catalogue ATC= Air Traffic Control, ATFM= Air Traffic Flow Management, CCT= Contingency Coordination Team, SAF= Safety, SAR= Search and Rescue</i>				
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