International Civil Aviation Organization

SEVENTH MEETING OF THE ASIA PACIFIC REGIONAL AVIATION SAFETY TEAM (APRAST/7)

(Bangkok, Thailand, 31 August to 4 September 2015)

Agenda Item 6: **Presentation — State / Industry and ICAO**

REPORT OF THE SECOND COORDINATION MEETING BETWEEN THE CHAIRPERSON OF APANPIRG AND RASG-APAC

(Presented by the Secretariat)

SUMMARY

This paper summarizes the outcomes of the coordination meeting between APANPIRG & RASG APAC held on 21st May 2015.

Action by the Meeting is at Section 3.

1. INTRODUCTION

1.1 Pursuant to the PIRGs and RASG Global Coordination Meeting held in Montreal on 19 March 2013, under the Chairmanship of the President of the ICAO Council, APANPIRG/25 (Kuala Lumpur, 8 to 11 September 2014) in Conclusion 25/2 adopted 10 Regional Air Navigation Priorities and Targets in line with the new version of the Global Air Navigation Plan (GANP) containing the Aviation System Block Upgrades (ASBUs) framework.

1.2 The List of APAC Regional Air Navigation Priorities and Targets is placed at Appendix A to this working paper.

2. DISCUSSION

2.1 The Second APANPIRG-RASG APAC Coordination Meeting was held on 21 May 2015 in Bangkok. The outcomes of the meeting are summarized in the Appendix B to this Paper. The ICAO Regional Office in letter AN 3/3 – AP-AGA0106/15 dated 12 June 2015 invited the APANPIRG Sub group Chairs and APRAST Co-chair to report status on the action taken by their respective Sub Group on the second coordination meeting outcomes.

2.2 One outcome of this meeting was that APANPIRG Sub Groups coordinate with RASG APAC/APRAST, the 10 Regional Air Navigation Priorities endorsed by APANPIRG/25 and determine the ASBU modules where correlation exists so as to avoid duplication of efforts

2.3 The Second Coordination Meeting noted three areas namely Control Flight into Terrain (CFIT), Runway Safety (RS) and Loss of Control (LOC) under RASG APAC work programme where the resulting findings would greatly enhance the APANPIRG's work towards ASBU implementation.

2.4   The ATMSG/3, and CNS/SG/19 meetings were informed about the outcomes of the Second APANPIRG – Regional Aviation Safety Group (RASG–APAC Coordination Meeting (Bangkok, Thailand, 11 May 2015). Of principle interest was coordination in fields of interests to APANPIRG Sub Groups and RASG that supported Control Flight into Terrain (CFIT), Runway Safety (RS) and Loss of Control (LOC) safety initiatives. **Table 1** illustrated the APANPIRG SG's proposed correlation between the identified RASG study and the associated Aviation Safety Block Upgrades (ASBUs). Note (red = priority ASBU elements):

CFIT	RS	LOC
B0-SNET *Safety Nets*	B0-APTA *Optimization of Approach Procedures*	B0-APTA *Optimization of Approach Procedures*
B0-TBO *Trajectory Based Operations*	B0-ASUR *Initial Surveillance*	B0-ACAS *Collision Avoidance Systems*
B0-NOPS *Network Operations*	B0-SURF *Surface Operations*	B0-AMET *Advanced Meteorological Information*
	10 Apron Management	
	340 Safety Assessment of Changes	
	350 ATM Operators' Performance	

Table 1: RASG Safety Priorities (proposed as amended)

2.4   The ATM/SG meeting also studied the European Region's Key Performance Indicators (KPIs) and determined that these metrics would not be able to be easily applied across the Asia/Pacific Region due to a lack of State data and sub-regional Air Traffic Flow Management (ATFM).

2.5   The CNS/SG/19 reviewed the European Region's Key Performance Indicators (KPIs) and detailed information on the study is available in Appendix A to APANPIRG/26 – Working Paper 9. Copy placed at Appendix C to this paper.

2.3   The meeting is invited to study the 10 Regional Air Navigation Priorities endorsed by APANPIRG/25 and determine the ASBU modules where correlation exists so as to avoid duplication of efforts; share results of the studies in the areas of CFIT, RS and LOC with APANPIRG Sub Groups to improve efficiency and effectiveness.

3.   Action by the Meeting

3.1   The Meeting is invited to:

   a) Note the information provided in the paper;

   b) Study the 10 Regional Air Navigation Priorities endorsed by APANPIRG/25 and determine the ASBU modules where correlation exists so as to avoid duplication of efforts;

   c) share results of the studies in the areas of CFIT, RS and LOC with APANPIRG Sub Groups to improve efficiency and effectiveness; and

   d) Coordinate with APANPIRG Sub Groups to determine the ASBU modules where correlation exists so as to avoid duplication of efforts.

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Appendix A- **APANPIRG Regional Priorities, Targets and Metrics**

Priority	ASBU module or SeamlessElement	Targets	Target date (Seamless ATM Phase 1 Plan)	Metric
PBN	B0-APTA	1. Approach: Where practicable, **all high- density aerodromes** with instrument runways serving aeroplanes should have precision approaches or APV or LNAV. *Note 1: High density aerodrome is defined by Asia-Pacific Seamless ATM Plan as aerodromes with scheduled operations in excess of 100,000/year.* *Note 2: the Asia/Pacific PBN Plan Version 3 required RNP APCH with Baro-VNAV or APV in 100% of instrument runways by 2016*	12 November 2015	% of **high density aerodromes** with precision approaches or APV or LNAV.
Network Operations	B0-NOPS	2. **All High Density FIRs** supporting the busiest Asia/Pacific traffic flows and high-density aerodromes should implement ATFM incorporating CDM using operational ATFM platform/s. *Note: **High Density FIRs** are defined as:* a) *South Asia: Delhi, Mumbai;* b) *Southeast Asia: Bangkok, Hanoi, Ho Chi Minh, Jakarta, Kota Kinabalu, Manila, Sanya, Singapore, Vientiane; and* c) *East Asia: Beijing, Fukuoka, Guangzhou, Hong Kong, Kunming, Incheon, Shanghai, Shenyang, Taibei, Wuhan.* [APANPIRG Conclusion 22/8 and 23/5 refer]	12 November 2015	% of **High Density FIRs** supporting the busiest Asia/Pacific traffic flows and high density aerodromes using operational ATFM platforms incorporating CDM
Aeronautical Information Management	B0-DATM	3. ATM systems should be supported by digitally-based AIM systems through implementation of **Phase 1 and 2 of the AIS-AIM Roadmap**	12 November 2015	% of Phase 1 and 2 AIS-AIM elements completed

Flight and Flow Information for a Collaborative Environment (FF-ICE)	B0-FICE	4. All States between ATC units where transfers of control are conducted have implemented the messages ABI, EST, ACP, TOC, AOC as far as practicable.	12 November 2015	% of FIRs within which all applicable ACCs have implemented at least one interface to use AIDC / OLDI with neighbouring ACCs
Civil/Military	B0-FRTO	5. Enhanced En-Route Trajectories: All States should ensure that SUA are regularly reviewed by the appropriate Airspace Authority to assess the effect on civil air traffic and the activities affecting the airspace.	12 November 2015	% of States in which FUA is implemented
Civil/Military	Strategic Civil Military coordination (Regional)	6. Enhanced En-Route Trajectories: All States should ensure that a national civil/military body coordinating strategic civil-military activities is established.	12 November 2015	% of States which have established a national civil/military body that performs strategic civil-military coordination
Civil/Military	Tactical Civil Military coordination (Regional)	7. Enhanced En-Route Trajectories: All States should ensure that formal civil military liaison for tactical response is established.	12 November 2015	% of States which have established a formal civil military liaison for tactical response
Ground Surveillance	B0-ASUR	8. All Category S upper controlled airspace and Category T airspace supporting high density aerodromes should be designated as non-exclusive or exclusive as appropriate ADS-B airspace requiring operation of ADS-B.	12 November 2015	% of FIRs where Category S airspace and Category T airspace supporting high density aerodromes are designated as ADS-B airspace

Ground Surveillance	B0-ASUR	9. ADS-B or MLAT or radar surveillance systems should be used to provide coverage of all Category S-capable airspace as far as practicable, with data integrated into operational ATC aircraft situation displays.	12 November 2015	% of ACCs with ATS Surveillance using ADS-B, MLAT or radar in Category S airspace, and having data integrated into the ATC system situation display
Trajectory-Based Operations -Data Link En-Route	B0-TBO	10. Within Category R airspace, ADS-C surveillance and CPDLC should be enabled to support PBN-based separations.	12 November 2015	% of FIRs using data link applications to support PBN-based separations in Category R airspace

Note 1: **high density aerodromes:** based on 2012 ICAO data, as per Seamless Plan v1.0, the 21 busiest Asia/Pacific aerodromes were:
- Australia (Sydney, Melbourne);
- China (Beijing, Shanghai Pudong and Hong Jiao, Guangzhou, Hong Kong, Xi'an, Shenzhen, Chengdu, Kunming);
- India (New Delhi, Mumbai);
- Indonesia (Jakarta);
- Japan (Haneda, Narita);
- Malaysia (Kuala Lumpur);
- Philippines (Manila);
- Republic of Korea (Incheon);
- Singapore (Changi); and
- Thailand (Suvarnabhumi).

ICAO definition for Aerodrome traffic density included in Annex 14 is:
c) Heavy. Where the number of movements in the mean busy hour is of the order of 26 or more per runway or typically more than 35 total aerodrome movements.
Note 1.— The number of movements in the mean busy hour is the arithmetic mean over the year of the number of movements in the daily busiest hour.
Note 2.— Either a take-off or a landing constitutes a movement.

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APPENDIX- B

**Second Asia Pacific Air Navigation Planning and Implementation Regional Group (APANPIRG) –
Regional Aviation Safety Group (RASG–APAC) Regional Coordination Meeting**

ICAO APAC OFFICE 21 MAY 2015

REPORT

1   INTRODUCTION

1.1   The Second APANPIRG RASG Regional Coordination Meeting was held in Bangkok on 21st May 2015. The Agenda is shown below:

1. Review outcomes of the First RASG APANPIRG Coordination Meeting;

2. Review outcomes of the 2nd Global RASG PIRG Coordination Meeting;

3. Review outcomes of High Level Safety Conference 2015, APRAST and RASG

4. Lead Regional Group – Responsibilities

5. Future Work Program

6. Any Other Business

1.2   Attendance

1.2.1   The meeting was attended by the following:

RASG-APAC
1.   Chair – Mr. HMC Nimalsiri, DG Sri Lanka
2.   Vice-Chair – Captain Victor Liu, Asst. DG, HKCAD

APRAST Co-chairs
3.   State – Mr. Tiang Guan Tay, DDG CAA Singapore
4.   Industry – Mr. Tony M. Houston, Asst D/SO&I, IATA

Chairman APANPIRG
5.   Chair – Mr. Norman Lo, DGCA HKCAD

ICAO
6.   RD – Mr. Arun Mishra
7.   DRD – Mr. Yoshiki Imawaka
8.   RO/AGA – Mr. N. Sekhar
9.   RO/FS – Mr. Amal Hewawasam

Observer
10.   Mr. Raymond LI, Asst. DG, HKCAD
11.   Ms. Elizabeth Chau, Deputy Manager (Policy & Rulemaking) CAA Singapore

2.   **SUMMARY OF DISCUSSIONS**

2.1   APANPIRG Sub Groups to coordinate with RASG APAC/APRAST, the 10 Regional Air Navigation Priorities endorsed by APANPIRG/25 and determine the ASBU modules where correlation exists so as to avoid duplication of efforts. Action by APANPIRG Sub Groups (ATM, CNS and MET).

2.2   ICAO APAC Regional Office to coordinate with ICAO Paris Regional Office to obtain the information on the Key Performance Indicators established by EUR Regions and their experience in obtaining data from States/ANSPs for performance measurement. HKCAD will share the e mail forwarded to Mr. Phil Roberts EANPG Chair. [Post meeting Note: HKCAD forwarded the relevant email that was sent out to Mr. Phil Roberts to the ICAO RO on 30 May 2015].

2.3   RASG APAC/APRAST & APANPIRG will study the 8 EUR regions KPIs and their experience with the collection of data and then identify a set of KPIs for APAC Region which should be meaningful and achievable. Clarity should be established on the criteria for the data to be collected.

2.4   APANPIRG Chair informed the meeting that the restructuring of the APANPIRG Contributory bodies should be aligned with the ASBU modules selected by APANPIRG for the APAC Region, in particular with the 10 Regional Priorities and APAC Seamless ATM Plan. Relevant experts would be nominated by States to each of the contributory bodies to discuss the implementation of the regional air navigation priorities and APAC Seamless ATM Plan elements.

2.5   The 8 EUR KPIs, 4 KPIs for air navigation and 4 KPIs for safety, presented by ICAO HQ at the 2nd RASG-PIRG Global Coordination Meeting held in Montreal Canada on 5th February 2015 were reviewed and following observations were noted:

- The KPIs presented are related to performance of operations at Aerodromes and ANSPs only. There are no KPIs showing the performance of ATM operations;

- There could be challenges in collecting data for KPIs from all APAC States/Administrations;

- The need, purpose, relevance and benefits of the KPIs have to be explained clearly to States/Administrations in order that they could give priority and facilitate in providing the necessary data. Each KPI and data to be collected should be well defined, and if necessary explained with examples;

- There was also discussion as whether the KPIs in a region would be used by the ICAO for comparing with KPIs in other regions as they might not be directly comparable due to unique regional operational considerations. A uniform methodology for collecting data should be developed and applied throughout all ICAO Regions. The KPIs for the region should also take into account the regional priorities and plans;

- The APAC could share the good experiences on other regions such as EUR. It is therefore important to know the rationale of how their KPIs were developed;

- While recognizing the challenges in collecting some ATM related data, consideration could be given to start collecting data from major/hub airports. The identification of such airports could be based on the number of aircraft movements;

- Discuss the 4 air navigation related KPIs with respective Sub Groups and submit outcomes to APANPIRG;

- Discuss the 4 safety-related KPIs with APRAST and submit outcomes to RASG-APAC;

- While noting that the submission rate of occurrences/incidents in the region is very low, members considered that reporting rate of such occurrence may not be a good item for the KPI since an increase in such reporting could also be a result of improvement in reporting and safety culture and not necessary a safety concern.

2.6   Lead Regional Group responsibilities:

A.   Regulatory oversight for the effective implementation of Performance Based Navigation (PBN) - Recommendation 1/1 of HLSC 2015:

RASG-APAC
- RASG to coordinate and provide more guidance materials to States/Administrations regarding any PBN requiring operational approvals and the associated regulatory oversight.

APANPIRG
- Discuss assistance provided to States/Administrations in designing and publishing PBN procedures

B.   Recommendation 1/2 – Global Flight Tracking:

a) APANPIRG- SAR training exercise;

b) Interaction between Annex 12 – *Search and Rescue* and Annex 13- *Aircraft Accident and Incident Investigation*: Accident Investigation Group (AIG) of RASG will coordinate with APSAR/TF (APANPIRG's Search and Rescue Task force) for the necessary works;

c) APANPIRG – Civil Military Cooperation; and

d) CAPSCA – current mechanism to continue.

C.   RASG Regional priorities and Targets – Jointly develop the proper structures to sustain the collection and sharing of ATM Data:

SRPWG of RASG to coordinate with ATM/SG of APANPIRG to explore the best mechanism/structure to facilitate the collection and sharing of ATM data so that the data could be gainfully used for safety enhancement in the APAC Region, for example- safety data on stabilized approaches (deviation from safety profiles). Such data could also be used for the evaluation on the benefit of APV approaches in improving safety.

D.   Outcomes of RASG APAC Meetings – Conclusion 4/4 and 4/23:

RASG-APAC to establish the areas of coordination, composition of experts and coordination mechanism for attendance at relevant APANPIRG coordination bodies; this will include endorsement of the APAC seamless ATM Plan by RASG APAC.

RASG-APAC to continue with the lead responsibility for the implementation of TCAS II; APANPIRG will provide results of monitoring collected through the seamless ATM online reporting process to RASG APAC.

RASG APAC Decision 4/9 – RASG APAC/APRAST to circulate the draft Advisory Circulars developed to improve safety to the relevant APANPIRG Sub Groups for review and comments.

2.7   The RASG APAC/3 Final Report noted three areas under their work programme where the resulting findings would greatly enhance the PIRGs work towards ASBU implementation. These areas include Control Flight into Terrain, Runway Safety and Loss of Control. Currently the RASG APAC is collecting information and studying the challenges facing the aviation community regarding these three areas. RASG APAC to share the results of these studies related to safety with APANPIRG Sub Groups to improve efficiency and effectiveness. The chart below illustrates the correlation between the identified RASG study and the associated ASBUs. Note: *The red are priority ASBU elements and blue are elements of the APAC Seamless ATM Plan (version 1.0)*.

	CFIT	**RS**	**LOC**
ASBU Modules	SNET *Safety Nets*	APTA *Optimization of Approach Procedures*	AMET *Advanced Meteorological Information*
	TBO *Trajectory Based Operations*	RSEQ *Runway Sequencing*	ACAS *Collision Avoidance Systems*
	NOPS *Network Operations*	SURF *Surface Operations*	
		ASUR *Initial Surveillance*	

2.8   The coordination meeting noted the advice provided by RASMAG Chair that the task of the RASMAG is to review airspace safety performance and facilitate the implementation of airspace safety monitoring and performance assessment services and agreed that RASMAG would continue its current function as an APANPIRG Sub-group and report to APANPIRG. The meeting also noted that RASMAG would however continue to share the ATM Data and analysis submitted by RMAs and EMAs with RASG/APRAST.

3.   **FUTURE WORK PROGRAMME**

3.1   The Third RASG APANPIRG Regional coordination meeting will be held in April/May 2016 to discuss the progress achieved on the actions suggested in this Report and

subsequently meet during the sidelines of 53rd DGCA Conference scheduled to be held in Sri Lanka from 1 to 5 August 2016.

3.2   Mr. Arun Mishra ICAO APAC Regional Director and secretary for both the APANPIRG and RASG acknowledged the attendance by the Chairs and thanked the meeting for the fruitful discussions. He also pointed out that 2016 being an Assembly year all ICAO APAC meetings will have to be advanced. He further suggested to the APANPIRG chair to consider holding the APANPIRG/27 as planned in September and sought the advice on this proposal noting that the 53rd DGCA Conference to be held from 1 to 5 August 2016 would contain agenda on report of APANPIRG Meeting.

Measuring Global Air Navigation

Proposed Core Key Performance Indicators

Capacity throughput KPIs
  – Peak Arrival Capacity

  – Peak Arrival Throughput

Customer-focused KPIs: On-Time Punctuality / Schedule Delay
  – Actual off-block time against scheduled departure time

  – Actual on-block time against scheduled arrival time

Flight efficiency KPIs
  – Taxi-Out Additional Time

  – Taxi-In Additional Time

Delay KPIs (if ATFM exists)
  – En-Route ATFM Delay

  – Airport/Terminal ATFM Delay

Measuring Global Aviation Safety

Proposed Core Key Performance Indicators (HLSC/15-IP/1 Appendix)

Effective Implementation of State Safety Oversight System
  – USOAP EI scores overall

  – Number and duration of USOAP CMA SSCs by technical area

  – Number and percentage of certified international aerodromes

Progress in SSP/SMS Implementation
  – Percentage of implemented gap analysis questions (per operator and State)

Frequency and Severity of Accidents and Incidents
–   Occurrences by type per number of departures (rate)

–   Number and distribution of occurrences by severity level and category

Fleet Modernization and Industry Certification
–   Percentage of operated aircraft above 20 years

–   Number of operators holding industry certifications (IOSA, etc.)

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APPENDIX C
PROPOSED SUGGESTIONS TO THE OUTCOME OF
SECOND APANPIRG-RASG-APAC COORDINATION MEETING

Introduction

CNS SG19 WP04 reported the outcomes of the coordination meeting between APANPIRG & RASG APAC held on 21st May 2015. CNS SG was invited to note, discuss and take appropriate action on these outcomes, with the view that the third RASG APANPIRG Regional coordination meeting will be held in April/May 2016 to discuss the progress achieved on the actions suggested in this Report.

Suggestions from CNS SG/19

The RASG APAC/3 Final Report noted three areas under their work programme where the resulting findings would greatly enhance the PIRGs work towards ASBU implementation. These areas include Control Flight into Terrain, Runway Safety and Loss of Control.

Currently the RASG APAC is collecting information and studying the challenges facing the aviation community regarding these three areas. RASG APAC to share the results of these studies related to safety with APANPIRG Sub Groups to improve efficiency and effectiveness.
In this connection, the CNS SG meeting reviewed the input available and proposes the following suggestions.

1.   Amend the chart illustrating the correlation between the identified RASG study and the associated ASBUs as follows:

- Add APTA as a safety barrier both for CFIT and RS (protection means, mostly through vertical guidance). Priority 1.
- Add SURF as a safety barrier for RS. Priority 3.
- Delete ASUR as a safety barrier for RS (ASUR does not provide for runway safety as this is a SURF issue).
- Include also regional Seamless ATM items in the chart. If this option is retained then:

  o Add 10 Apron Management (*high density aerodromes should provide an appropriate apron management service in order to regulate entry of aircraft into and coordinate exit of aircraft from the apron*) for RS as a risk control;

  o Add 340 Safety Assessment of Changes (*safety teams comprising multidisciplinary operational staff and managers which review safety performance and assess significant proposals for change to ATM systems*) as a transversal risk prevention mechanism; and

  o Add 350 ATM Operators' Performance (*training for the application of tactical, surveillance-based ATC separation; use of control techniques near minimum ATC separation; responses to ATM contingency operations and safety net alerts; and the importance of an effective safety reporting culture*) should be considered for RS as a major risk prevention and risk factor.

2.   As per the RASG APAC Meeting Conclusion 4/4 and 4/23, RASG would endorse the APAC seamless ATM Plan, it is therefore suggested that RASG could propose to APANPIRG to allocate a different priority based on the contribution of the said item to the regional risk.

3.   As it was already done for ACAS last year, it is suggested that RASG uses the APAC regional picture reflecting the implementation status of ANS improvements to assess how far and where the barriers are implemented.

A dedicated grouping could be developed in the regional picture that would present the ASBU and regional items of interest to RASG.

Responsibility for Airborne Safety Systems (Seamless item 170)

4.   The Responsibility matrix for all Seamless items adopted by APANPIRG/25 shows that for Airborne Safety Systems (seamless item 170) the endorsing body is CNS SG. As the Second RASG–APAC Regional Coordination Meeting identified that RASG was to continue with the lead responsibility for the implementation of ACAS II, it is proposed that RASG replaces CNS SG in the Responsibility matrix for that for Airborne Safety Systems (seamless item 170). However RASG should note that the responsibility is not only with TCAS v7.1 but to implement the Seamless ATM objective:

> *All Category R and S upper controlled airspace, and Category T airspace supporting high density aerodromes should require the carriage of an operable mode S transponder within airspace where Mode S radar services are provided; and ACAS and Terrain Awareness Warning Systems (TAWS), unless approved by ATC (ASBU Priority 2)*

KPIs and analysis of operational safety

5.   *The Key Performance Indicators listed on Page 7 under "Measuring Global Air Navigation" are primarily ATM-oriented and not necessarily appropriate metrics for safety analysis.* The metrics listed on page 8, while more closely aligned to Safety, really provide no baseline by which to do analysis and several do not directly align with safety analysis (i.e. Fleet age by itself is not a safety metric where a comparison of accidents/incidents to fleet age is).

Some operational safety metrics that could provide a more viable analysis could include:

- o   Runway Incursions and Excursions/total operations and their causal factors
- o   Airspace Incursions/total operations and their causal factors
- o   Operational Errors or Deviations/total operations and their causal factors
- o   Readback/Hearback Errors/total transmissions and correlation to control experience, time on position, etc.
- o   Communication/Navigation/Surveillance failures/hours of operation and their causal factors
- o   Automation Failures/hours of operation and their causal factors
- o   Intra- and Inter-facility coordination errors/total transmission and their causal factors

RASMAG and FIT/Asia data in the analysis of operational safety (specifically navigation accuracy and interfacility coordination issues) are potentially rich far beyond their primary analysis and could be better exploited.

Note: The information above may require going to the ATM/SG for further discussion so it could be essentially a joint submission from the SGs to the RASG.

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