



*International Civil Aviation Organization*

**The Fifth Meeting of the South Asia/Indian Ocean ATM Coordination Group (SAIOACG/5)**

Bangkok, Thailand, 03-06 March 2015

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**Agenda Item 2: Review Outcomes of Related Meetings**

**RELATED MEETING OUTCOMES**

(Presented by the Secretariat)

**SUMMARY**

This paper presents information on search and rescue from relevant meetings.

**1. INTRODUCTION**

1.1 The Third Meeting of Air Traffic Flow Management Steering Group (ATFM/SG/3) was held at Singapore, from 10 to 14 March 2014. The Fourth Meeting of Air Traffic Flow Management Steering Group (ATFM/SG/4) was held at Bangkok, Thailand, from 01 to 05 December 2014.

1.2 The Third Meeting of the Future Air Navigation Systems Interoperability Team-Asia (FIT-Asia/3) and the Nineteenth Meeting of the Regional Airspace Safety Monitoring Advisory Group (RASMAG/19) were held on from 26 to 30 May 2014.

1.3 The Ninth Meeting of the Aeronautical Information Services – Aeronautical Information Management Implementation Task Force (AAITF/9) was held at Pattaya, Thailand, from 24 to 27 June 2014.

1.4 The Second Meeting of the APANPIRG Air Traffic Management Sub-Group (ATM/SG/2) was held in Hong Kong, China from 04 to 08 August 2014.

1.5 The Twenty Fifth Meeting of the Asia/Pacific Air Navigation Planning and Implementation Regional Group (APANPIRG/25) was held in Kuala Lumpur, Malaysia, from 08 to 11 September 2014.

1.6 The First Meeting of the Ad Hoc Afghanistan Contingency Group was held at Kuala Lumpur, Malaysia from 11 to 12 September 2014. The Second Meeting of the Ad Hoc Afghanistan Contingency Group (AHACG/2) was held at Istanbul, Turkey from 17 to 19 November 2014.

1.7 The Fifty First Conference of Directors General of Civil Aviation, Asia and Pacific Regions (DGCA/51) was held at Hong Kong, China from 24 to 26 November 2014.

1.8 The Third Meeting of the Asia/Pacific Regional Search and Rescue Task Force (APSAR/TF/3) was held at the Maldives from 25 to 29 January 2015.

1.9 The Fourth Meeting of the Regional ATM Contingency Plan Task Force (RACP/TF/4) was held in Bangkok, Thailand, from 26 to 30 January 2015.

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## 2. DISCUSSION

### AAITF/9

2.1 Mrs. Ariungerel Purev, Director of AIS, Mongolia Civil Aviation Authority, was elected as Chairperson of the AAITF.

2.2 The AAITF/9 developed the following Draft Conclusions:

- *Draft Conclusion AAITF/9-1: Access to ICAO Annexes and Documents;*
- *Draft Conclusion AAITF/9-2: AIM Transition Reporting;*
- *Draft Conclusion AAITF 9/3: Duplicated 5LNC in Dangerous Proximity; and*
- *Draft Conclusion AAITF 9/4: Access to ICARD ATS Route Designators Function.*

2.3 There had been two meetings of AIS-AIMSG (AIS-AIMSG/8, Montreal, Canada, 4 to 8 November 2013 and AIS-AIMSG/9, Tokyo, Japan, 21 to 25 April 2014) and three AIS-AIMSG Ad-hoc Group meetings since AAITF/8 was held in May 2013. The frequency of the meetings had been increased to progress the work of the SG to rewrite Annex 15 and develop new *Procedures for Air Navigation Services – Aeronautical Information Management (PANS-AIM)*. Priority was given to documents being delivered to ICAO for review in the following order:

- AIS Manual Doc 8126;
- Quality Manual Doc 9839;
- Training Manual Doc 9991;
- Aeronautical Chart Manual Doc 8697.

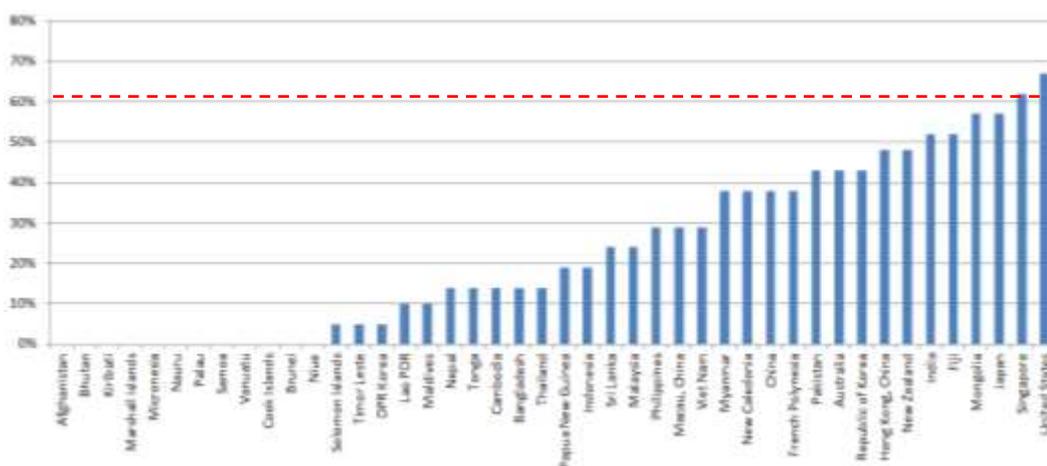
2.4 Regarding APANPIRG deficiencies listing AIS/AIM related deficiencies for the Asia/Pacific Region, there were now three deficiencies identified in the list.

- AIP Format (4 States);
- Quality Management System not implemented (28 States); and
- WGS-84 not implemented (17 States).

2.5 In the period since AAITF/8 (May 2013), 15 States had reported their implementation status of AIM Transition Steps to the ICAO Regional Office, including significant progress among several States. However every State was behind the expected implementation progress in terms of AIS-AIM Phase 1 and 2, and some regions such as South Asia and Southeast Asia had made poor progress (**Figure 1**). Both Phase 1 and 2 would be subject to APANPIRG Deficiencies in 2016, as Phase 2 elements had been included in Amendment 37 to Annex 15 (effective November 2013). Moreover, the Asia/Pacific Seamless ATM Plan expected States to implement Phase 1 and 2 by 12 November 2015.



**Figure 1:** Asia/Pacific AIM (Phase 1 and 2) Implementation Progress



**Figure 2:** Asia/Pacific Overall AIS-AIM (Phase 1, 2 and 3) Implementation Progress

2.6 Figure 2 provides information on the overall progress of Asia/Pacific States towards Phase 1, 2 and 3. SARPS related to Phase 2 elements were included in Amendment 37 to Annex 15 (effective November 2013). Given that States should have completed 13 of the 21 AIM elements (Phase 1 and 2), the dashed red line indicates this approximate value of 62% progress. It should be noted, however, that no State had completed all Phase 1 and 2 elements.

2.7 The gathering of information from States was supported most recently by State Letters A026/14 and A044/14 (ATM). Since the inception of the AIM Transition Table, the following States had provided no information: Bhutan, Brunei Darussalam, Kiribati, Marshall Islands, Micronesia, Nauru, Samoa and Tonga.

2.8 Australia provided an overview of Airservices Australia's AIS to AIM transition progress in respect to Quality Management, including experience and lessons learnt with the introduction of Aeronautical Information Exchange Model (AIXM). The USA presented an update of the FAA Service Oriented Architecture (SOA) and working examples of current and near-future System Wide Information Management (SWIM) applications.

2.9 Japan provided the results of the AAITF survey of differences between NOTAM operations and those described in the Asia/Pacific Region Operating Procedures for AIS Dynamic Data (OPADD). The AAITF/9 meeting noted that the EUROCONTROL OPADD, upon which the Asia/Pacific OPADD was based, would be reviewed in November 2014. A number of changes to the Asia/Pacific Region OPADD were recommended, which would be forwarded to EUROCONTROL for consideration in their OPADD review.

2.10 Several Asia/Pacific Region States/Administrations did not have any registered International Codes and Route Designators (ICARD) 5LNC\_PLANNER: Bhutan Macao China, Cook Islands, DPR Korea, Maldives, Marshall Islands, Micronesia, Mongolia, Myanmar, Nauru, Nepal, Palau, Samoa, Solomon Islands, Tonga and Vanuatu. If these States or administrations allocated 5LNC outside the ICARD system, they were considered to be not compliant with the requirements of Annex 11.

2.11 It was apparent during the AAITF/9 meeting discussions that lack of AIM transition guidance material was causing significant concern. There had been delays in global ICAO guidance material, the most significant being the updated Doc 8126 *AIS Manual*, the new Doc 9839 *Quality Manual* and Doc 9991 *Training Manual*. Regional AIM guidance material had not yet been produced by the AAITF Small Working Group. The meeting commenced preparing guidance material in the form of a checklist of considerations, together with brief explanatory material, for each of the four identified steps, noting that four priority AIM transition steps were identified (**Attachment A**): P-11 *Electronic AIP*, P-16 *Training*, P-17 *Quality* and P18 *Agreements with data originators*.

#### ATFM/SG/3 and ATFM/SG/4

2.12 The ATFM/SG/3 developed the following Decisions:

- *ATFM/SG Decision 3/1: Distributed Multi-Nodal Networked ATFM Concept*
- *ATFM/SG Decision 3/2: Interoperability of Existing and Future ATFM Capabilities*
- *ATFM/SG Decision 3/3: Suitability, Interoperability and Alignment of ATFM Concepts*

2.13 IATA provided an update to the ATFM/SG/3 on progress establishing the ATFM study project that was agreed by ATFM/SG/2 under *ATFM/SG Decision 2/2: Asia/Pacific Region ATFM Study*. The project was in the final stages of review and selection of vendors, and this had been expected to be completed in April 2014.

2.14 IATA also presented an overview of its 2013 Aerodrome Collaborative Decision-Making (A-CDM) project, and recommended adoption of the EUROCONTROL A-CDM manual as regional guidance, together with a minimum set of milestones and terminologies as a regional expectation. Airports Council International (ACI) advised the meeting that they supported the A-CDM initiative, had worked with IATA and CANSO to promote it, and had offered consultancy services and planned to provide guidance material to members. The meeting agreed that rather than adopt the manual in its entirety it should be adapted or used as a basis for Regional A-CDM guidance.

2.15 Singapore presented a briefing on the sub-regional distributed multi-nodal ATFM Concept of Operations which was developed through a collaborative research project performed by Singapore with support from an industry partner and the active participation of key stakeholders such as Air Navigation Service Providers (ANSPs), airspace users, airport authorities and international organizations. As most regional hubs were already operating near the limits of their current capacity, solutions to managing traffic flow efficiently were sought through various collaborative initiatives. As the existing centralized model of ATFM operations such as in Americas, Australia and South Africa were considered to be not suitable for the region, the ATFM/SG agreed that the distributed multi-nodal network was perhaps the only viable solution to the ATFM needs of the region.

2.16 ICAO presented information on a three-State cooperative initiative aimed at ATFM/CDM harmonization within North East Asia involving the participation of China, Japan and the Republic of Korea. As one of the largest aviation sectors in the Asia/Pacific region North East Asia would benefit greatly from the introduction of harmonized ATFM/CDM operations.

2.17 The ATFM/SG/4 developed the following Decisions and Conclusion:

- *ATFM/SG Decision 4/1: Asia Pacific Regional ATFM Concept of Operations and timeline;*
- *ATFM/SG Draft Conclusion 4/2: Regional cross border ATFM implementation support; and*
- *ATFM/SG Decision 4/3: IATA Asia Pacific Regional Air Traffic Flow Management Project – Phase Two.*

2.18 The IATA study report was provided at ATFM/SG/4. The study had identified the regional benefits of ATFM implementation in terms of direct fuel savings only (**Table 1**).

	2014	2019
Regional ATFM	USD250-300 million	USD600-800 million
Regional and Domestic ATFM	USD660-810 million	USD1.1-1.4 billion

**Table 1:** Regional Benefits of ATFM Implementation (IATA Study)

2.19 The survey of States and organizations conducted under the study had determined that most States had plans to implement or had implemented domestic ATFM, but few States were planning cross-border ATFM. Thus a significant effort would be required to establish a seamless, network based approach to regional ATFM, including budgetary and planning commitments to meet the 2015 and 2018 timelines for the Aviation System Block Upgrades (ASBU) and the Asia/Pacific Seamless ATM Plan. The study report’s recommendations were:

- a) adoption of the multi-nodal ATFM concept of operations (developed by Singapore, in collaboration with Hong Kong China and Thailand) as the APAC concept of operations/implementation strategy for cross border ATFM ;  
*Note: suggest incorporation into the regional framework document being developed by ICAO*
- b) support for the multi-nodal ATFM operational trial program commencing June 2015;
- c) formal State commitment to regional cross border ATFM including budgetary and planning commitment for regional implementation;
- d) regional commitment to the 2018 timeline for implementation; and
- e) State planning, procurement and resource commitment for expanded participation during Phase Two of the Collaborative ATFM operational trial program.

2.20 The ATFM/SG/3 discussed the latest version of the draft ATFM Principles that would be included in the Regional Framework for Collaborative ATFM. ATFM/SG/3 agreed to develop a standardized ATFM terminology to promote harmonization and interoperability of CDM/ATFM systems and procedures. The work was undertaken by an ad hoc group led by CANSO and Thailand, and including India, Japan and Singapore.

2.21 The ATFM/SG/3 meeting agreed that more time was needed for review and consultation on the means of information exchange, phraseology and Aeronautical Fixed Telecommunication Network (AFTN) formats supporting ATFM. It was also noted that proposed communication protocols dealt only with the exchange of ATFM measures, but did not address standardized exchange of other information such as capacity constraint information and the ATFM Daily Plan.

2.22 After further coordination by the Secretariat it became apparent that the development of Regional guidance material for A-CDM should more appropriately be conducted by the APANPIRG Aerodrome Operation and Planning Working Group (AOP/WG), with its more detailed understanding of airport operations and greater participation of airport operators and ACI.

2.23 Hong Kong, China presented a description of the meteorological services required to support ATFM and suggested a way for ATFM providers to collaborate with meteorological services providers to enabling simple but accurate interpretation of capacity-related weather phenomena; noting that the ability to accurately perform pre-tactical and demand-capacity assessment was reliant on the predictability of events that will impact capacity. The information provided by Hong Kong, China would be used to develop guidance for States for the development of meteorological products for ATFM purposes; however it was noted that the development of specialized MET products would incur costs. Such products should therefore only be defined for situations where there was an established need, such as demand exceeding capacity or growing traffic demand nearing capacity.

2.24 The meeting was presented with a first draft of an ATFM Training Requirements document prepared by the European Union (EU) - Association of South East Asian Nations (ASEAN) Air Transport Integration Project (AATIP), supported by an in coordination with AEROTHAI, Thailand. While presented as an EU-AATIP deliverable, when the document reached an acceptable level of maturity it would also be submitted to ICAO as draft material for inclusion in a future version of ICAO Doc. 9971. The meeting discussed whether there was any requirement for licensing of ATFM personnel, and noted that this was a matter for State regulators.

2.25 It was noted that the regional ATFM Capability and Performance Improvement Plan would be further refined for presentation to ATFM/SG/5 scheduled in March – April 2015, and would be dependent on the outcomes of Phase 2 of the IATA ATFM Study.

#### FIT-Asia/3 and RASMAG/19

2.26 The RASMAG/19 developed the following Conclusions:

- *Draft Conclusion RASMAG/19-1: Data Link Implementation Strategy Guidance*
- *Draft Conclusion RASMAG/19-2: Contact Details for Airspace User Reporting of ADS-C/CPDLC Problems to ANSPs.*
- *Draft Conclusion RASMAG 19/3: Submission of FPLs as Traffic Sample Data (TSD);*
- *Draft Conclusion RASMAG 19-4: Asia/Pacific AIDC Implementation Task Force; and*
- *Draft Conclusion RASMAG/19-5 – Flights in RVSM Airspace by non-approved State Aircraft*

2.27 FIT-Asia/3 agreed that monitoring, analysis and reporting of data-link performance was essential for the achievement and maintenance of system performance required for the application of RNP based separations. The Seamless Plan also identified ASBU module B0-TBO En-route Data-Link as Priority 1, Critical Upgrade. The meeting was also reminded of the APANPIRG *Conclusion 24/24: ADS/C and CPDLC Problem Reporting and Analysis*. The meeting was informed that in the event that Administrations implement or have implemented data-link services without a competent CRA service and a robust program of post-implementation performance monitoring, the service did not comply with Annex 11. In these cases this may be recorded as an APANPIRG Deficiency.

2.28 **Table 2** provides a list of FIT-Asia Administrations with ADS-C/CPDLC known to be either implemented or planned, the expectations for ADS-C/CPDLC placed upon them under the Seamless ATM Plan (Category R airspace), and their FIT-Asia CRA registration status.

Administration	Data-Link Service Status	ADS/CPDLC Seamless ATM Expectation (Nov 2015)	FIT-Asia CRA Registration
China	Implemented	YES	YES
India	Implemented	YES	YES
Indonesia	Implemented	YES	
Malaysia	Implemented	YES	
Myanmar	Implemented	YES	
Maldives	Implemented	YES	
Philippines		YES	SEASMA*
Sri Lanka	Implemented	YES	
Singapore	Implemented		SEASMA*
Thailand	Implemented		
Viet Nam	Implemented		SEASMA*
* <i>The South East Asia Safety Monitoring Agency (SEASMA) provides CRA service for Philippines, Singapore and Viet Nam. Philippines had not yet implemented data-link services. Singapore provides performance reports for the Singapore FIR to FIT-Asia. Current SEAMA CRA arrangements expire September 2015.</i>			

**Table 2:** CRA Registration

2.29 The First Meeting of the Regional Airspace Safety Monitoring Advisory Group Monitoring Agency Working Group (RASMAG/MAWG/1) was held at Honolulu, Hawaii, USA, from 2 – 6 December 2013. Work undertaken at the MAWG/1 included a detailed review of horizontal collision risk methodologies, a review of progress on work being undertaken within the ICAO Separation and Airspace Safety Panel (SASP) to globalise the Asia/Pacific Enroute Monitoring Agency Manual, discussing the impact of Strategic Lateral Offset Procedures (SLOP) and developing a process to identify operations by non-approved aircraft as RVSM-approved for Regional Monitoring Agencies (RMAs).

2.30 The RASMAG/19 Secretariat presented an overview of safety assessment results from a regional perspective. **Figure 3** indicated the regional Asia/Pacific regional Reduced Vertical Separation Minimum Target Level of Safety (RVSM TLS) compliance as reported to RASMAG/19.

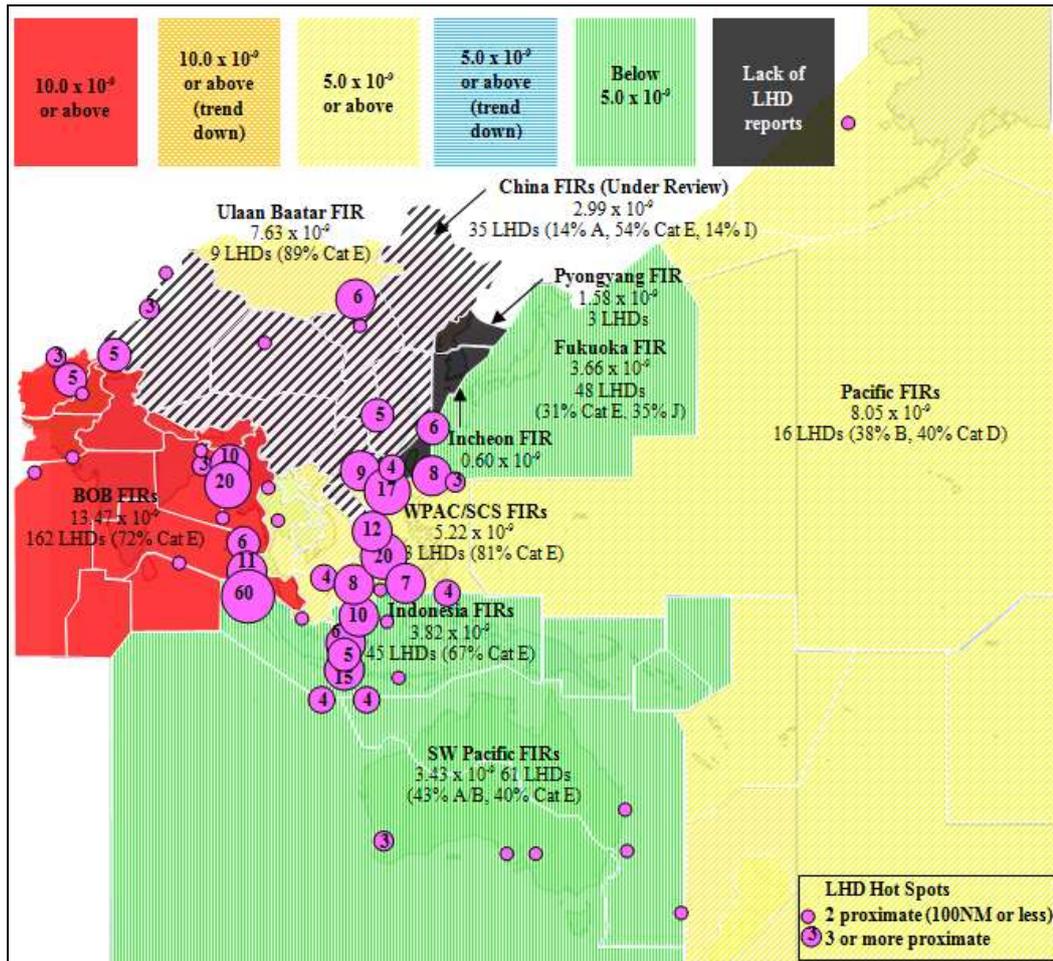


Figure 3: Asia/Pacific TLS compliance reported to RASMAG/19

2.31

Figure 3 indicated the following sub-regional regional trends.

- South Asia** (and in particular India) dramatically increased its reporting rate, resulting in a large increase in estimated risk (reflecting the true nature of risk). This revealed the extent of interface problems between Indian FIRs and Bangladesh, Myanmar, Malaysia and Indonesian FIRs. Apart from the implementation of AIDC between the States concerned, significant urgent action appeared to be necessary to reduce ATC operational errors and to increase communications and ATS surveillance coverage/data exchange.

In particular, the meeting noted that a Special Coordination Meeting (SCM) should be conducted involving Bangladesh, India, Indonesia, Malaysia, and Myanmar to, *inter alia*, investigate the installation of ADS-B, VHF communications and sharing data from a site on Great Nicobar Island, which was close to the Indian, Indonesian and Malaysian FIR boundaries. The States involved agreed that a SCM would be useful to expedite planning for enhanced ATS communications and surveillance facilities and ATC procedural improvements to mitigate risk in the area.

**Southeast Asia** had not met the TLS, which was largely connected with two major interface problems. The first was between Indonesian airspace and Singapore and Philippines airspace, and continued internal problems within Indonesian airspace between the Jakarta FIR and the Ujung Pandang FIR.

The second was between the Philippines airspace and Singapore, Malaysian, Viet Nam, Hong Kong and Japanese airspace. The increased reporting by Indonesia was a positive. The level of continued operational errors involving interfaces with both the Indonesian and the Philippines airspace remains deeply concerning.

Greater effort and urgency appears to be required by both States to investigate and reduce ATC operational errors, and implement full AIDC capability. In the case of AIDC, the meeting agreed that it would be beneficial to form a short-term ATS Inter-facility Data-link Communications (AIDC) Implementation Task Force that focused on the SCS and BOB. Noting APANPIRG Conclusion 24/17: *AIDC Implementation* and Conclusion 24/27: *Prioritization of AIDC Implementation to Address LHDs*, and the continued incidence of Large Height Deviations (LHDs) in the Bay of Bengal (BOB) and South China Sea (SCS) area, RASMAG agreed to a Draft Conclusion on an AIDC Implementation Task Force.

- **East Asia** Mongolia had not met the TLS, largely because of the interface between Mongolian and Chinese airspace. This could be discussed at a forthcoming Eurasia Special Coordination Meeting. Japan had met TLS, as had the ROK and China. However, there was concern regarding the lack of LHDs from the DPRK (although their flight hours were very low), ROK and China that may indicate a lack of a mature reporting culture (see paragraph 5.24).
- **Southwest Pacific** had maintained a downwards trend from RASMAG/18 to be consistently below the TLS during the 12 months to end of December 2013. The AAMA reports a monthly risk value in an attempt to provide real-time information on actual risk without reliance on historical high-time errors resident within the 12 month data sample. This data shows the monthly risk for the Southwest Pacific airspace was well below the average monthly risk which gives an annual risk of  $5.0 \times 10^{-9}$ .

There were a number of LHD hot spots, including the interface between Australia and Indonesian airspace (particularly Jakarta FIR), and also between Australia and Papua New Guinea airspace.

- **Pacific** airspace had not satisfied TLS but this was mainly due to a single long duration LHD event.

2.32 **Table 3** provided a comparison of Asia/Pacific RVSM risk as a measure against the TLS, either by RMA ‘sub-region1’, or by FIRs. There had been significant deterioration in the region meeting the TLS overall, which has been partially caused by a positive improvement in reporting.

	RASMAG16	RASMAG17	RASMAG18	RASMAG19
RMA ‘sub-regions’	67%	78%	89%	22%
FIRs	73%	73%	90%	16.3%

**Table 3:** Comparison of Sub-Regional and Regional RVSM TLS Achievement

2.33 **Table 4** provided a comparison of the estimated flight hours for airspace analysed by an RMA, divided by the reported LHDs at RASMAG/18 and RASMAG/19.

<sup>1</sup> (1) Melbourne, Brisbane, Nauru, Honiara FIRs (AAMA); (2) Port Moresby FIR (AAMA); (3) Indonesian FIRs (AAMA); (4) Sovereign airspaces of China (China RMA); (5) Fukuoka FIR (JASMA); (6) Bay of Bengal FIRs (MAAR); (7) Western Pacific/South China Sea FIRs (MAAR); (8) Pacific Area (PARMO); and (9) North-East Asia Incheon FIR (PARMO).

Airspace	RASMAG 18 LHDs	RASMAG 19 LHDs	RASMAG 19 Flight Hours	RASMAG 18 Reporting Ratio	RASMAG 19 Reporting Ratio
SW Pacific	63	61	599,990	1: 9,524	1: 9,835
Mongolia	10	9	-3% 108,773	1: 11,230	1: 10,876
India/BOB	46	162	+51% 1,869,508	1: 26,917	1: 11,540
WPAC/SCS	94	133	+34% 1,581,192	1: 12,590	1: 11,889
Indonesia	21	45	+5% 761,390	1: 34,508	1: 18,570
Japan	35	48	+8% 1,195,776	1: 24,495	1: 22,947
China	55	35	+6% 2,537,923	1: 43,436	<b>1:72,512</b>
ROK	0	3	*492,360	0	<b>1:164,120</b>
Pyongyang	0	0	+85% 5,970	0	0
<b>Total</b>	<b>324</b>	<b>496</b>	<b>+54% 11,323,399</b>	<b>1: 22,684</b>	<b>1:22,829</b>
Pacific	13	16	+7% 1,250,084	1: 89,536	1: 78,130

**Table 4:** Comparison of Estimated Flight Hours and Reported LHDs (\*2012 figure)

2.34 **Table 4** (separating the largely oceanic Pacific portion of airspace as it was not directly comparable), indicated that the average LHD occurred approximately every 22,829 flight hours. The number of reported LHDs had increased in the Indian and Indonesian FIRs. As approximately two-thirds of these were category E ATC errors, this could be largely attributed to improvements in reporting, which was noted by the meeting as a more accurate reflection of incidents.

2.35 In comparison, RASMAG/19 noted that the true rate of LHDs in Chinese and Republic of Korea (ROK) airspace was probably much more than was currently being reported. China acknowledged that, relative to the flight hours, the LHD reporting ratio of China and the Democratic People's Republic of Korea (DPRK) was quite low, with possible existence of underestimation in these regions. The meeting urged China to improve its mechanism of LHD reporting and develop a plan to establish an open reporting culture as part of a 'just culture' element of its safety management system (China subsequently made a report to APANPIRG/25 on progress).

2.36 RASMAG/19 noted that Asia/Pacific States with the majority of non-RVSM airframes identified by the Asia/Pacific RMAs to be operating within the RVSM stratum without proof of RVSM approval were from China, India, Indonesia, Pakistan and the Philippines. **Table 5** compares the number of non-RVSM airframes reported by each RMA:

Report	AAMA	China RMA	JASMA	MAAR	PARMO
RASMAG/18	98	43	47	118	15
RASMAG/19	90	33	40	130	19

**Table 5:** Trend of Non-RVSM airframes Observed by Asia/Pacific RMAs

2.37 Overall, the number of non-RVSM aircraft had marginally reduced by 3% in the past year. This indicated that there was considerable work to do and APANPIRG *Conclusion 24/6 Repetitive Non-RVSM Approved Aircraft Operating as RVSM Approved Flights* which encouraged States to deny entry to operate within RVSM airspace for aircraft that have been confirmed as non-RVSM approved over a significant length of time, or by intensive checking, except where a specific non-RVSM operation was authorized, had not yet been effective.

2.38 **Table 6** compares the outstanding monitoring burden reported by each RMA:

Report	AAMA	China RMA	JASMA	MAAR	PARMO
RASMAG/18	102	141	29	189	118
RASMAG/19	79	87	16	200	37

**Table 6:** Outstanding Monitoring Burden of Asia/Pacific RMAs

2.39 Asia/Pacific EMAs reported horizontal risk assessments, which all satisfied the TLS of  $5.0 \times 10^{-9}$  (Table 7), indicating that these separation standards as implemented were conservative.

Separation Standard	EMA	Estimated Risk
50NM Lateral Risk	BOBASMA	$0.76 \times 10^{-9}$
	JASMA	$0.000006 \times 10^{-9}$
	PARMO	$0.97 \times 10^{-9}$
	SEASMA	$0.055 \times 10^{-9}$
30NM Lateral Risk	PARMO	$0.26 \times 10^{-9}$
50NM Longitudinal Risk	BOBASMA	$4.02 \times 10^{-9}$
	PARMO	$2.32 \times 10^{-9}$
	SEASMA	$1.18 \times 10^{-9}$
30NM Longitudinal Risk	JASMA	$0.13 \times 10^{-9}$
	PARMO	$3.74 \times 10^{-9}$

**Table 7:** Comparison of Horizontal Risk Assessments

2.40 The ROK presented a safety assessment analysis for near parallel RNAV routes Y711 and Y722, which were approximately 8-12NM apart, and which were operated above FL140. ATS routes Y711 and Y722 were classified into two portions. The northern portions of the routes were designated as RNAV2, and the southern portions extending towards Jeju Island had been designated as RNAV5. All operations on the routes were monitored by radar. The estimated lateral collision risk of  $0.004 \times 10^{-9}$  (Y711) and  $0.001 \times 10^{-9}$  (Y722) easily met the TLS. The meeting congratulated the ROK on the analysis, noting that this work could be used to assist EMAs and other States in their determination of safe separation standards utilising RNAV2 within ATS surveillance coverage.

2.41 Australia had monitored 85% of all Australian registered RVSM approved aircraft and approximately 99% of all major Australian airline fleets using their Automatic Dependent Surveillance-Broadcast (ADS-B) network. Thailand presented information on the Monitoring Agency for Asian Region's (MAAR's) progress on their ADS-B based Height Monitoring System (AHMS). MAAR processed ADS-B data from Thailand, Taiwan and Singapore, which allowed MAAR to identify the correct height assumptions more effectively. As at March 2014, the system had observed 4,875 airframes with 85.76% of those having an identified geoid (height reference).

#### ATM/SG/2

2.42 ATM/SG/2 had the following key discussion points. Included with the 18 Aviation System Block Upgrade (ASBU) ANRFs was a draft SAR ANRF, which was intended to be submitted to APANPIRG/26 in 2015 after review by the APSAR/TF.

#### *Alignment of the RANP with the Global Air Navigation Plan (WP08)*

*ICAO reported on the work of the eANP Working Group (eANP WG) which was formed in follow-up to the 12th Air Navigation Conference Recommendation 6/1 Regional Performance Framework – Planning Methodologies and Tools regarding the alignment of regional air navigation plans with the Fourth Edition of the GANP, and proposals to develop a new Asia/Pacific Regional Air Navigation Plan (RANP) document.*

*The eANP WG had agreed that the ANP data related to the air navigation facilities and services could be classified as: stable, dynamic or flexible. In this regard, it was agreed that the new ANP should be composed of three volumes.*

- a) **Volume I** should contain stable plan elements the amendment of which require approval by the Council;
- b) **Volume II** should contain dynamic plan elements, the amendment of which does not require approval by the Council; and

- c) **Volume III** should contain dynamic/flexible plan elements [not subject to the reporting of Deficiencies] providing implementation planning guidance for air navigation systems and their modernization taking into consideration emerging programmes such as the ASBUs and associated technology roadmaps described in the GANP.

2.43 The ATM/SG/2 agreed with the following work plan (**Table 8**) to assist the Regional Office (RO) through electronic means and established meetings to populate or develop the new Asia/Pacific RANP, so agreement on its content might be reached by mid-2015:

<b>Reference</b>	<b>Detail</b>	<b>Notes</b>
Vol. I, Part I	Table GEN I-1 List of FIR names, States	RO (ATM)
Vol. I, Part II	AOP Special Regional Requirements, if any	AOP/WG; RO (AGA)
Vol. I, Part II	Table AOP I-1 International Aerodromes	RANP data; RO (AGA)
Vol. I, Part IV	Table ATM I-1 FIR descriptions	ICAOHQ data; RO
Vol. I, Part IV	ATM Special Regional Requirements, if any	ATM/SG; RO (ATM)
Vol. I, Part VI	SAR Special Regional Requirements, if any	APSAR/TF; RO (ATM)
Vol. I, Part VI	Table SAR I-1 Search and Rescue Regions	ICAOHQ data; RO
Vol. I, Part VII	AIM Special Regional Requirements, if any	AAI/TF; RO (ATM)
Vol. II, Part I	Table GEN II-1 Major Traffic Flows	ATM/SG; RO (ATM)
Vol. II, Part II	AOP Special Regional Requirements, if any	AOP/WG; RO (AGA)
Vol. II, Part II	Assessment of aerodrome capacity	AOP/WG; RO (AGA)
Vol. II, Part IV	Process for ATS route designation*	ATM/SG; RO (ATM)
Vol. II, Part IV	Table ATM II-2 ATS Routes*	ATS Route Catalogue
Vol. II, Part IV	Secondary Surveillance Radar (SSR) Codes	ATM/SG; RO (ATM)
Vol. II, Part VI	SAR SRR Facilities	RANP; RO (ATM)
Vol. II, Part VII	Table II-1 AIM responsibilities	AAI/TF; RO (ATM)
Vol. II, Part VII	Table II-2 AIM chart responsibilities	AAI/TF; RO (ATM)

**Table 8:** RANP Work Plan

\*This was a temporary process until the ICARD ATS Route feature became available, at which time Table ATM-II ATS Routes would be deleted from the RANP by the RO.

2.44 Regarding the work to be conducted on the electronic Air Navigation Plan (eANP), the meeting should note the following:

- a) Any ATM, AIS and SAR Special Requirements determined by APANPIRG and approved by the Council could be included in the Vol. I, Part IV, VI and VII;
- b) **Attachment B** is a copy of Volume I, Part I Table Gen I-1 (List of all Flight Information Region (FIR));
- c) **Attachment C** is a compilation of all FIR descriptions, so that the concerned State or Administration can advise by **30 April 2015** whether the information provided is correct or not, and that data may be then entered into the eANP in Vol. I, Part IV, (Table ATM I-1 FIR Descriptions);
- d) Aeronautical Search and Rescue Region (SRR) data presented to APSAR/TF/3 is at: <http://www.icao.int/APAC/Meetings/2015%20APSARTF3/WP02%20Related%20Meeting%20Outcomes%20with%20att.pdf>;
- e) **Attachment D** is a copy of Volume II, Part IV, Table ATM II-ASIAPAC-2 ATS Routes;
- f) **Attachment E** is a copy of Volume II, Part I Table GEN II-1 (Major Traffic Flows);

- g) **Attachment F** is a reformatted version of the current data in the ATS Route Catalogue, Chapter A, as the new Volume II, Part IV, Table ATM II-ASIAPAC-2 (ATS Routes);
- h) **Attachment G** is a reformatted version of the current Secondary Surveillance Radar (SSR) Codes data as the new Volume II, Part IV Table ATM II-1 (SSR Codes).

#### APANPIRG/25

2.45 Key excerpts from the APANPIRG/25 report are as follows.

##### *Integration of Human Factors in Research, Operations and Acquisition*

3.2.1 *There was considerable discussion by the ATM/SG/2 on the Federal Aviation Administration's (FAA's) use of a multidisciplinary human factors analysis in the development and operations of ATM systems. India, Hong Kong, China and IFATCA all emphasised the importance of human-in-the-loop planning at the earliest stage of project management. The meeting considered that there was a significant need for improvement in human factors knowledge and input into the development of appropriate processes for system engineering, procedure design, procedures and training. APANPIRG/25 noted that a number of States at CNS SG/18 had highlighted the need for integration of Human factors in Research, Acquisition, Operations and Maintenance of CNS/ATM Systems.*

3.2.2 *APANPIRG/25 agreed to the following Conclusion:*

##### **Conclusion APANPIRG/25-11: Human Performance Initiatives**

*That, ICAO be urged to:*

- a) *conduct an Asia/Pacific human performance seminar/workshop for optimal Air Traffic Control (ATC) and Search and Rescue (SAR) operational safety and efficiency; and*
- b) *review the human performance provisions in the Asia/Pacific Seamless ATM Plan.*

#### AHACG/1 AND AHACG/2

2.46 At the ATM/SG/2 meeting (August 2014), ICAO had provided information on certain aspects of the transition from military to civilian control of Afghanistan's airspace, and suggested considerations for sub-regional airspace contingency planning, should the Kabul FIR become partially or fully restricted. The situation in Afghanistan remained fluid, with no certainty regarding the level of Air Traffic Control (ATC) services. The ATC contract for provision of Air Navigation Services (ANS) within the Kabul Flight Information Region (FIR) would expire in mid-2015 (a temporary extension had been authorised in December 2014).

2.47 IATA stated at that the development of contingency routes and procedures for Afghanistan was of paramount importance, and should be undertaken as a matter of urgency. They further stated that many airlines would be planning to avoid the Kabul FIR in the same way that they were currently avoiding other airspace defined by their risk management processes. IATA stressed that reasonable contingency routing schemes were of vital importance, as a number of alternative options involved substantial costs that may threaten the financial viability of affected airlines.

2.48 It was noted with concern by the AHACG/1 meeting that the lack of experienced Afghan air traffic controllers was the main issue affecting the continuity of the ATS after the 15 December 2014. It was anticipated that after the five year contract, Afghanistan would transition to all ANS being provided by local controllers.

2.49 NATO stated that the Afghanistan Civil Aviation Authority (ACAA) had made great strides in developing an organization that conformed to ICAO Standards and Recommended Practices (SARPs) but still lacked human capacities to control the airspace and operate major airports. It was also highlighted that, from a NATO viewpoint, that the Afghans were not capable of performing full safety oversight of the civil sector and there was no Safety Management System (SMS) in place.

2.50 NATO had developed a contingency plan using tactical command and control procedures, in order for military operations to continue in support of ongoing operations and the NATO-led *Resolute Support* Mission from 2015 onwards. Although the AHACG/1 meeting noted that Kabul Tower was already staffed by some Afghan controllers, they were not at the supervisory or management level. From the military point of view, there would be no ANS available for civil traffic. Furthermore, there would be a lack of adequate Communications, Navigation, Surveillance (CNS) infrastructure at Kabul International Airport (KAIA), as it would only have non-controlled VFR operations.

2.51 ICAO stated that it was necessary even at the earliest planning stages to develop potential contingency schemes so they could be analysed and consulted. A number of Europe - Asia Major Traffic Flow contingency planning scenarios were considered by the AHACG/1 meeting, with the most likely outcome being use of a high density Organized Track System (OTS) through Iranian airspace, but which would affect Turkey and Pakistan at a minimum.

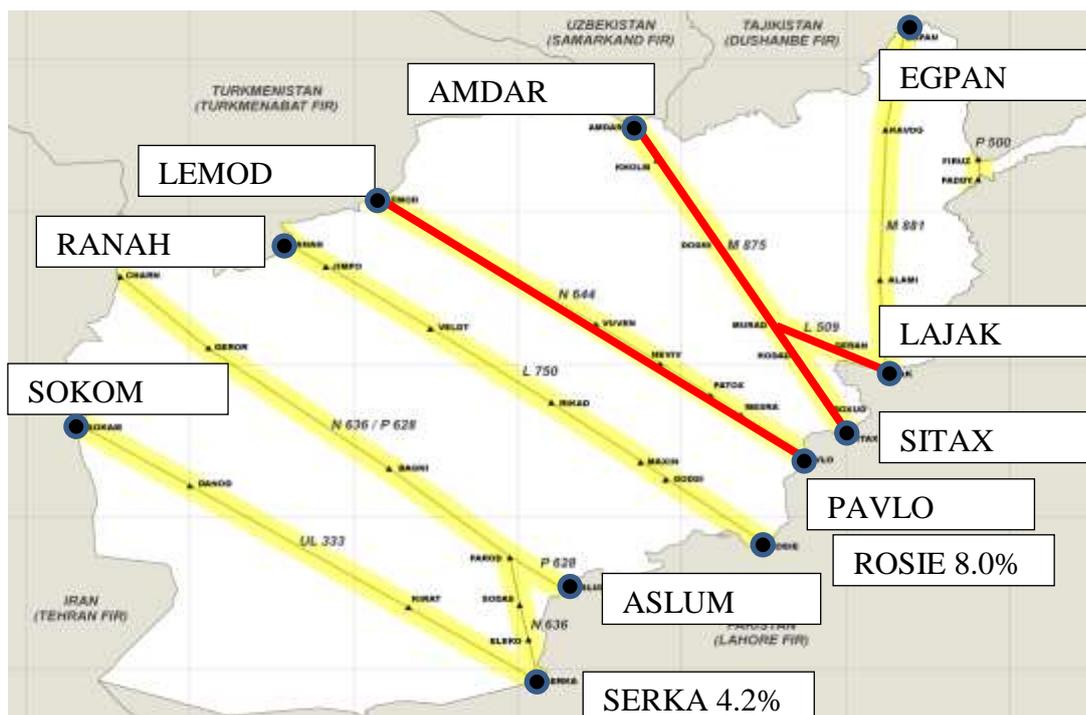
2.52 Iran reported to the AHACG/2 meeting that a Very Small Aperture (VSAT) connection between Kabul and Tehran was previously operational but was not functioning on the Afghanistan side. Within Afghanistan, internal communications were provided by two different VSAT networks: one for voice and data communications and another one for surveillance. While the VSAT network supporting the Automatic Dependent Surveillance-Broadcast Wide Area Multilateration (ADS/B WAM) had been shut down, most of the VSAT network supporting the Very High Frequency (VHF) radio coverage was operating except at Chaghcharan, Ghazni and Salerno.

2.53 Regarding the medium and longer term, funding the extension of the current contract with the existing ANS Provider (ANSP) only delayed the decision on whether to engage a new ANSP or to temporarily delegate ANS responsibilities to another State/Provider. The AHACG/1 meeting had noted that a delegated ANSP could provide the ANS remotely, using Automatic Dependent Surveillance – Contract (ADS-C) and Controller Pilot Data Link Communications (CPDLC) or High Frequency (HF). However, Afghanistan stated during the AHACG/2 meeting that the option of delegated ANS was not currently being considered.

2.54 The following potential contingency schemes were being focussed on by the AHACG:

- **Scenario B:** *Kabul Flight Information Region (FIR) Contingency Services* – no ATC service. Upper airspace is not affected by military or security concerns, and a number of restrictions are applied (IATA reported that a number of airlines indicated to them that they would prefer to divert around the Kabul FIR if there were no ATC services); and
- **Scenario C:** *Iranian Airspace Routes* – routing via Iranian airspace due to a number of ‘hot spots’ in Syrian, Iraq and European airspace using a high density Organized Track System (OTS) – this scenario was discussed in AHACG/2/WP05.

2.55 Thailand provided a data analysis that indicated that the vast bulk of en-route traffic used N644 and M875 (in red, **Figure 4**), which carried some 70% of aircraft. The average RNAV 10 equipage was approximately 70%, and the overall equipage on all routes was approximately 77%, while for RNP 4 the data indicated equipage of approximately 50% and 60% respectively. Regarding Automatic Dependent Data link Surveillance (ADS-C) and Controller Pilot Data link Communication (CPDLC), the equipage was approximately 60% and 74.3% respectively.



**Figure 4:** Traffic Loading on High Level Kabul FIR Routes

2.56 A Mission by the ICAO APAC Regional Office to Kabul, Afghanistan in June 2014 noted a number of flight plan distribution and aeronautical communication problems, including:

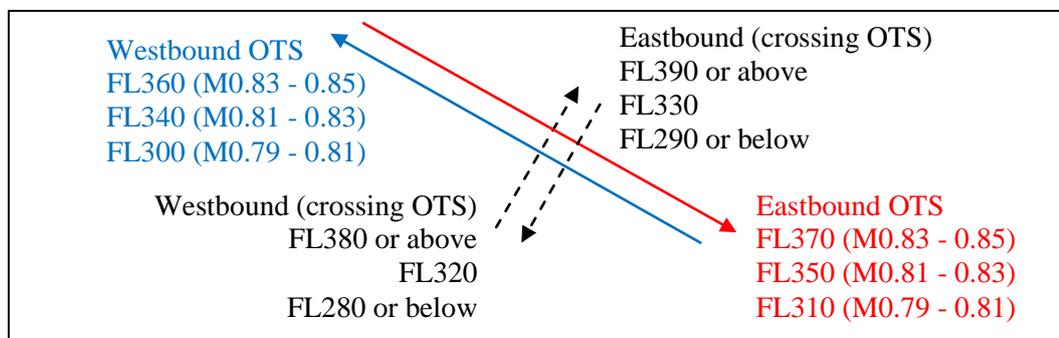
- the briefing office was using ageing tools;
- the AFTN line performed poorly in the considered period; and
- flight plan submission and distribution processed mixed exchanges of emails/ Aeronautical Fixed Telecommunication Network (AFTN) messages, paper copies, with a number of duplicated inputs by operators.

2.57 The AHACG/2 meeting noted that to have reliable voice communications, the VSAT network supporting the VHF coverage had to be secured and an HF solution could be provided as a backup. Afghanistan agreed that the installation of HF or some other communication means in the Kabul Area Control Centre (ACC) was an urgent priority to provide redundancy for both air to ground and also for ground to ground communication between ATS units.

2.58 Afghanistan/ISAF provided a joint presentation on the status of the transition from military to civil control. They noted that Kandahar, Kabul, Mazar-e-Sharif and Herat aerodromes would be managed by the framework/lead nations. The presentation noted that the ACAA was meeting with the President of Afghanistan soon, and he would decide on contract and training options. During the original discussion, a group that included ISAF and the ACAA had assessed that it would cost approximately USD 40 million a year for the ANSP contract (which included the provision of ATS). The Afghanistan Ministry of Finance had approved USD 25 million as the ACAA budget for 2015. It was not clear how the delta would be resolved.

2.59 Afghanistan advised that it was their intention to provide familiarisation training for their local controllers so that they could provide basic contingency services (flight following, communication and other assistance that did not amount to an ATS). They stated that this would be part of a plan submitted to the High Level Meeting at Hong Kong, China on 28 November by the Afghan Director General. For those airlines that elected to utilise the Kabul FIR, avoiding actions would be less likely, if the safety and security assessments indicated the operations were appropriate.

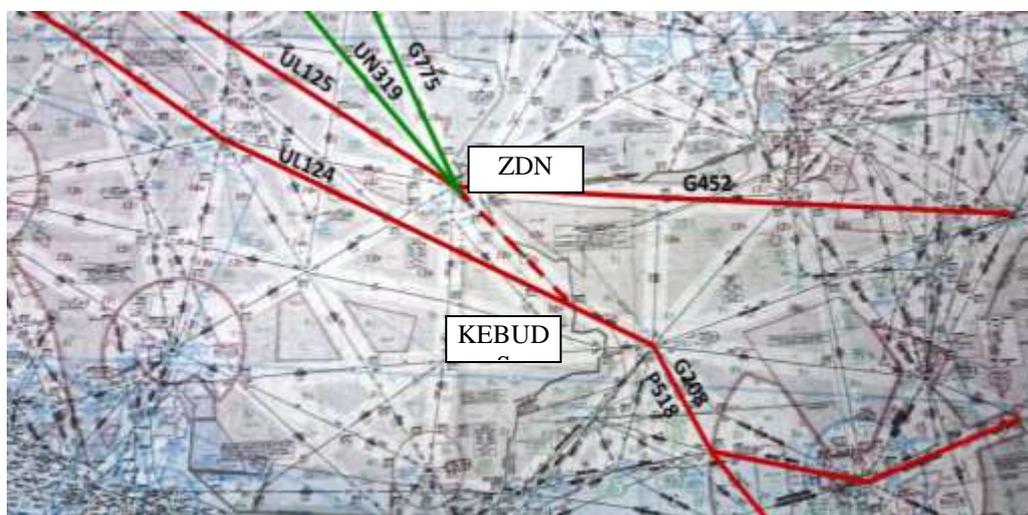
2.60 The Islamic Republic of Iran (I. R. Iran) noted that the AHACG/1 meeting had discussed proposals for an effective traffic management scheme that could manage increased traffic within the Tehran FIR, should aircraft need to avoid the Kabul FIR (AHACG/1/WP04). After careful analysis, Iran had agreed with the proposals, and stated that they would implement the following Organized Track System (OTS, henceforth referred to as the ‘Royal Road’ OTS) with required levels and speeds should this become necessary. **Figure 5** illustrates the OTS.



**Figure 5:** Royal Road OTS

2.61 Iran clarified to the meeting that the OTS was not intended to be rigid in its application, but would apply tactical capability to ensure that aircraft would be provided with optimum levels where possible, particularly those crossing the OTS, and allowing the longitudinal target times to be as flexible as possible.

2.62 Pakistan supported the Iranian plan to operate a Royal Road OTS using ATS route L124 and G452/L125; however, these routes may not be able to accommodate all diversionary traffic from the Kabul FIR. Pakistan suggested some adjustments to support the OTS (**Figure 6**).



**Figure 6:** Pakistan’s Routing Proposals

2.63 The Third Meeting of the Ad Hoc Afghanistan Contingency Group (AHACG/3) would be held in Oman from 11 to 14 May 2015.

DGCA/51

2.64 Relevant Action Items resulting from the DGCA/51 meeting were as follows:

Action Item 51/2	<p>Noting the progress made in the development of a high-level Concept of Operations for the <b>Global Aeronautical Distress and Safety System</b> (GADSS), the Conference</p> <p>a) urged States and Administrations to contribute to the concerted efforts to improve aircraft tracking and search and rescue;</p> <p>b) requested ICAO to continue its work on developing solutions to improve aircraft tracking and search and rescue.</p>
Action Item 51/3	<p>Recognizing that States have the responsibility to ensure the safety of civil aviation operations in their sovereign and delegated airspace, and airspace users have the ultimate responsibility to decide where they are able to operate safely, the Conference:</p> <p>a) urged States to contribute to the concerted efforts to enhance the sharing of information to mitigate the risks associated with <b>operations over or near conflict zones</b>;</p> <p>b) requested ICAO to continue its work to develop solutions to enhance the sharing of information to mitigate the risks associated with operations over or near conflict zones.</p>
Action Item 51/5	<p>Recognizing the significant growth of air traffic, the Conference urged relevant States and Administrations to participate in and support the work of <b>Major Traffic Flow (MTF) Review Group</b>, and support the ICAO RSO's coordinator role in the MTF Review Group.</p>
Action Item 51/6	<p>Noting the benefits of ADS-B data sharing, the Conference urged States and Administrations to share their experiences, best practices and guidance on <b>ADS-B data sharing</b>, and support the ICAO RSO's development, operation and maintenance of the APRD (ADS-B Avionics Problem Report Database).</p>
Action Item 51/9	<p>Recognizing the importance of human factors in ATM, the Conference encouraged States and Administrations to provide and offer <b>training programmes on human factors</b> in ATM.</p>
Action Item 51/11	<p>Recognizing the importance of <b>ATFM</b> to support the growing air traffic in the region, the Conference</p> <p>a) urged States and Administrations to support the implementation of ATFM in the region and closer collaboration and harmonization to operationalize a regional ATFM solution;</p> <p>b) urged States to support the ATFM Operational Trial in developing a regional ATFM solution</p> <p>c) Requested ICAO to review the definition of and framework for A-CDM.</p>

Action Item 51/12	Recognizing the importance of English language proficiency of air traffic controllers, the Conference encouraged States and Administrations to exchange experiences on the implementation of English language proficiency for air traffic controllers towards a regional plan for English language proficiency of air traffic controllers.
Action Item 51/13	<p>Noting the low responsiveness of States to APANPIRG activities, the Conference</p> <p>a) encouraged States and Administrations to provide the necessary resources and ensure continuity of participation by their experts at APANPIRG meetings and</p> <p>b) requested APANPIRG to establish a mechanism for planning regional cooperation activities in particular for the implementation of ASBU Block 1 in the region.</p>
Action item 51/14	Following the endorsement of the APAC Seamless ATM Plan at APANPIRG/24, the Conference urged States and Administrations to report the progress of their implementation of the Seamless ATM Plan using the available reporting forms.
Action Item 51/16	The Conference urged States and Administrations to develop contingency plans for major disasters, including contributing to the development of contingency plans at the regional level.
Action Item 51/17	The Conference urged States and Administrations to consider participating in trial and demonstration activities such as the Mini Global Demonstration to foster collaboration on information management.
Action Item 51/18	The Conference encouraged States/Administrations to share experiences on regulating Remotely Piloted Aircraft Systems (RPAS).
Action Item 51/19	The Conference requested ICAO to develop guidance materials on the organization of civil aviation authorities with respect to safety oversight, including issues related to inspectors in the various areas and facilitate a high level meeting for the South Asia Region.
Action Item 51/20	Recognizing the importance of collaboration among States/Administrations in pursuing route structure review to achieve Seamless ATM Operations, the Conference requested ICAO RSO to support States/Administrations on these efforts.

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APSAR/TF/3

2.65 The APSAR/TF/3 agreed to the following Draft Conclusions:

- *Draft Conclusion APSAR/TF/3-1 SAR Air Navigation Report Form*
- *Draft Conclusion APSAR/TF/3-2 SAR Lessons Learnt*

2.66 Australia provided a briefing on the Multi-disciplinary Meeting regarding Global Tracking, at ICAO Headquarters in Montreal, 12 and 13 May 2014. The APSAR/TF was informed that consensus was forged among States and the international air transport industry on the near-term priority to track airline flights. An IATA Aircraft Tracking Task Force and an ICAO Ad-Hoc Working Group on Flight Tracking were formed immediately following the meeting. Both groups completed work towards development of a Draft Concept of Operations on flight tracking. The APSAR/TF/3 was informed that there were potential inputs for the Asia/Pacific SAR Plan from the recently developed ICAO Concept of Operations for a Global Aeronautical Distress and Safety System (GADSS) proposal.

2.67 The meeting noted that the ICAO Flight Recorder Panel (FLIRECP) was now proposing new amendments to Annex 6 of the Chicago Convention that would require that certain types of aeroplanes be equipped with a distress system which would reliably allow the location of an aeroplane accident site within a 6 Nautical Mile (NM) radius. However the best option to achieve this was still not clear. Such new requirements could significantly increase future deployment and usefulness of Emergency Locator Transmitters (ELTs) if it could be demonstrated that in-flight triggered, second-generation ELTs, operating in a Medium Earth Orbit SAR (MEOSAR) satellite constellation environment, would be a suitable choice to address the new ICAO requirements. Cospas-Sarsat noted that the possibility of Automatic Deployable Flight Recorders (ADFR) integrated with ELTs was being discussed by ICAO in relation to the GADSS.

2.68 Regarding Cospas-Sarsat communication SAR Point of Contact (SPOC) tests, no Asia/Pacific States were in the non-responsive or 'Low Success Ratio' (between 20 and 50% successful tests) categories. This had been an improvement since APSAR/TF/2.

2.69 The APSAR/TF/3 meeting noted the following issues as being possible lessons learnt from the MH370 event that could be incorporated into the Asia/Pacific Plan:

- a) The time lapses of more than 16 minutes between the transfer of control point at IGARI and the advisory to Kuala Lumpur ACC that MH370 had disappeared, 38 minutes for the declaration of an INCERFA SAR phase and 7 hours and 21 minutes for the declaration of an ALERFA/DETRESFA SAR phase by Viet Nam indicates that there was a need to divert more resources and/or urgency in the ATC response;
- b) It is apparent that a higher degree of civil/military coordination may have revealed the MH370 course reversal much earlier, and as the track also crossed Thailand's PSR coverage, advice to Thailand may have also proved beneficial. Considerable time had been lost in the initial search, partly due to poor civil/military cooperation;
- c) Annex 11 and Annex 12 SAR phases and actions needed to be revised (Annex 11, Section 5.2, and Annex 12, Section 5.2 refer) to take into account the expectations and capabilities of an ATS surveillance environment, the need for civil/military coordination where appropriate, and advisories to all neighbouring ACCs in the case of uncertainty of the aircraft's track; and
- d) Poor SAR preparedness and ad hoc SAR coordination between States, including the intervention by political decision-makers needs to be addressed if an optimal operational response was that it was difficult to reconcile the primary radar trace with an airliner's capability, adding further doubt at the time.

2.70 Malaysia commented that the delay in the activation of the Kuala Lumpur Aeronautical Rescue Coordination Centre (ARCC) was partially due to conflicting reports received from Malaysian Airlines (MAS) that the aircraft was still flying, based on their flight tracking system and reports on the media indicating that MH370 had landed safely in Nanning airport in Southern China. Upon further investigation, this information was found to be baseless and inaccurate, so time was wasted pursuing these unfounded reports.

2.71 Due to the uncertainties surrounding the information received from the Royal Malaysian Air Force, it was decided that both areas to the west and east of Peninsular Malaysia would be searched, and a large number of assets, aircraft and vessels were deployed to search these areas. The following recommendations were made by Malaysia for consideration by the APSAR/TF in terms of SAR system improvements:

- a) extend the transmission life of Underwater Locator Beacons (ULBs) installed in flight recorders on all commercial aircraft;
- b) closer civil/military airspace coordination and communication;
- c) clearly defined division of responsibilities between the SAR functions (Annex 12) and the air accident investigation search and recovery functions (Annex 13); and
- d) establishment of a legal framework to support the roles and responsibilities in handling various SAR missions.

2.72 Malaysia commented that the Rescue Coordination Centre (RCC) did not have dedicated SAR officers, but utilised SAR-trained air traffic controllers. APSAR/TF/3 agreed that this may not be optimal, as SAR was an increasingly specialised task that required expert knowledge. In addition, Malaysia stated that lack of English proficiency between RCCs played a part in the difficulty of understanding information that was being conveyed, especially with the Ho Chi Minh RCC.

2.73 Australia also submitted information on the MH370 tragedy, and suggested the following lessons learnt and the need for:

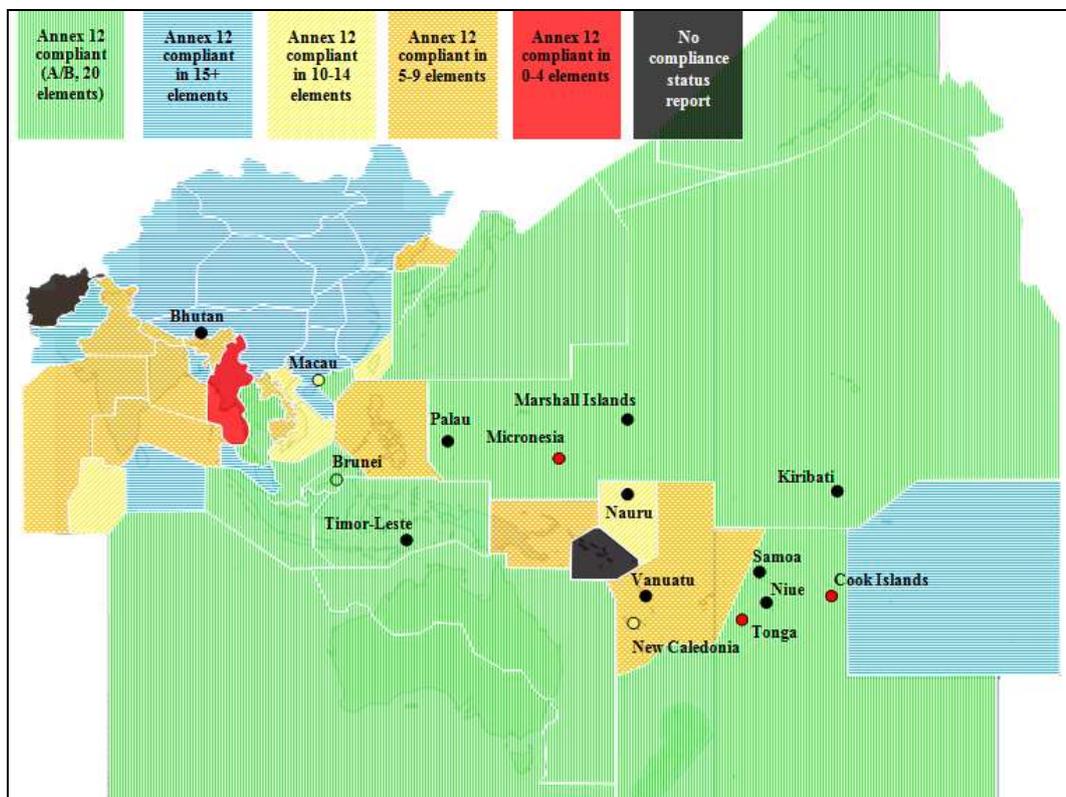
- a) adequate testing of systems (regular testing, or during SAR Exercise - SAREX) to ensure an efficient Annex 11/12 response;
- b) States (or sub-regional/regional bodies) to minimise the 'grey areas' over unclear aeronautical-aeronautical and aeronautical - maritime SRR boundary responsibilities, especially in the latter case regarding an aircraft ditching into the sea;
- c) improvements in the cooperation between international bodies such as Iridium, Cospas-Sarsat and Inmarsat to enhance technical data availability and analysis;
- d) improvements in cooperation between States and State entities through ICAO Standards and State legislation (*note: Annex 12 paragraph 5.1.1. merely refers to 'SAR organisations' being compelled to provide information to RCCs, whereas the scope of cooperation should be much wider*);
- e) air traffic controllers to have relief or a supervisor for emergency response support;
- f) familiarisation of ATC unit and airline operating systems through regular visits/liaison by RCC personnel to relevant ATC units and Airline Operating Centres (AOCs);
- g) RCC staff to be full-time specialised officers expert in the field of SAR;
- h) appropriate training of military responders regarding civilian SAR systems and standards and recommended practices.

- i) English language proficiency in all RCCs to ensure correct understanding of communications;
- j) regular reports and access to information for key stakeholders (SITREPS and media such as the Internet);
- k) providing authority and empowerment to SAR agencies and therefore SAR Mission Coordinators to effectively coordinate SAR responses through State legislative Acts;
- l) management of undue external influences (such as political entities) on efficient RCC responses; and
- m) a means of handling media/next-of-kin enquiries.

2.74 Indonesia provided initial information regarding the Air Traffic Control (ATC) and SAR operation for Air Asia QZ 8501, which lost contact with ATC on 28 December 2014. The last known position of the aircraft was over the Karimata Strait, Java Sea. BASARNAS, as Indonesia’s SAR organisation, had been conducting a SAR operation since the declaration of emergency phase until the wreckage was recently found.

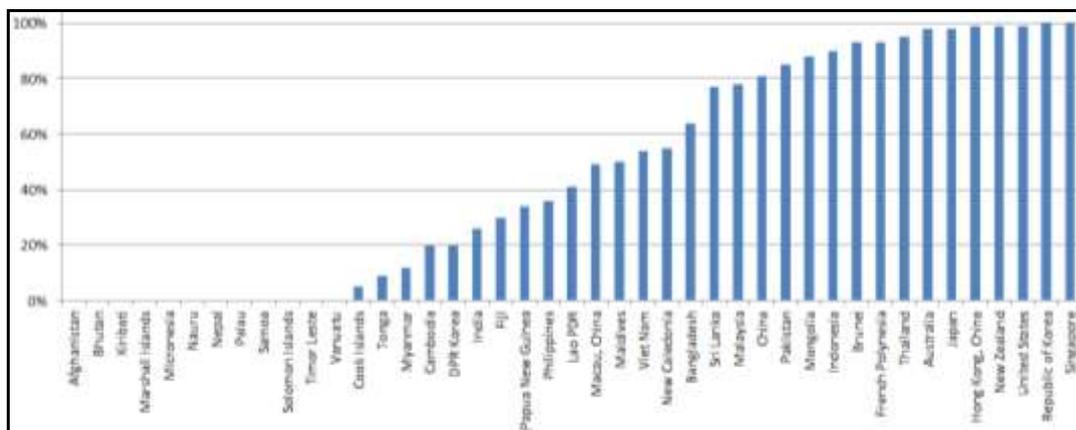
2.75 Indonesia commented that the enhanced cooperation they had received by civil and military agencies was greatly assisted by their legislation (Act 29/2014) and also the presence of high ranking political officers, who reiterated the need to support BASARNAS.

2.76 **Figure 7** provides a regional SAR overview at APSAR/TF/3, indicating that significant Annex 12 weaknesses remained in the South Asia area and the Southwest Pacific (improvements were noted in Bangladesh, Indonesia, Fiji and Pakistan). There were also parts of Southeast and East Asia that indicated a need for compliance improvement.



**Figure 7:** APSAR/TF/3 Asia/Pacific Regional SAR Overview

2.77 **Figure 8** provides a graph of SAR capability based on the SAR Capability Table category A (fully meets Annex 12) and B (meets Annex 12 in most areas) classifications only.



**Figure 8: SAR Capability**

2.78 Many States had not provided any information on their SAR compliance status, and therefore they are assumed to be deficient until such time as clarification is provided. There had also been no update from the Taipei FIR.

2.79 In summary, the Asia/Pacific appears to have made only marginal SAR capability progress in the past two years since the APSAR/TF/1 was held. There remained significant risk of poor SAR responses unless major changes, including increased resources and effort, were applied to this important area of safety.

2.80 The Task Force reviewed and discussed the list of new States and Administrations with SAR compliance deficiencies proposed for APANPIRG/26’s attention (to add to existing SAR deficiencies registered for the Cook Islands and the Maldives after APSAR/TF/4) as follows:

- South Asia: Afghanistan, Bhutan, India, Myanmar, Nepal;
- Southeast Asia: Cambodia, Lao PDR;
- East Asia: DPR Korea, Macau, China, Philippines; and
- Pacific: Fiji, Kiribati, Marshall Islands, Micronesia, Nauru, New Caledonia, Palau, Papua New Guinea, Samoa, Solomon Islands, Timor Leste, Tonga and Vanuatu.

2.81 ICAO presented information on the development of the Asia/Pacific SAR Plan Version 0.7, including the latest draft for consideration by the APSAR/TF. The draft SAR Plan was extensively reviewed by the meeting over the course of an entire day, and was expected to be finalised by APSAR/TF/4.

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RACP/TF/4

2.82 Key outcomes of the RACP/TF/4 meeting were:

- Continued monitoring of the outcomes from ATFM/SG, and consideration of implementing Regional ATM Contingency Plan performance objectives aligned with and supported by ATFM/SG outcomes.
- Further development of the Draft Regional ATM Contingency Plan, including further development of harmonized (where practicable) sub-regional ATS contingency routes and flight level allocation schemes (FLAS), and an agreed performance improvement plan with a provisional implementation target of 10 November 2016.
- Agreement that RACP/TF would examine a range of ICAO and other documents relating to volcanic ash cloud (VAC) contingency arrangements, with a view to developing basic regional guidance for responses to VAC, radioactive cloud and toxic chemical cloud events. The further development of the guidance material would be supported by the outcomes of a volcanic ash exercise (VOLCEX), tentatively scheduled for early June 2015.

2.83 RACP/TF plans to finalize version 1 of the Regional ATM Contingency Plan for presentation to ATM/SG/3 in August 2015, and subsequent endorsement by APANPIRG/26 in September 2015.

**3. ACTION BY THE MEETING**

3.1 The meeting is invited to:

- a) note the information contained in this paper;
- b) review and comment on the draft information in paragraphs 2.43, 2.44 and **Attachments B, C, D, E, F and G** regarding the electronic Air Navigation Plan (eANP); and
- c) discuss any related item.

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