INTERNATIONAL CIVIL AVIATION ORGANIZATION
ASIA AND PACIFIC OFFICE

REPORT OF THE ELEVENTH MEETING OF THE FANS IMPLEMENTATION TEAM FOR SOUTH-EAST ASIA (FIT-SEA/11) AND THE EIGHTEENTH MEETING OF THE SOUTH-EAST ASIA ATS COORDINATION GROUP (SEACG/18)

Bangkok, Thailand

3 to 6 May 2011

The views expressed in this report should be taken as those of the meetings and not of the International Civil Aviation Organization (ICAO)

Approved by the meetings
and published by ICAO Asia and Pacific Office

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PART I – HISTORY OF THE MEETING

1. Introduction

1.1 The Eleventh Meeting of the FANS Implementation Team for South-East Asia (FIT-SEA/11) was held at ICAO Asia and Pacific Office on 3 May 2011. Subsequently, the Eighteenth Meeting of South-East Asia ATM Coordination Group (SEACG/18) was held from 4 to 6 May 2011 at the same venue.

2. Attendance

2.1 Forty-six participants attended the meetings from Hong Kong China, Indonesia, Japan, Lao PDR, Malaysia, the Philippines, Singapore, Thailand, the United States, Viet Nam, IATA, ARINC, SITA and BOEING. The list of participants is at **Attachment 1** to this report.

3. Officers and Secretariat

3.1 Mr. Kwek Chin Lin, Senior Air Traffic Control Manager (Systems), the Civil Aviation Authority of Singapore, served as the Rapporteur of FIT-SEA/11. Mr. Raymond Kwok-chu Li, Chief Air Traffic Control Officer, Air Traffic Management Division, Civil Aviation Department, Hong Kong, China continued the Chairperson of SEACG. Mr. Kyotaro Harano, Regional Officer ATM, ICAO Asia and Pacific Office continued the Secretary for FIT-SEA and SEACG, who was assisted by Mr. Len Wicks, Regional Officer ATM.

4. Opening of the Meeting

4.1 On behalf of Mr. Mokhtar A. Awan, Regional Director, ICAO Asia and Pacific Office, Mr. Harano extended a warm welcome to the participants. In the previous year, FIT-SEA/10 and SEACG/17 were held in Singapore due to the onset of the social unrest in Bangkok. He took the opportunity to once again thank Singapore for their kind assistance provided to ICAO to enable both the meetings as well as the 20th Meeting of the ATM/AIS/SAR Sub-Group (ATM/AIS/SAR/SG/20, July 2010) to be held as planned, with good number of participants turned up at those meetings.

4.2 Mr. Harano commended FIT-SEA in having made significant progress during the past years in expanding the ADS/CPDLC services in the South China Sea area in a very active manner. He further reminded the participants that the revised Terms of Reference (TORs) for SEACG was proposed by Hong Kong, China in the previous year and approved by ATM/AIS/SAR/SG/20. Although ATM providers spent the past few years in implementing many major airspace projects bringing substantial benefits to operators as well as to the environment, there was still a need for States to improve their ATM. He hoped that the participants were actively involved in the discussion toward the objectives of the group.

4.4 Mr. Kwek Chin Lin extended a warm welcome to the participants of FITSEA/11. He remarked that FIT-SEA/11 would be significant due to two developments as highlighted by the Secretariat: a) The subject on the provision of Central Reporting Agency (CRA) services for FIT-SEA and b) the update by the Philippines on their data link implementation plans. He encouraged all delegates to participate actively in the discussions.

4.5 Mr. Raymond Kwok-chu Li extended a warm welcome to all delegates attending the SEACG/18. He recalled that a number of events happened in the past year had significant effects on the Southeast Asia ATM operating environment. During the year, air traffic volume fully recovered from the doldrums of the global economic downturn. However, the oil price had also returned to a very high level, significantly affecting the operating cost of airline operators. He sincerely encouraged participants of the meeting to work together in a collaborative manner to develop solutions and resolve identified operational problems, consistent with the TORs of SEACG.

5. Documentation and Working Language

5.1 The working language of the meeting and the language for all documentation were English. Seven working papers (WPs) and seven information papers (IPs) were presented to FIT-SEA/11, and twenty WPs and five IPs were presented to SEACG/18. The list of papers and presentations is shown at **Attachment 2** to this report.

FIT-SEA/11

REPORT OF FIT-SEA/10

Agenda Item 1: Adoption of Agenda

1.1 The meeting unanimously elected Mr. Kwek Chin Lin, Senior Air Traffic Control Manager (Systems) from the Civil Aviation Authority of Singapore (CAAS) as the Rapporteur of FIT-SEA/11.

1.2 The meeting noted the TORs for FIT-SEA as follows:

Composition of FANS Implementation Team (FIT)

The FANS Implementation Team (FIT) will consist of representatives from aircraft and ancillary equipment manufacturers, airlines, data communication service providers (DSP), ATS providers, IATA, ICAO, IFALPA and IFATCA.

FIT-SEA Terms of Reference (TOR)

The FANS Implementation Team for the South East Asia region (FIT-SEA) shall be responsible for system configuration and oversee the end-to-end monitoring process to ensure the FANS 1/A systems are implemented and continue to meet their performance, safety, and interoperability requirements.

FIT-SEA shall:

a) Determine the common operational architecture to support CPDLC and ADS;

b) Support the implementation and operational benefits of CPDLC and ADS;

c) Authorize and coordinate system testing and operational trials;

d) Develop interim operational procedures to mitigate the effects of problems until such time as they are resolved;

e) Review de-identified problem reports and determine appropriate resolution;

f) Monitor the progress of problem resolution; and

g) Assess system performance based on information in Central Reporting Agency periodic reports.

Preparation of Reports

The Central Reporting Agency (CRA) will report, as required, to FIT-SEA. FIT-SEA will report to the South-East Asia ATS Coordination Group (SEACG). ICAO will submit reports to appropriate sub-groups of APANPIRG.

(Adopted by SEACG/11, 2003)

Agenda Item 2: Review of ADS/CPDLC Implementation

Outcomes of APANPIRG on FIT-SEA Activities

2.1 The meeting reviewed the outcomes of the 21st Meeting of the Asia/Pacific Air Navigation Planning and Implementation Regional Group (APANPIRG/21, September 2010) with regard to data link operation matter.

Global Operational Data Link Document

2.1.1 APANPIRG/21 recalled that the *Global Operational Data Link Document* (GOLD) had replaced the *Guidance Material for ATS Data Link Services in North Atlantic Airspace* and the *FANS-1/A Operations Manual* (FOM) for Asia/Pacific, South American and African/Indian Ocean Regions. The First Edition of the GOLD is available for download on the websites of the United States Federal Aviation Administration (FAA), Airways New Zealand and ICAO Asia and Pacific Office.

ATS Coordination Group Activities

2.1.2 APANPIRG/21 was updated on the activities of SEACG/17 and FIT-SEA/10 (May 2010, Singapore). FIT-SEA/10 recognized the need to establish a formal FIT-SEA CRA as soon as possible but not later than March 2011 by the Philippines, Singapore and Viet Nam.

Review by ATM/AIS/SAR/SG/20

2.1.3 In view of the urgent need for the continuation of the CRA functions, Singapore, the Philippines and Viet Nam had a side meeting during ATM/AIS/SAR/SG/20. Philippines and Viet Nam requested Singapore to assume the role of the CRA after March 2011. Singapore informed ATM/AIS/SAR/SG/20 that it would seek management approval. It was assured that CRA-Japan would assist Singapore in establishing the formal FIT-SEA CRA as required during the transition period until 31 March 2011.

Outcomes of RASMAG/13 and 14

2.2 The meeting reviewed the outcome of the 13th and the 14th meetings of the Regional Airspace Safety Monitoring Advisory Group (RASMAG/13 and 14, August 2010 and February 2011, respectively).

RASMAG/14

Airspace Safety Monitoring Documentation and Regional Guidance Material

2.2.1 New Zealand had proposed amendments to the *Guidance Material for End-To-End Safety and Performance Monitoring of Air Traffic Service (ATS) Datalink Systems in the Asia/Pacific Region* which was prepared by RASMAG and adopted by APANPIRG/16 (August 2005, Bangkok).

Data Link Performance Monitoring Results

2.2.2 New Zealand stated that they had reworked some of the data to reflect performance trends rather than monthly performance. The GOLD requires an availability of 99.9% for safety, but adds the more stringent availability of 99.99% for traffic efficiency for air navigation service providers (ANSPs) operating reduced separations in areas of high traffic density. In terms of outages, the safety target was a maximum of 520 min. total outage in a 12-month period, and the efficiency

target was a maximum of 52 min. total outage with no more than four outages of greater than 10 min. in a 12-month period.

2.2.3 RASMAG/14 discussed whether States understood that this type of performance monitoring was an on-going post-implementation requirement. The United States indicated that Appendix D of the GOLD was based on post-implementation monitoring and corrective action. The FAA was doing some work to automate the charting of GOLD formatted data and would share that with States on request. Further discussion indicated that there was a need to take some action to encourage ANSPs to provide data link performance data to the CRAs. The Secretary advised that he had personally discussed such issues with those States that had not been providing data, in an attempt to educate them to the requirements. New Zealand suggested that possibly the FITs should be asked to undertake such an education program. RASMAG/14 agreed to this suggestion and indicated that this might also occur at the SEACG meetings. The Secretary was tasked with conveying RASMAG's concern to relevant coordination groups and FITs.

ADS-C/CPDLC Data Link Performance Monitoring

2.2.4 RASMAG/14 discussed the information presented and recommended appropriate action to encourage ANSPs to provide data link performance data to the CRAs. Accordingly, RASMAG/14 proposed a recommendation as follows:

Recommendation RASMAG 14

Noting the pre- and post-implementation system performance monitoring required by Annex 11 – Air Traffic Service *(Para 2.26.5), the* Global Operational Data Link Document *(GOLD) and the* Guidance Material for End-to-End Safety and Performance Monitoring of Air Traffic Service Data Link Systems in the Asia/Pacific Region, *States are invited to ensure that the appropriate data link performance monitoring is undertaken and reported to CRAs/FITs, as required, in a timely manner.*

2.3 Accordingly, the Secretariat conveyed the RASMAG's concern to the meeting. Noting that the system performance data had been duly submitted to the CRA in timely manner but PR had been submitted only from a single source. The State which had not submitted PRs so far was requested to enhance the awareness among the operational controllers and operators.

Outcomes of FIT-BOB/13

2.4 The meeting reviewed the outcome of the 13th Meeting of FIT-Bay of Bengal (FIT-BOB/13, February 2011).

Review Bay of Bengal ADS/CPLDLC Operations

ADS/CPDLC Progress and Commencement of 24-hour Operational Trial within Kuala Lumpur FIR

2.4.1 The meeting was informed that FIT-BOB/13 noted several problem reports (PRs) but there had been no analysis of these issues available from the CRA at the time presented. In terms of the system performance analysis, the Secretariat noted that Malaysia made reference to the FOM whereas APANPIRG/20 formally adopted the GOLD to replace the FOM. The assessment performed by Malaysia indicated that the system stability was not sufficient to allow uses for operational provision of reduced separation at this time, but this was being worked on.

2.4.2 IATA noted that in more mature systems, ADS-C reports were utilized for position reports in lieu of CPDLC reports. India commented that in case there is no ADS-C connection and only CPDLC connection, only CPDLC could be used for position verification. IATA stated that they would prefer the minimum of delay to implement reduced horizontal separation standards, and preferred the earliest possible implementation.

Progress Report of ADS-C/CPDLC Operation within the Ujung Pandang FIR

2.4.3 FIT-BOB/13 noted that there had been a lack of PRs, reporting of which should be encouraged as they are a vital part of the safety oversight of data link operations. FIT-BOB discussed whether the Ujung Pandang flight information region (FIR) should be within FIT-SEA instead of FIT-BOB. There was general discussion about the different traffic flows that each FIR supported, and the possibility of FIT-BOB and FIT-SEA being merged. For the time being, the Ujung Pandang FIR should have more association with FIT-SEA while the Jakarta FIR could remain with FIT-BOB.

ADS/CPDLC Operation within the Ujung Pandang FIR and the Proposal for the Ujung Pandang FIR to Join FIT-SEA

2.5 Indonesia reported that data link services began with the trial operation of ADS-C/CPDLC on 3 July 2008 on ATS routes A461, B462, B472, B473, B583, B584 and R340/R590, and international flights operating on those routes now shall use CPDLC as the primary means of communication. Ujung Pandang Area Control Centre (ACC) started ADS/CPDLC regular operations within the Ujung Pandang FIR after the publication of AIP Supplement No. 10/10 concerning the ADS-C/CPDLC Procedure within the Ujung Pandang FIR dated 29 July 2010.

ADS-C/CPDLC Operation Monitoring

2.6 The meeting noted the system performance data for the Ujung Pandang FIR as shown in **Appendix A** to this report.

Traffic Flows

2.7 The traffic flows in the Ujung Pandang FIR were different from the flows in the Jakarta FIR. The traffic flows within the Ujung Pandang FIR were mostly serving the traffic from East Asia to Australia and vice versa while traffic flows within the Jakarta FIR were from Australia to South East Asia and the Middle East and vice versa. There were five major ATS routes serving the traffic flows, namely A461, B472, B473, R340 and G578, in connection with the Manila FIR and two major ATS routes in connection with the Kota Kinabalu FIR, namely B583 and B584. It was also noted in the report of FIT-BOB/13 that the traffic flows in the Ujung Pandang FIR had closer relation with the FIT-SEA activities rather than those of FIT-BOB.

Discussion

2.8 IATA agreed that the traffic flow in the Ujung Pandang FIR was predominantly north-south while the traffic flow in the Jakarta FIR was east-west. Even though the two contiguous FIRs belong to a State with another FIR in between, there should not be a problem for those FIRs to belong to different FITs from the view point of the traffic flow, thus agreeing with Indonesia that the Ujung Pandang belongs to FIT-SEA. Singapore supported Indonesia's request.

2.9 The Secretariat advised the meeting that in order for the Ujung Pandang FIR to become a member of FIT-SEA, there was no need to amend the TOR of FIT-SEA as it does not specifically list the member FIRs. The Rapporteur drew to the attention of the meeting that the TOR of the FIT-SEA CRA agreed at FIT-SEA/3 (November 2005, Bangkok) would need to be amended as

it defined the area of services for CRA services for airspace outside radar and VHF coverage within the Ho Chi Minh, Manila and Singapore FIRs. The area of service of FIT-SEA CRA would be amended to add the Ujung Pandang FIR. RASMAG List of Competent Agencies also needed the update in the same manner.

Agenda Item 3: Central Reporting Agency – South-East Asia

Report of FIT-SEA CRA

3.1 Japan informed the meeting that CRA-Japan had been providing CRA services according to the TOR that was agreed upon by FIT-SEA/3. FIT-SEA/7 (January-February 2008, Fukuoka) agreed that the Phase 2 operational trial of data link in the Ho Chi Minh FIR could be migrated to the full ADS/CPDLC operations.

3.2 ADS/CPDLC regular operations were commenced on eight oceanic RNAV routes (L625, L628, L642, M765, M768, M771, N500 and N892) in the Ho Chi Minh FIR from 10 April. CRA-Japan received data and information concerning ADS/CPDLC system performance and PRs from the Civil Aviation Authority of Singapore (CAAS) and the Civil Aviation Administration of Viet Nam (CAAV).

System Performance

CPDLC Performance for Singapore

3.3 CRA-Japan informed the meeting that from April 2010 to February 2011, 94.51% of downlink messages were delivered within 1 min, and 99.14 % were within 3 min. The CPDLC downlink performance for the 1 min criteria was marginally (0.49%) short of the FOM standard. As far as the uplinked messages are concerned, the actual numbers derived from the CAAS showed that both 95 and 99 percentile figures conformed to the FOM standards.

3.4 Average uplink success rate in this year was 99.98%. In regard to the auto transfer success rate, there is no prescribed standard in the FOM. Average auto transfer success rate in this year was 95.5%.

CPDLC Performance for Ho Chi Minh

3.5 95% of downlink messages took an average of 56 sec, and 99% of downlink messages took an average of 1 min 43 sec. The actual numbers derived from the CAAV showed that both 95 and 99 percentile figures for the uplink messages conformed to the FOM standards.

3.6 Average uplink success rate in this year was 98.74%. It was marginally less than the success rate specified in the FOM. Average auto transfer success rate in this year was 92.6%.

Problem Reports

3.7 Since FIT-SEA/10, CRA-Japan had received a total of eight PRs from Singapore. All of the eight events were classified as “In progress”.

3.8 The PowerPoint charts contained in **Appendix B** to this report shows each item and data link system performance analyses.

Discussion

3.9 The Rapporteur noted that the PRs were from a single source and encouraged the State member to submit PRs. Airline operators were also encouraged to submit PRs to the CRA. To facilitate more timely submission, the Rapporteur suggested reviewing the PR submission mechanism to allow for earlier receipt by the CRA. This will ensure that data that needs to be retrieved from the data link service providers (DSP) are still available as he noted that the PR analyses by Japan required additional information in order to complete the investigations.

3.10 IATA thanked Japan for the continuous support for the CRA service. In regard to the reporting mechanism, IATA informed the meeting that in the South Pacific, direct reporting can be filed through the use of data link, and was of view that FIT-SEA may wish to consider this in the future plan.

Review of ADS/CPDLC Operations in the Singapore FIR

3.11 Singapore presented a presentation of the ATS Data Link System Performance/Operator Review of ADS/CPDLC Operations in the Singapore FIR for the period May 2010 to Mar 2011.

Performance

3.12 Monthly Periodic Status Reports were prepared and submitted regularly to CRA-Japan. A summary of the year's performance is in **Appendix C** to this report. The reports indicated that the ATS data link system performance was within the FOM criteria except for downlink message delivery in the earlier part of the review period. It was noted that the downlink message delivery performance for the 1 min criteria for February 2011 onwards had improved and had been since maintained at a performance level that met the FOM criteria.

3.13 The mean CPDLC uplink delivery time was 98% and 99.9% for the 120 sec and 360 sec criteria, respectively. The mean CPDLC downlink delivery time was 99.15% and 94.57% for the 180 sec and 60 sec criteria, respectively. The total reject rate remained low with an average of 0.02%. The data link service availability remained high and the Next Data Authority (NDA) success rate was 95.32%.

3.14 As previously noted at FIT-SEA/9 (May 2009, Bangkok) and FIT-SEA/10, there were performance issues for downlinks in both the Singapore and the Ho Chi Minh FIR. This was a known performance issue that was attributed to the B777 type, which formed a majority amongst the aircraft types operating FANS in the Singapore FIR.

3.15 During this period, Boeing provided a fix to the operators. All 26 of Singapore Airline's AIMS-2 equipped B777 had completed the upgrade, with 10 out of the remaining 51 AIMS-1 equipped B777 were still in progress. Although it was expected to take time for all the aircraft to be updated, those upgrades had resulted in improved downlink performance from February 2011 onwards.

Data Link Usage

3.16 The average logon rate was 165 logons per day over the South China Sea in the Singapore FIR, with B777 aircraft type contributing with 55% of the logons, the Airbus family of aircraft with 35% and the B747-400 with 13% of the logons. The average number of CPDLC messages was 30,575 per month or 1,019 CPDLC messages per day.

ADS/CPDLC Implementation in the Ho Chi Minh FIR

3.17 Viet Nam reported that they had officially started providing data link services on eight RNAV routes (L625, L628, L642, M765, M768, M771, N500 and N892) in the oceanic area of the Ho Chi Minh FIR since April 2008.

Operational Status

The status of ADS/CPDLC operations:

- Based on the daily records, there were more than 300 aircraft flying on the above RNAV routes, only half of which had been equipped with both ADS and CPDLC.
- There are about 100 aircraft having ADS/CPDLC connection with Ho Chi Minh system. The remaining aircraft used voice communication (VHF) in the radar environment.

Technical status:

- Ground system: There was no modification to ground system, and the system was working satisfactorily.
- ACARs link: With dual link provided by ARINC, there was no unplanned interruption, and the connection between CAAV system and service provider's server was stable.
- Data link transfers between Ho Chi Minh and Singapore ACCs had been taking place smoothly.

CPDLC Uplink/Downlink Messages:

- CPDLC uplink performance met the FOM criteria.
- Downlink messages: 95 percentile had duration of 01: 00 min and the 99 percentile was 01: 43 min.
- Uplink messages: 95 percentile had duration of 01: 00 min and the 99 percentile was 02: 20 min.
- Success rate: 99 percent.

Periodic Status Reports:

- The reports had been made monthly and sent to CRA-Japan for analysis up to February 2011. There was no recommendation for any correction received from the CRA.

PRs:

- There was no PR reported to the CRA.

Further Improvement

Future actions of improvement would be required as follows:

- Maintenance of stable operation of data link.
- Improvement of quality of data link.

- Reduction of uplink time and downlink time in order to allow the improvement on ADS/CPDLC separation application.
- Continued CRA service provision in the area to support ADS/CPDLC operations.
- Expansion of ADS/CPDLC operation into other FIRs in the area.

Progress of ADS/CPDLC Trial Operations in the Manila FIR

3.18 Philippines reported that the Phase 1A of the trial operations was conducted from 8 November 2010 to 11 February 2011. The trial period was from 0300 to 0900 UTC. Four airlines participated in the data link trial.

3.19 From 14 February 2011 up to the present, the Phase 1B operational trial was ongoing. The trial period was from 0100 to 1300 UTC. Seven airlines were taking part in the trial.

Outcome of the Phase1A Operational Trial

System Performance

3.20 Data on the system performance during the Phase 1A of the data link trial operations, i.e. for the period from 8 November 2010 to 11 February 2011, were provided to the Philippines by SITA. Subsequently, those data were sent to FIT-SEA CRA (CRA-Japan). Based on the data collected, Manila attained encouraging figures for the success rate of uplink and downlink messages delivery per month. The figures met the minimum values of the system performance criteria defined in the FOM as in **Appendix D** to this report.

Problem Reports

3.21 The majority of the problems encountered during the Phase 1A were problems with connection or log on to RPHI.

Status of the Phase1B Operational Trial

3.22 Starting from 14 February 2011, Manila progressed to the Phase 1B of the trial operations wherein seven airlines were participating. PRs and system performance reports for the trial period were regularly submitted to CRA-Japan.

Preparations for the Next Phase

3.23 Phase 2 of the trial operations will be divided into two sub-phases, i.e. Phases 2A and B. (Appendix D)

Supplementary LOA

3.24 The Draft Supplementary LOA had already been prepared. It would be finalized as soon as discussions with adjacent ACCs were completed. (**Appendix E** to this report)

AIP Supplement

3.25 As a requirement for the trial involving the participation of all FANS 1/A equipped aircraft, Manila drafted an AIP Supplement. (**Appendix F** to this report).

3.26 IATA queried the timeline to proceed to the Phase 2A trial. After discussions between the Philippines and the Secretariat, there were two actions for the Philippines to complete before moving on to the Phase 2 trial in 2011. One was to amend the operational letters of agreement (LOA) with the neighbouring ACCs and the second was that an AIP supplement should be published two AIRAC cycles before the commencement of the Phase 2 trial. The Philippines was invited to inform the upcoming ATM/AIS/SAR/SG/21 in June and APANPIRG in September 2011 of the estimated time schedule in an IP.

3.27 The Rappateour congratulated the Philippines on the progress made in data link trials and noted that CRA-Japan had been providing CRA services to the Philippines on a bilateral cooperation basis. The meeting agreed that the arrangement with CRA-Japan could continue during the Phase 1 so as not to interfere the on-going trial, and the Phase 2 trial would need to be authorized and coordinated under the auspices of FIT-SEA and the responsibility of CRA-Singapore.

Setting Up of CRA-Singapore

3.28 Singapore recalled that at FIT-SEA/10, Japan indicated that it was unable to continue due to financial resources and other considerations. With the Philippines planning to introduce data link operations soon, it was important that an alternative CRA arrangement be set up quickly in order to continue data link operations in South China Sea region and not to affect the data link implementation in the Philippines.

3.29 Singapore had offered to set up and fund an alternative CRA arrangement for the South China Sea region. This arrangement will be for an initial period of three years to facilitate the expansion of data link operations in the South East Asia region, after which a review will be done.

Terms of Reference of FIT-SEA CRA

3.30 Whilst it was originally envisaged that there would not be any change to the TOR, a change to the area of FIT-SEA CRA services would be necessary to accommodate the participation of the Ujung Pandang FIR in FIT-SEA. In order for CRA-Singapore to act as FIT-SEA CRA under the authorization of FIT-SEA, a data confidentiality agreement shall be signed between CRA-Singapore and the States that provide data link services or will implement data link trials, namely, Indonesia, the Philippines, Singapore and Vietnam. Besides establishing a data confidentiality agreement with their DSP, States shall also establish this arrangement with Boeing who will be supporting CRA-Singapore in providing technical expertise for CRA activities.

3.31 Singapore informed the meeting that CRA-Singapore as the FIT-SEA CRA would analyze PRs, disseminate de-identified information on PR and prepare periodic reports in accordance with the TOR agreed by FIT-SEA. It was envisaged that PRs may be submitted directly by ATS providers, airlines and DSPs directly to Boeing, who will provide a copy to CRA-Singapore, in accordance with the data confidentiality arrangements.

3.32 In response to query from the Secretariat, Singapore clarified that CRA-Singapore had already been able to accept PRs since April 2011, subject to signing of the data confidentiality agreement.

3.33 The meeting noted and discussed the information, the changes to the CRA arrangement (in particular PR submission procedures) and was invited to establish a data confidentiality arrangement with CRA-Singapore, DSP and Boeing. Upon the establishment of the data confidentiality arrangement, the CRA service will be provided officially to the ANSPs.

3.34 The Secretariat appreciated that Singapore took over the role of the CRA for the South East Asia region. It was noted that the Philippines were currently providing PRs to CRA-Japan on a bilateral cooperation basis. The Philippines was invited to conclude the data confidentiality agreement with CRA-Singapore as soon as possible. Japan agreed that the current bilateral assistance would be continued until the official service provision starts by signing the confidentiality agreement and/or the Phase 2A starts.

3.35 Viet Nam requested to confirm the point of contact (POC) of CRA-Singapore. Singapore responded that the POC is Mr. Kwek Chin Lin, Senior Air Traffic Control Manager (Systems), Civil Aviation Authority of Singapore, whose email address is kwek_chin_lin@caas.gov.sg.

Tables of ADS/CPDLC Equipage and ATS Participation Status

3.36 The table of Southeast Asia ADS/CPDLC Equipage and ATS Participation Status was updated as in **Appendix G** to this report.

Agenda Item 4: Data Link Guidance Materials

4.1 The meeting noted that many States were still using the FOM to evaluate data link system performance even after the GOLD was formally adopted by APANPIRG/20 (September 2009, Bangkok) to replace the FOM. The meeting agreed that States should refer to the GOLD to ensure that the data link be operated in a harmonized and starndardized manner.

Agenda Item 5: Update Task Lists

5.1 The meeting reviewed and updated the list as in **Appendix H** to this report.

Agenda Item 6: Any Other Business

There was no discussion under this agenda item.

Agenda Item 7: Date and Venue for the Next Meeting

7.1 To be advised.

SEACG/18

REPORT OF SEACG/18

Agenda Item 1: Adoption of Agenda

1.1 The meeting adopted the agenda for the meeting as proposed.

Agenda Item 2: Adoption of Terms of Reference of the Group

Decision of ATM/AIS/SAR/SG20 on Terms of Reference Proposed by SEACG/17

2.1 Hong Kong, China informed the meeting that subsequent to discussion by SEACG/17 (May 2010, Singapore), they undertook to present the draft Terms of Reference (TORs) on behalf of SEACG for consideration and endorsement by ATM/AIS/SAR/SG/20. ATM/AIS/SAR/SG/20 reviewed and adopted the draft TORs and the title, and reached the following Decision:

Decision SG 20/11 − Terms of Reference (TORs) of the South East Asia ATM Coordination Group

That the Terms of Reference, change in the title and composition of SEACG be adopted as shown in Appendix A to the Report on Agenda Item 6.

2.2 The meeting noted the TORs adopted by ATM/AIS/SAR/SG/20 for SEACG as follows:

Terms of Reference

South-East Asia ATM Co-ordination Group (SEACG)

1. Terms of Reference of SEACG:

1) Identify current problems or deficiencies in ATM being experienced in the Southeast Asia area;

2) Develop solutions to resolve noted problems or deficiencies that do not require long-range planning in the Southeast Asia area;

3) Prepare a co-ordinated action plan with time lines for implementation of the agreed actions in a manner that is harmonized with adjacent regions, consistent with ICAO SARPs and Global Air Navigation Plan (Doc 9750);

4) Make specific recommendations to the APANPIRG through the ATM/AIS/SAR Sub-Group, aimed at improving ATM/AIS/SAR services within the South East Asia Region and the adjacent Regions.

5) Report to the ATM/AIS/SAR Sub-Group of the APANPIRG

2. The SEACG comprises representatives from the following, but not limited to:

Australia, Brunei Darussalam, Cambodia, China, Hong Kong China, Indonesia, Japan, Lao PDR, Malaysia, Papua New Guinea, Philippines, Singapore, Thailand, Viet Nam, IATA, IFALPA, IFATCA, ARINC and SITA.

(Adopted by ATM/AIS/SAR/SG/20, July 2010)

Agenda Item 3: Review Outcomes of Related Meetings

Outcomes of APANPIRG/21

3.1 The meeting reviewed the outcomes of the 21st Meeting of the Asia/Pacific Air Navigation Planning and Implementation Regional Group (September 2010, Bangkok) particularly the 16 Conclusions and 1 Decision which related to the SEACG activities.

Outcomes of RASMAG/13 and 14

3.2 The meeting reviewed the outcomes of the 13th and the 14th meetings of the Regional Airspace Safety Monitoring Advisory Group (RASMAG/13 and 14, August 2010 and February 2011, respectively) which were held at the Regional Office, Bangkok, Thailand.

Reports from Asia/Pacific RMAs and EMAs

3.2.1 RASMAG/14 noted that, when compared with the previous report at RASMAG/13, the total Large Height Deviation (LHD) duration increased from 98 minutes to 176 minutes while the number of LHD occurrences increased from 74 to 116 occurrences. As a result, the calculated total risk of 5.71×10^{-9}, as of November 2010, in the Western Pacific/South China Sea (WPAC/SCS) airspace exceeded the regionally agreed target level of safety (TLS, 5.0×10^{-9}) as in **Table 1** below:

South China Sea RVSM Airspace – estimated annual flying hours = 905,147 hours (note: estimated hours based on December 2009 traffic sample data)			
Source of Risk	**Lower Bound Risk Estimation**	**TLS**	**Remarks**
Technical Risk	0.64×10^{-9}	2.5×10^{-9}	Below Technical TLS
Operational Risk	5.07×10^{-9}	-	-
Total Risk	**5.71×10^{-9}**	**5.0×10^{-9}**	**Above Overall TLS**

Table 1: Risk Estimates for the RVSM Implementation in WPAC/SCS Airspace

3.2.2 A significant number of LHDs were Category E LHD occurrences (a total of 100 occurrences accounted for 129 minutes in duration). The most common locations (top 5) where Category E LHD occurred in term of duration included ARESI, GORAI, LAXOR, SADAN and PEDNO.

3.2.3 RASMAG/14 recognised that Manila Area Control Centre (ACC) was often the receiving centre for those identified errors, and other States involved should recognise that and work together to resolve the issues. In subsequent discussions, RASMAG/14 was concerned that the issues should be resolved quickly by the States concerned and proposed that possibly the Monitoring Agency for Asia Region (MAAR) could coordinate a meeting of those States. Further discussion on the issue by RASMAG/14 resulted in a proposal by the Philippines that possibly a SEACG discussion

to resolve Category E errors may be appropriate. Singapore agreed that the right operational people would be in place to undertake that work in a side meeting. The Secretary agreed to ensure that such a meeting was convened at SEACG/18 in May 2011. The RASMAG Chairman stated that he would inform Indonesia of this outcome at a forthcoming meeting between Australia Airspace Monitoring Agency (AAMA) and the Directorate General of Civil Aviation (DGCA) of Indonesia.

Update of HMU Implementation in Japan

3.2.4 Japan informed RASMAG/14 that 'Setouchi' Height Monitoring Unit (HMU) had been already installed. The flight validation by the flight inspection team of Japan Civil Aviation Bureau (JCAB) would start in February 2011. JCAB will start a trial operation of height monitoring in April 2011. The purpose of the trial will be to collect enough samples of actual height keeping performance data and validate the accuracy of the readings. It was expected that a trial of at least five months would be needed. The official start of operations was planned in September 2011.

Data Link Performance Monitoring Results

3.2.5 RASMAG/14 discussed whether States understood that data link performance monitoring was an on-going post-implementation requirement. The Federal Aviation Administration (FAA) was doing some work to automate the charting of GOLD formatted data and would share that with States on request. Further discussion indicated that there was a need to take some action to encourage air navigation service providers (ANSPs) to provide data link performance data to the central reporting agencies (CRAs). New Zealand suggested that possibly the FITs should be asked to undertake such an education program. RASMAG/14 agreed to that suggestion and indicated that that may also occur at the SEACG meetings. The Secretary was tasked with conveying RASMAG's concern to relevant coordination groups and FITs.

Clarification of Reporting Requirements by ANSPs for Category D and M Operational Errors

3.2.6 **Table 2** below provides suggested wording and examples of incidents/reports for each LHD taxonomy categories for consideration:

Code	LHD Cause
Operational Errors	
A	Flight crew failing to climb/descend the aircraft as cleared
	Example: *Aircraft A was at F300 and assigned F360. A CLAM alert was seen as the aircraft passed F364. The Mode C level reached F365 before descending back to F360.*
B	Flight crew climbing/descending without ATC Clearance
	Example: *At 0648, Aircraft A reported leaving cruise level FL340. The last level clearance was coincident with STAR issue at 0623, when the flight was instructed to maintain FL340. ATC was applying vertical separation between Aircraft A and two other flights. The timing of the descent was such that Aircraft A had become clear of the first conflicting aircraft and there was sufficient time to apply positive separation with the other.*
C	Incorrect operation or interpretation of airborne equipment (e.g. incorrect operation of fully functional FMS, incorrect transcription of ATC clearance or re-clearance, flight plan followed rather than ATC clearance, original clearance followed instead of re-clearance etc)
	Example: *The aircraft was maintaining a flight level below the assigned altitude. The altimeters had not been reset at transition. The FL assigned was 350.*

Code	LHD Cause
	Operational Errors
	The aircraft was maintaining 346 for 4 min 46 s.
D	ATC system loop error; (e.g. ATC issues incorrect clearance or flight crew misunderstands clearance message. Includes situations where ATC delivery of operational information, including as the result of hear back and/or read back errors, is absent, delayed, incorrect or incomplete, and may result in a loss of separation.)
	Example: *All communications between ATC and aircraft are by HF third party voice relay. Aircraft 1 was maintaining FL360 and requested FL380. A clearance to FL370 was issued, with an expectation for higher levels at a later point. A clearance was then issued to Aircraft 2 to climb to F390, this was correctly read back by the HF operator, but was issued to Aircraft 1. The error was detected when Aircraft 1 reported maintaining F390.*
E	Coordination errors in the ATC to ATC transfer or control responsibility as a result of human factors issues (e.g. late or non-existent coordination, incorrect time estimate/actual, flight level, ATS route etc not in accordance with agreed parameters)
	Example 1: *Sector A coordinated Aircraft 1 to Sector B at FL380. The aircraft was actually at FL400.* Example 2: *The Sector A controller received coordination on Aircraft 1 for Waypoint X at F370 from Sector B. At 0504 Aircraft 1 was at Waypoint X at F350 requesting F370.*
F	Coordination errors in the ATC to ATC transfer or control responsibility as a result of equipment outage or technical issues
	Aircraft Contingency Events
G	Deviation due to aircraft contingency event leading to sudden inability to maintain assigned flight level (e.g. pressurization failure, engine failure)
H	Deviation due to airborne equipment failure leading to unintentional or undetected change of flight level
	Deviation due to Meteorological Condition
I	Deviation due to turbulence or other weather related cause
	Deviation due to TCAS RA
J	Deviation due to TCAS resolution advisory, flight crew correctly following the resolution advisory
K	Deviation due to TCAS resolution advisory, flight crew incorrectly following the resolution advisory
	Other
L	An aircraft being provided with RVSM separation is not RVSM approved (e.g. flight plan indicating RVSM approval but aircraft not approved, ATC misinterpretation of flight plan)
M	Other – this includes situations where: i) there has been a failure to establish or maintain a separation standard between aircraft; or ii) flights are operating (including climbing/descending) in airspace where flight crews are unable to establish normal air-ground communications with the responsible ATS unit.

Table 2: Taxonomy with Examples

3.3 The meeting:

a) urged States to take the following actions for MAAR;

- States provide RVSM approvals records;
- Annual update of RVSM approvals be provided to MAAR; and
- Aircraft registration field be provided as part of the Traffic Sample Data (TSD).

b) noted the most common locations (top 5) where LHD occurred in term of duration included ARESI, GORAI, LAXOR, SADAN and PEDNO; and

c) established a side-bar meeting among States concerned to address the persistent Category E LHD occurrences.

3.4 In the meantime, the Secretariat proposed a new format in the report to include SEACG Action item to highlight specific actions to be taken by members. The meeting agreed with the new format and, in light of a) above, adopted the following Action:

SEACG/18 Action 18/1 – LHD Monitoring

States to take the following actions for the Monitoring Agency for Asia Region (MAAR);

- States provide RVSM approvals records;
- Annual update of RVSM approvals be provided to MAAR; and
- Aircraft registration field be provided as part of the Traffic Sample Data (TSD).

3.5 In terms of c) above, a side-bar meeting was proposed by the Secretary on 4 May 2011 among Indonesia, the Philippines, Singapore, Viet Nam, MAAR and the Secretary. Outcomes of the side-bar meeting are summarized as follows:

- Coordination between supervisors of ACCs concerned should be immediately made subsequent to a LHD occurrence to facilitate proper follow-up actions and/or investigation into the possible causes leading to the occurrence;
- When the information sharing between the supervisors are completed, that should be indicated in Paragraph 9a) and/or 9b) of the LHD form to be submitted to MAAR;
- LHD occurrences should be reported by the concerned ACC supervisors to a higher level as soon as possible to facilitate proper follow-up actions by management;
- In the long-term, AIDC implementation should be expedited to reduce the human-in-the-loop errors. Also, ADS-C or ADS-B implementations should be accelerated to enhance the surveillance capability;

- In the meantime in the short-term, relevant ATC coordination procedures to verify the initial position and the altitude of aircraft on initial contact should be once again reviewed by air traffic controllers;

- Attention of HF radio operators should be drawn to the fact that the following LHD occurrence hot spots have been identified: ARESI, GORAI, LAXOR, SADAN and PEDNO.

3.6 Accordingly, the meeting adopted the following recommendations:

SEACG/18 Recommendation 18/2 – Enhancement of Coordination between ACCs Concerned

That, in view of the frequent occurrences of Large Height Deviation (LHD) resulted from ATC unit to ATC unit coordination errors (Category E LHD) at ARESI, GORAI, LAXOR, SADAN and PEDNO, coordination between supervisors of area control centres (ACCs) concerned should be enhanced to facilitate proper follow-up actions and/or investigation into the possible causes leading to the occurrence.

SEACG/18 Recommendation 18/3 – AIDC Implementation and Enhancement of Surveillance

That

i) Indonesia, the Philippines, Singapore and Viet Nam are requested to implement AIDC as soon as possible; and

ii) Indonesia, the Philippines and Singapore are requested to enhance surveillance capability such as ADS-C or -B as soon as possible.

Outcomes of SEA-RR/TF/4

3.7 The meeting reviewed the outcomes of the Fourth Meeting of the Southeast Asia Route Review Task Force (SEA-RR/TF/4, November 2010), which was held at ICAO Asia and Pacific Office, Bangkok.

Unidirectional Crossing Routes in the South China Sea

3.7.1 The use of unidirectional routing in SCS was extensively discussed during previous SEA-RR/TF meetings; however, agreement to introduce the concept had not been materialized despite the unanimous support from States. The primary focuses for SEA-RR-TF/4 were the four crossing routes mentioned below:

a)	M768	Brunei to Tansonnhat (TSN)
b)	L628	Manila to Phucat (PCA)
c)	A461	Manila to Hong Kong
d)	B462/B348	Manila to Taipei

3.7.2 It was noted that Malaysia supported the concept of the unidirectional crossing route structure; however, in regard to M768 from Brunei to TSN in Viet Nam, Malaysia considered that the additional unidirectional route be implemented to the northeast of the present M768 due to several

conflictions with other routes in the area to the southwest. SEA-RR/TF/4 noted that, with more routes being proposed, this could have an impact on operational issues during the typhoon season when Large Scale Weather Deviations (LSWDs) often take place. This matter would need to be taken into consideration when planning and developing these unidirectional routes. Careful management as those situations arise should overcome any perceived obstacles. With regard to the four proposed unidirectional crossing routes mentioned above, the following coordination had taken place between States concerned and in some cases with IATA assistance:

a) Preliminary discussions on A461 (Manila to Hong Kong) had taken place between Hong Kong, China and the Philippines with further work required;

b) IATA would discuss with Malaysia the proposal of a new unidirectional route northeast of the present M768. Future discussions were required with Viet Nam;

c) Discussions will be required between Manila and Taipei ACCs regarding B462/B348 between the Manila and the Taipei flight information regions (FIRs); and

d) Discussion is required between the Philippines and Viet Nam on L628 (Manila to PCA).

Further Reduction of Minimum Longitudinal Spacing A1/P901

3.7.3 China and Hong Kong, China submitted a proposal to reduce the longitudinal spacing from 40 NM to 30 NM on A1/P901 to take advantage of the communication and surveillance capabilities of the ANSPs along those routes. Further, it was noted that the two routes had now been multi-layered with A1, a conventional ATS route up to FL 280 and the RNAV route P901 above FL 280 in the Hong Kong and the Sanya FIRs.

3.7.4 China and Hong Kong, China agreed that the reduction of longitudinal spacing on A1/P901 was a first step in the overall reduction of longitudinal spacing in this high profile area. Hong Kong, China also advised that they were in discussion with Taipei ACC and those in Japan in designating the portion of A1 between Hong Kong (CH) and ELATO to the east of the Hong Kong FIR as an RNAV5 route.

Report on Use of the domestic ATS route designator W

3.7.5 It was noted that many States had a number of domestic routes with the ICAO non-regional ATS route designator ‘W’. However, several adjacent States had allocated same designators to domestic routes, e.g. ATS routes W6 and W15 were both used by Cambodia, Thailand and Vietnam. As most aircraft now have Flight Management Systems (FMS) as their primary navigation system, the provision of accurate and unambiguous data is essential. The multiple use of the same ATS route designator could lead to errors or misunderstanding when inputting data into the FMS. States were recommended to review Annex 11 – *Air Traffic Services* in regard to the use of ATS route designator, especially within their own domestic airspace.

3.7.6 SEA-RR/TF/4 was informed on the outcomes of a side meeting between Singapore and Thailand to further progress the development of RNAV route M752 (Suvarnabhumi (SVB) – U-Taphao (BUT) – ENREP), which was presented to SEA-RR/TF/3 (August 2010). Both Singapore and Thailand agreed to establish the RNAV route M752.

Reduced Horizontal Separation on RNAV Routes between Indonesia and Singapore

3.7.7 Taking advantage of the availability of Direct Controller–Pilot Communications (DCPC) facilities, Indonesia and Singapore focused on a series of proposed changes to the route structure of M774 and A576. The first step to be considered was to redesignate ATS route A576 as an RNP10 route M635. This route would be implemented with allowance for sufficient lateral spacing with the adjacent routes. Similarly, RNAV10 route M774 would be realigned accordingly to achieve lateral route spacing. The proposed route spacing between M635 and M774 would allow flexibility for future increase of capacity utilizing higher Performance Base Navigation (PBN) specifications such as RNP4.

3.8 The meeting was updated that the target implementation date of the first step of implementation is the second half of 2011.

Discussion

3.9 The Secretariat advised that the current use of the domestic ATS route "W" by multiple States was in line with Annex 11. IATA confirmed that there would be a problem when it comes to a route leading up to the international FIR boundary. States were requested that coordination be made with neighboring State when an ATS route with a domestic designator is established up to an FIR boundary.

3.10 IATA thanked the Secretariat for the summary report of SEA-RR/TF/4. IATA, however, expressed their concerns that no tangible progress has been made by SEA-RR/TF despite four meetings being conducted.

IATA: Southeast Asia Route Review Task Force

3.11 In light of the above, IATA further presented a WP to the meeting and recalled that APANPIRG/20 reviewed the Performance-Based Approach and Measurement, and identified the Regional Performance Objectives. These objectives included:

- APAC ATM 2 – Optimise Traffic Flow
- APAC ATM 3 – Optimise Route Structure in En-route Airspace
- APAC ATM 4 – Optimise Route Structure in Terminal Airspace

3.12 ICAO also conducted a review of the current work program against the APANPIRG endorsed User Expectations. In that review, ICAO identified that a gap existed pertaining to the major traffic flow. Specifically, the review found that apart from SEACG, no ICAO group had responsibility for conducting an overall review of the Southeast Asia/Northeast Asia route structure.

3.13 In response to the ICAO review, IATA proposed to establish an ICAO ATM focus group. The group would be tasked to review and modernize ATM arrangements in the Southeast Asian and Northeast Asian areas including route structure and associated procedures, and taking into account State and airlines investment in and the optimum use of modern technologies. The following extract from the report of ATM/AIS/SAR/SG/19 (June 2009, Bangkok) summarises the discussions:

> *5.35 The States of Southeast Asia generally expressed in-principle support for the proposal. However, the States of Northeast Asia expressed reservations about establishing such a large working group for this purpose, and considered that the focus of the group covered too many different aspects. Hong Kong, China also questioned whether the gap could not be filled by creating a Northeast Asia ATS*

Coordination Group analogous to SEACG. China asked if the required result could actually be achieved by creating such a new group.

5.36 Ultimately, agreement was reached to proceed with a single prime task – an ATS route review – in the Western Pacific/South China Sea airspace generally to the south of the Fukuoka FIR boundary. Agreeing with the Secretary that as resources were becoming available because of the Sub-Group decision to recommend dissolution of the WPAC/SCS RSG, and noting that the RNPSEA/TF was presently inactive, the meeting took the step of re-naming and re-tasking the RNPSEA/TF to undertake this work. Accordingly, the Sub-Group agreed to suitable Terms of Reference for the Southeast Asia Route Review Task Force (SEA RR/TF) which would report to the Sub-Group and agreed to the following Decision:

ATM/AIS/SAR Sub-Group Decision 19/1 – Establish Southeast Asia Route Review Task Force (SEA RR/TF)

That the RNP-SEA/TF be renamed as the Southeast Asia Route Review Task Force (SEA RR/TF) and re-tasked in accordance with the Terms of Reference shown at Appendix E to the ATM/AIS/SAR/SG/19 Report of Agenda Item 5. The SEA RR/TF will report to the ATM/AIS/SAR Sub-Group of APANPIRG.

3.14 While a large number of proposals had been presented to the four SEA-RR/TF meetings, the TF had yet to produce a single output. Not only had there been no route enhancements implemented, but the TF did not even reached tentative agreement from any of the proposals presented.

3.15 The need for route enhancements has also never been greater. Not only is the cost of fuel again sky-rocketing but under the guidance of ICAO, the industry agreed to ambitious targets to reduce environmental emissions globally.

3.16 Noting the lack of progress, IATA expressed its concerns to both ICAO Asia and Pacific Regional Director and the Chairman of APANPIRG. While IATA recognized that SEACG was not responsible for the work of SEA-RR TF (reporting directly to ATM/AIS/SAR/SG), the core membership of SEACG and SEA-RR/TF were fundamentally the same.

3.17 To this end, IATA sought the assistance of SEACG to support/assist SEA-RR/TF to deliver its TOR. Recognizing that all stakeholders had limited resources, it would be vital that the SEA-RR/TF to deliver results in accordance with its agreed APANPIRG task.

3.18 Noting the lack of progress for SEA-RR/TF, IATA suggested that the task force could consider mapping outstanding route proposals against CNS/ATM capability matrix (existing and planned) so as to work out the practical way forward.

Draft Report of the Mekong ATM Coordination Group Meeting

3.19 The meeting was advised of outcomes from the Mekong ATM Coordination Group (MK-ATMCG, April 2011), attended by Cambodia, Hong Kong China, Lao PDR, Thailand and Viet Nam. The draft report of MK-ATMCG was attached in **Appendix A** to this report, together with the presentation material in **Appendix B**.

3.19.1 MK-ATMCG's key objective was to promote cooperative ATM enhancement throughout its membership across the Mekong River in order to achieve more seamless and harmonized ATM service delivery across its members' FIRs and area of responsibility. Since most key

members of MK-ATMCG were also ASEAN members, MK-ATMCG also supported the Seamless ASEAN Sky (SAS) initiative in working towards seamless and harmonized delivery of ATM and related services across FIR boundaries. In addition, MK-ATMCG also discussed follow-up items from SEA-RR/TF in respect to arrangement of A1 and A202 routes.

A1/P901 Arrangement

3.19.2 After considerable deliberation, MK-ATMCG agreed to the following plans to enhance traffic flow on A1:

a) ***Short Term:*** reduction of radar spacing from 40 NM to 30 NM in order to increase capacity in the short-term.

b) ***Medium Term:*** realignment of A1/P901 and/or re-designation as RNAV 5 to take advantage of extensive surveillance coverage in order to increase efficiency of operations.

c) ***Longer Term:*** Parallel route south of current A1/P901 in order to provide additional capacity, efficiency and safety in traffic management.

3.19.3 In the short-term, MK-ATMCG representatives from Cambodia, Hong Kong China, Lao PDR, Thailand and Viet Nam agreed to reduce the radar spacing on A1/P901 from 40 NM to 30 NM, subject to the confirmation that the proposal was acceptable by China (Sanya FIR).

A202 Arrangement

3.19.4 In respect to A202, MK-ATMCG representatives from Cambodia, Lao PDR, Thailand and Viet Nam agreed to reduce the radar spacing on A202 from 40 NM to 30 NM pending confirmation with China.

En-Route PBN Harmonization

3.19.5 MK-ATMCG agreed that routes within surveillance coverage should be re-designated as RNAV 5 while routes outside surveillance coverage should be re-designated as RNP 10, with further plan to re-designate as RNP 4 at a later stage. Re-designation would start with routes crossing more than two FIRs as traffic on those routes was more likely to be in compliance with RNAV 5 or RNP 10 requirements.

Cooperative Traffic Demand Sharing

3.19.6 In addition, MK-ATMCG also discussed the potential use of collated flight plans as traffic demand in order to optimize traffic on major traffic flows. MK-ATMCG was informed that software automation already existed to extract traffic demand at FIR boundaries from flight plans, which was already in use by AEROTHAI in their Collaborative Decision Making (CDM) activities. Hong Kong China, Cambodia and Thailand reached conceptual agreement to exchange traffic demand data to enhance understanding of traffic flow affecting their airspace.

Collaborative Decision Making (CDM)

3.19.7 Thailand also briefed MK-ATMCG of their CDM activities in enhancing traffic management within the Bangkok FIR affecting flights with BOBCAT slot allocation as well as other affected flights under the Collaborative Departure Planner (CDP) initiative, which has been on operational trial since 11 April 2011. CDM activities could also be applied to situation where aircraft from some departure airports need to be funnelled through key FIR boundary with certain spacing requirement, while involving all stakeholders. In that regard, Singapore and Thailand will conduct a CDM Planning Meeting during the CANSO Annual General Meeting in Bangkok in June 2011, with the aim to explore CDM activities between Singapore and Thailand.

Discussion

3.20 The meeting requested Thailand to coordinate with members of MK-ATMCG to confirm agreement on the short-term radar spacing reduction on A1/P901 and A202 from 40 NM to 30 NM. The meeting, in turn, requested Hong Kong, China to coordinate with China to confirm her agreement on the use of reduced 30 NM spacing. In the view of the need to report progress to ATM/AIS/SAR/SG/21 to be held in June 2011, the meeting urged Thailand to undertake and confirm the target implementation date for the reduced longitudinal spacing on A1/P901 and A202 as soon as possible. Accordingly, the meeting adopted the following SEACG Action item:

SEACG/18 Action 18/4 – Reduced Longitudinal Spacing on A1/P901 and A202

In the view of the need to report progress to ATM/AIS/SAR/SG/21 to be held in June 2011,

(i) Hong Kong, China to confirm with China as soon as possible regarding China's agreement to adopt the use of 30 NM reduced longitudinal spacing on A1/P901 and A202; and,

(ii) Thailand to report the final agreement on the use of reduced spacing on A1/P901 and A202 from 40 NM to 30NM to ATM/AIS/SAR/SG/21.

3.21 The meeting acknowledged activities and initiatives of MK-ATMCG in enhancing ATM and in order to achieve seamless and harmonized ATM service delivery among its members' FIRs and areas of responsibility.

<u>Outcomes of the Fourth Meeting of IFATCA East Asia ATM Coordination Group (EATMCG)</u>

3.22 Japan reported the outcomes of the fourth meeting of International Federation of Air Traffic Controllers' Association (IFATCA) East Asia ATM Coordination Group (EATCG/4, December 2010) in Hong Kong, China which was held among the IFATCA members.

Restriction on G581

3.22.1 Japan presented information on the problems they had experienced because of the G581 flight level restrictions imposed by Taipei and Hong Kong ACCs. Hong Kong advised that restructuring the ATC sector boundaries and the introduction of a new sector in 2011 would relieve the controller workload and should permit the cancellation of the FL400 restriction on G581. The IFATCA member of Taipei noted that due to the complex airspace structure within the Taipei FIR and the high controller workload, it may be necessary to impose further restrictions on G581 even if Hong Kong removes the FL400 restriction within their FIR.

Enhanced Capacity for Flights to the Incheon FIR via ATS Route B576

3.22.2 Hong Kong, China highlighted a problem experienced every night on B576 caused by the heavy traffic flow to Incheon. The IFATCA member of Taipei explained issues they had with that traffic flow, and advised that they would review the situation to try and alleviate the problem.

Comparing of Transfer Errors before and after the Implementation of ATS Inter-Facility Data Communication (AIDC) within East Asia Airspace

3.22.3 Japan presented the LHD occurrences before and after the implementation of AIDC between the Fukuoka FIR, and the Incheon and the Taipei FIRs. There was a significant decrease in the number of LHD reports in 2010 compared to previous years, despite an increase in traffic.

Study on Implementing ATS Route M750 as RNAV 5 in Accordance with the Requirement of PBN

3.22.4 The IFATCA member of Taipei presented classifying M750 as an RNAV 5 route. Japan supported the plan as it was in line with the Sky Highway for Japanese airspace.

CDR Operation in the Fukuoka FIR

3.22.5 Japan presented the details of Conditional Routes (CDR) that had been coordinated with the defence authority. The CDRs are temporarily established to transit training airspace that is not being used by the authority. Details of the CDRs are promulgated by NOTAM approximately 10 hours in advance of their availability, thereby permitting operators to flight plan using CDRs.

Implementation of New ICAO Flight Plan Format and Supporting ATS Messages – Update on the Taipei FIR

3.22.6 The IFATCA member of Taipei informed that they would comply with the ICAO requirement for implementation of the new flight plan format and ATS messages on 15 November 2012 in line with ICAO Transition Period (Phase 1 January-March 2012, Phase 2 April-June 2012 and Phase 3 July-November 2012). However, at the same time, Taipei would be commissioning a new ATM system, which was currently planned to be fully operational in mid-2012.

Hong Kong, China - FL 400 Restriction on G581

3.23 Hong Kong, China made a follow-up report to the meeting. At SEACG/17, Japan requested Hong Kong, China to remove a blockage of FL 400 at KAPLI (Hong Kong/Taipei FIR boundary), which Taipei ACC had in turn imposed upstream Japan at IGURU (Taipei/Fukuoka FIR boundary), affecting flights from the Fukuoka FIR overflying the Taipei FIR into the Hong Kong FIR.

Follow-up Actions by Hong Kong, China

3.24 Hong Kong, China informed the meeting on the following steps that were being taken within the Hong Kong FIR to work towards the removal of the restriction on FL 400 at KAPLI:

a) Airspace restructures to add at least an additional enroute sector to handle overflights between North Asia and Southeast Asia. [This has been implemented since 7 April 2011.]

b) Development and implementation of a Conflict Detection Tool to provide controllers with more timely and user friendly conflict advisory. [The tool is under test and targeted to be implemented within 2011.]

3.25 It was expected the above enhancements would relieve controller workload and permit the consideration of the cancellation of the FL 400 restriction at KAPLI.

Discussion

3.26 Japan thanked Hong Kong, China for the steps but expressed concerns that Taipei ACC may keep the FL 400 restriction on G581 even if Hong Kong, China removes the restriction within their FIR. The Secretariat recommended Japan to continue the dialogue with Taipei ACC on a bilateral basis as there would be no reason to impose the restriction when Hong Kong, China removes it. A rigid level blockage regardless of the traffic situation is not in line with the ICAO recommended practices.

Agenda Item 4: Review of FIT-SEA/11

Review of FIT-SEA/11

4.1 The meeting reviewed the outcomes of FIT-SEA/11.

Agenda Item 5: Review Current Operations across South-East Asia and Identify Problem Areas

Radar Coverage Chart of the South China Sea Area and the Status Matrix of Application of Radar Handover Procedures

5.1 The meeting reviewed the radar coverage chart of the South China Sea and the Status matrix of the Application of Radar Handover Procedures as in **Appendices C** and **D,** respectively, to this report. IATA requested the Secretariat to prepare an ADS-B/VHF coverage chart basing on the radar coverage chart in due course. In this regard, IATA would supply necessary information to the Secretariat.

Harmonization of ATC Procedures for ADS-B Operations in the South China Sea Area

5.2 Singapore advised the meeting that the introduction of ADS-B would increase airspace capacity to meet the growing air traffic demand in this region. ADS-B surveillance, with the associated VHF radio coverage, would allow air traffic controllers to apply separation equivalent to that of radar. While the minimum separation stipulated by ICAO for ADS-B surveillance services is 5 NM, it may not be operationally viable to provide flights with the minimum longitudinal separation throughout the entire cruising segment of the flight on the route. However, States involved could explore the appropriate longitudinal spacing reduction on the RNAV routes L642 and M771 that would quantify the benefit of ADS-B implementation.

5.3 In July 2008, under the auspice of ICAO Southeast Asia RNP Implementation Task Force, States concerned adopted the use of reduced horizontal separation on RNAV routes L642 and M771 based on the RNP10 specification. This allowed the longitudinal separation to be reduced to 50 NM between the flights with ADS-C or CPDLC equipped (The *Procedures for Air Navigation Services – Air Traffic Management* (PANS-ATM, Doc 4444) 5.4.2.6 refers). For flights that are not

ADS-C or CPDLC equipped, the conventional 10 minutes longitudinal separation based on the Mach number technique applies.

5.4 There was also a potential to reduce the longitudinal separation further down to 30 NM based on the RNP4 specification. However, the potential of implementing RNP4 specification would be limited by the level of equipage of flights operating on these routes and was also reliant on the respective State's PBN implementation plans and implementation timeline for RNP4.

5.5 With the implementation of ADS-B in the Singapore FIR, there would be seamless surveillance coverage from end-to-end on these routes. As such, States could discuss the appropriate reduction of longitudinal spacing for ADS-B equipped flights on L642 and M771.

5.6 In this respect, Singapore proposed a phased approach toward achieving seamless surveillance coverage on L642 and M771 within the Singapore FIR through the deployment of ADS-B. In Phase I of the operational trials, ADS-B surveillance separation would be applied to suitably ADS-B equipped aircraft at or above FL350 on opportunity basis. The trial period would run for one year which will provide ample time for operators to progressively upgrade their on-board equipage to reap the benefits of ADS-B surveillance.

5.7 In Phase II of the operational trial, suitably ADS-B equipped aircraft operating on L642 and M771 within the Singapore FIR will be provided with priority on the assignment of FL350 and above to achieve their optimum level. The phase would also run for one year period before the full implementation of an exclusive ADS-B airspace at or above FL290 on these two routes. The timeline for the various phases can be found in **Appendix E** to this report.

5.8 The meeting noted progress of reducing longitudinal separation on RNAV route L642 and M771 since July 2008, and the proposed height band of FL 350 and above for the application of ADS-B separation on an opportunity basis for Phase I and on priority basis for Phase II of the operational trial.

5.9 Hong Kong, China informed the meeting that they were currently looking into the feasibility of declaring L642 and M771 for RNAV5 operations within the Hong Kong FIR. Subject to the satisfactory outcome of relevant safety assessment, the use of reduced 30 NM longitudinal spacing might be possible.

Summary of Discussion of the Third Meeting of AIS-AIMSG

5.10 The meeting noted the outcomes of the Third Meeting of the Aeronautical Information Services-Aeronautical Information Management Study Group (AIS-AIMSG, November 2010) which was held at the ICAO headquarters in Montréal, Canada.

Possible Development of a PANS-AIM

5.11.1 The group concluded that there was support for the development of a PANS-AIM subject to a review of the initial draft to be provided by the Secretariat. The group asked that the initial draft of the document structure have particular emphasis on the content elements intended to be incorporated. Specifically the additional elements which detail AIM processes and procedures should be identified.

Electronic AIP (eAIP)

5.11.2 The "Sample eAIP" was in the review and editing process for inclusion in Amendment 3 to the *Aeronautical Information Service Manual* (Doc 8126). The amendment was

expected to be available in mid-2011. A member requested that a minor update to the document could be provided and the Secretary confirmed that this could be accommodated.

Data Integrity Requirements

5.11.3 The group observed that the current integrity values could not be measured and there was debate as to the use of the values. It was surmised that the values could represent targets to be achieved or outline the need for defined data handling processes to be in place. Based on the observation that the integrity values could not be measured and thus there was no method of demonstrating compliance the group formed the position that the only use for the values was to categorize data into groups requiring specific requirements for processes involved with data handling.

5.11.4 The group agreed that in the development of Amendment 37, the numerical values should be removed from Standard and Recommended Procedures (SARP) material and consequential changes to other Annexes identified. The integrity classifications would remain and introductory text explaining the relationship to the numerical values and the use of integrity classifications would be prepared by the Secretariat. The group understood that these actions will need to be coordinated within the Secretariat and that the views of other groups may need to be sought prior to completing this action.

Inclusion, in the AIS Quality Manual, of QMS/SMS Models

5.11.5 The group noted that both quality management system (QMS) and safety management system (SMS) were the subjects to achieve the overall organization goals, however, once AIS organization intends to implement SMS, there are overlaps and potential conflicts with QMS. The group expressed its difficulty understanding SMS as a process that would be applied in full and uniquely on an AIS unit (as opposed to an organization wide implementation). With this in mind, the group considered it premature to develop SMS related material for inclusion in Amendment 37 to Annex 15 – *Aeronautical Information Services*.

Update on ATM Activities in Viet Nam

5.12 Viet Nam informed the meeting that they were providing ATS and other ANS for more than 100 airlines operating in the Hanoi and the Ho Chi Minh FIRs, as well as at five international airports and more than sixteen domestic airports for the civil flight operations in the whole country. In March 2011, the average traffic volume was approximately 1,116 flights per days (including 509 landing/take-off and 607 overflights).

Brief Updates on ATM Activities 2010-2011

- Continued development of ATS Manuals

- Completed development of an ATS Contingency Plan and preparation for its implementation.

- Issuance of new and revised flight procedures at certain aerodromes and associated operational minima.

- Completed development of Circular and guidance on ANS safety (including mainly ATS contents); enhancing ATS safety system and ATS incident investigation procedure and capabilities.

- Continuation of the programme to address ICAO Audit Team's findings/recommendations in ATS.

- In coordination with the relevant Organizations and agencies, the Civil Aviation Authority of Viet Nam (CAAV) had adjusted nine domestic ATS routes and nine international ATS routes from via NDB to via VOR/DMEs; coordinated for establishing new ATS route serving traffic between Da Lat/Cam Ranh and Siem Riep, and continued its programme on new and revised ATS routes.

- Continuation of implementation the revised RVSM flight level system within the Ho Chi Minh FIR.

- Continuation of ADS/CPDLC operation, implementation of RNP 50 NM/50 NM separation on RNAV routes L642, M771, L625 and N892 within the Ho Chi Minh FIR.

Coordination between Relevant ACCs:

- ATC letters of agreement (LOAs) between Ho Chi Minh and Phnom Penh ACCs have been revised for the implementation of new and revised ATS routes in January 2011.

- Outstanding issues: The revised ATC LOA between Ho Chi Minh and Kuala Lumpur, which was addressed by CAAV at SEACG/15 (May 2008, Bangkok), should be signed as soon as possible. There were cases of LHD around ARESI caused by coordination errors between Ho Chi Minh and Manila ACCs in 2010. Ho Chi Minh ACC has encountered certain difficulties in coordination with ACC concerned for northeast-bound traffic to Taipei and Japan from 1630 till 1900 UTC due to shortage of time and different format (NOTAM, common AFTN message) of advice on flow control restriction, as well as receiving ACC accepting traffic only at No-Pre-Departure Coordination (No-PDC) FLs despite that a busy traffic is concentrated over Da Nang and BUNTA (consequently it took much time for coordination).

5.13 Viet Nam had reviewed the Recommended Actions as agreed at SEACG/17 and took corrective actions for air navigation deficiencies in respect of ATS field, namely ATS airspace classification.

Agenda Item 6: Implementation of the New CNS/ATM Systems in the Region

Implementation of the NEW Flight Plan Format

Discussion at APANPIRG/21 on ICAO New Flight Plan Format Issue

6.1 The United States advised APANPIRG/21 that the presence of "EUR/" may subject flight plans to rejection in other regions, depending on the automation system in particular States. United States further advised that documenting a non-standard filing practice in the Regional Supplementary Procedures (SUPPS, Doc 7030) would therefore seem to be insufficient if the non-standard practice affects automated flight plan processing in other regions. Such actions need coordination among all affected regions. There were several potential solutions to this problem, including but not limited to:

1) **Avoid use of non-standard indicators**. Regional filing requirements should make use of only the defined indicators.

2) **Allow unrecognized indicators.** Regions would document any non-standard indicators in their Regional Supplemental Procedures (Doc 7030) which would allow other regions to program for them if desired.

3) **Define an indicator for each region**. The content for each indicator would be managed within the region (e.g. EUR/, NAM/, SAM/).

6.2 In any case, if region-specific indicators are allowed, there should be no expectation that ANSPs in other regions would be able to understand, maintain or otherwise communicate with filers or pilots about the contents of them. IATA observed that there continued to be significant variation in preparation and approach of both States and regions. Some regions had only just started their preparations and some larger States have already indicated that they have no intention of meeting the effective date.

6.3 Some States felt that a contingency plan should be formulated which should cover eventualities where a State or group of States is not in a position to receive flight plans in the NEW Format. Flight Plan and ATS Messages Implementation Task Force (FPL&AM/TF) agreed that it was premature to develop the contingency plan as no State in the Region has explicitly expressed that the effective date of 15 November 2012 would not be met. The Task Force would continue to urge States to implement the NEW flight plan format by the due date. Nevertheless, FPL&AM/TF was aware of the possibility for the need to develop the contingency plan and had included the task in the task list of the Task Force to be commenced in the first quarter of 2012.

Actions Taken by the Regional Office

6.4 The Regional Office had issued a series of State letters to highlight the importance of Amendment 1 and development towards its implementation:

a) on 8 January 2010, State letter Ref: T3/10.0, T3/10.1.20 – AP003/10 (ATM), recognizing a pressing need to increase awareness amongst States about the complexities involved and encouraging them to commence work on implementation, based on a following APANPIRG/20 Conclusion:

Conclusion 20/7 – Adopt Interim Strategy for Implementation of New Flight Plan Format

That the 'Interim Strategy for the Implementation of new ICAO Flight Plan Format and Supporting ATS Messages' *provided in Appendix A to the APANPIRG/20 Report on Agenda Item 3.2 be adopted and published as the interim edition, and States and users be urged to commence implementation planning based on the interim strategy.*

b) on 28 July 2010, State letter Ref: T3/10.1, T3/10.1.20 – AP119/10 (ATM), highlighting an additional conclusion as follows:

Conclusion 20/8 – Notification of State Transition Date to New Flight Plan Format

That, in order to align regional implementation planning, States inform the Regional Office by 1 July 2010 of their scheduled date and implementation methodology for transition to the new Flight Plan and ATS Message formats.

c) on 24 September 2010, State letter Ref: T3/10.0, T3/10.1.20 – AP147/10 (ATM), to highlight the following Conclusion regarding the *Asia/Pacific Guidance Material for the Implementation of Amendment 1 to Procedures for Air Navigation Service – Air Traffic Management*:

Conclusion 21/4 – Regional Guidance Material for the Implementation of Amendment 1 to PANS-ATM

That, in order for States to clearly understand what is intended in Amendment 1, the '*Asia/Pacific Guidance Material for the Implementation of Amendment 1 to the 15th Edition of the Procedures for Air Navigation Services – Air Traffic Management (PANS-ATM, Doc 4444)*' provided in Appendix B to the APANPIRG/21 Report on Agenda Item 3.2 be adopted and published as regional guidance material.

d) on 7 October 2010, State letter Ref: T3/10.0, T3/10.1.20 – AP152/10 (ATM), to draw the attention of States to the following APANPIRG Conclusions:

Conclusion 21/5 – Strategy for Implementation of New Flight Plan Format

That, the 'Strategy for the Implementation of new ICAO Flight Plan Format and Supporting ATS Messages' *provided in Appendix C to the APANPIRG/21 Report on Agenda Item 3.2 be adopted and published. States and users to be urged to continue implementation planning based on the strategy.*

Conclusion 21/6 – Notification of State Transition Date to the NEW Flight Plan Format

That, in order to keep the ICAO Flight Plan Implementation Tracking System (FITS) website updated, States which have not yet provided data, inform the Regional Office of the initial set of data required in the FITS website, such as

scheduled date and contact person, by 22 October 2010, and subsequently update the data as required.

Outstanding Conclusions

6.5 In addition, APANPIRG/21 agreed with **Conclusions 21/13 − Coordination for the Transition to the NEW Flight Plan Format among States**/FIRs and **21/14 − Enhancement of the Global Coordination for Implementation of the NEW Flight Plan Format**.

Discussion

6.6 The meeting recalled that APANPIRG/21 agreed that the implementation of the NEW flight plan format would be a problem if it was not implemented in a uniform manner region-wide and sought update from States on their plans. Viet Nam updated the FITS sited during the meeting. The Secretariat advised that the FPL&AM/TF/4 and a seminar on the new flight plan are scheduled from 30 May to 3 June 2011 and encouraged States to participate in the meeting and the seminar.

6.7 IATA informed the meeting that operators were progressing well with regard to preparation for the NEW flight plan format implementation in 2012. The meeting appreciated IATA and operators for their preparedness and commitment.

Seamless ATM Implication

DGCA/46

6.8 The 46th Conference of Directors General of Civil Aviation, Asia and Pacific Regions (DGCA/46, October 2009, Osaka) noted that the Asia/Pacific airspace was not seamless from the perspective of air traffic, and given the rapid growth in air traffic, there was a need for seamless ATM operations for safe and efficient air transport in Asia and Pacific. For this, it was necessary for each State to plan its future air transport system, taking into consideration the overall vision for the region and the ATM modernization programmes being developed in the United States and Europe. In order to realise seamless ATM operations across Asia and Pacific, there will also be a need for coordination and harmonisation amongst the States. In summarising the session, the Moderator of DGCA/46 made the following remarks:

ICAO plays an important leading coordinator role in harmonizing ATM globally and in Asia and Pacific, with the Global ATM Operational Concept and Global Air Navigation Plan providing the framework for this.

With the cross-border and cross-regional nature of air traffic, international cooperation and harmonization are essential for the development of seamless ATM globally and in the Asia/Pacific region.

NextGen and SESAR provide useful lessons, especially on key elements, for the development of seamless ATM in Asia and Pacific.

One key element is providing a platform for discussing and implementing harmonised ATM standards, procedures and mechanisms for seamless, safe and efficient air transport operations in Asia and Pacific. The leadership of the Regional Office and the efforts of APANPIRG have progressed ATM harmonization in Asia and Pacific through the implementation of developed procedures and mature technologies for short and medium terms, according to the regional Air Navigation Plan. The platform to take seamless ATM in Asia and Pacific forward has to be further

discussed, given the array of issues and options raised. APANPIRG could be used as a starting platform.

APANPIRG/21

6.9 Subsequently, APANPIRG/21 discussed how to realise the Seamless ATM concept in the Region, and adopted Conclusions 21/8 and 21/12 as follows:

Conclusion 21/8 − ICAO Asia/Pacific Seamless ATM Workshop

That, ICAO be invited to organize the Asia and Pacific Seamless ATM Workshop to be held in early 2011 inviting the APANPIRG member States and other parties of interest in order to foster discussion and action for the Asia and Pacific States in the planning of the future air traffic management system, considering the overall vision for the region for seamless ATM.

Conclusion 21/12 – Convening of the Seamless ATM Ad-Hoc Meeting

That, while recognizing the seamless ATM needs to be addressed in a holistic manner, ICAO Regional Office be invited to organize a seamless ATM Ad Hoc working group meeting as soon as possible.

6.10 CANSO Seamless Airspace Workgroup considered standardised, harmonised, and interoperable as key to describe the general concept of Seamless ATM. Thus a vision of a future Seamless ATM environment may be conceptualised as:

- having consistent and harmonised standards and operating practices; and
- using interoperable ATM and supporting systems.

6.11 In the context of Seamless ATM, it is clear that optimal, harmonised systems and procedures cannot be achieved without appropriate coordination between:

- State ATS Authorities;
- ANSPs;
- Communication Service Providers (CSP);
- Military authorities; and
- airspace users such as the International Air Transport Association (IATA).

6.12 Secretariat advised that the Regional Office is working to hold the Seamless ATM Symposium and the Seamless ATM Ad-Hoc Group Meeting. The symposium will be an occasion for expanding the knowledge of future ATM concept and enablers which would contribute to the ATM operations in future, and the ad-hoc meeting will discuss a framework for discussing the seamless ATM operation within the Asia and Pacific regions. States were encouraged to participate in the symposium and the meeting.

Agenda Item 7: ATS Route Development

ATS Route Catalogue

7.1 The meeting recalled that the ATS Route Network Review Task Force (ARNR/TF, disbanded) developed the *Asia/Pacific ATS Route Catalogue*, which was accepted by APANPIRG/16 (August 2005, Bangkok) as a regional planning tool, to be maintained and updated on regular basis. Version 1 of the Catalogue was published in August 2005. The most recent Version 8 is available from the ICAO Asia/Pacific website (http://www.bangkok.icao.int/) under the menu "APAC eDocuments". On-going updates have been undertaken by the Regional Office based on the information made available by States and airspace users.

7.2 In considering the role of the Catalogue at ARNR/TF/2 (February 2005, Bangkok), it was intended that the Catalogue should be an informal document that consolidates material from the Basis Air Navigation Plan (BANP, Doc 9673) and related documents to serve as an aid to States and users for route planning purposes. As such, the Catalogue does not replace the BANP or provide a basis to be used in an operational context. It is primarily a one stop information document, showing which routes are contained in the BANP, the status of implementation and amendment of routes, and future route requirements of States and users. In considering updating and amendment of the Catalogue, as the document is meant to be an aid to States and should be a living document, its amendment should be kept to an informal level.

IATA Update of ICAO Asia/Pacific ATS Route Catalogue

7.3 IATA made proposals which pertain to operations in the sub-region as in **Appendix F** to this report. IATA believed that it was important for stakeholders to review on a regular basis and provide feedback as to the status of the appropriate proposals. This should include potential conflicts (e.g. Military considerations, etc). Where routes are unable to be implemented in the short term, this should be included in the route catalogue with the appropriate reasoning provided.

7.4 It was also important to note that the proposals presented by IATA (users) were based on traffic flows and seek to deliver increased route efficiencies. Where individual ATM issues precluded specific proposal, IATA requested States clearly identify the specific issue and presented an alternative solution that would meet the concept of the original proposal. From the IATA perspective, the concept of the proposals contained within SCS1 and SCS2 should be considered a high priority as they will produce significant benefits in fuel reductions and the associated reduction in environmental emissions (approximately 12.5 million kg fuel/ 39 million kg CO_2). Therefore, the meeting:

- ↗ noted that IATA considers the concept of the proposals contained with SCS1 and SCS2 as high priority;
- ↗ noted that IATA would review the proposals SEA 11 and SCS 8; and
- ↗ agreed that proposals SCS 6 and PRD 1 could be removed from the Catalogue.

7.5 ICAO agreed to review the routes identified above and remove those identified as implemented. Accordingly, the meeting identified the following SEACG Action item:

SEACG/18 Action 18/5 – Review of ATS Route Catalogue by the Secretariat

The Secretariat to review the proposed routes presented with WP/6 by IATA and inform the next SEACG meeting.

Proposals for New ATS Routes

7.6 Viet Nam reported that the CAAV had carried out its programme on new and revised ATS routes including both domestic and international routes. There were five domestic ATS routes and five international ATS routes which have been implemented.

Proposed ATS Routes:

7.7 CAAV had proposed the new ATS routes as follows:

1) Route Luang Phabang (LPB) – Chiang Mai (CMA) – Bago (BGO) or LPB – Nan (NAN) – TATEL – BGO within the Vientiane, Bangkok and Yangon FIRs serving traffic between Hanoi and Yangon.

2) Route Siem Riep (SIR) – Ubon (UBL) – VILAO within the Phnom Penh, Bangkok and Vientiane FIRs serving traffic between Ha Noi and Siem Riep.

3) Route Cat Bi – Nankang serving traffic between Ha Noi/Haiphong and Hong Kong/Northeast Asia.

4) Route Phu Cat (PCA) – LENKO (or another suitable point on route A1 to the north of LENKO) serving traffic between Ho Chi Minh City and Hong Kong/Northeast Asia *(In this case, the segment of route G221 BUNTA – PCA would be revised as BUNTA – Chu Lai in order to establish corridors to/from Chu Lai airport which will be upgraded to an international airport).*

7.8 In January 2011, Cambodia and Viet Nam agreed in principle to establish and ATS route Siem Reap (SIR) – Da Lat (DL)/Cam Ranh (CRA) within the Phnom Penh and the Ho Chi Minh FIRs serving future traffic between these destinations, and POPET – SIR within the Phnom Penh FIR serving traffic between Ho Chi Minh City and Siem Riep. CAAV will study a new proposal made by IATA for route UBL – HUE – 01 point within Sanya FIR in order to reduce flight distance/time for traffic between Bangkok and Hong Kong/Northeast Asia.

Note: The proposed routes are illustrated at Charts 1 and 2 of **Appendix G** to this report.

Agenda Item 8: Development of State Contingency Plan

Status of State Contingency Plan

8.1 It should be noted that APANPIRG Conclusion 17/11 calls upon Asia/Pacific States to utilize the Indonesian Contingency Plans as a model in the preparation of national contingency plans. Also, Annex 11, Chapter 2, Section 2.30 Contingency arrangements states:

Air traffic services authorities shall develop and promulgate contingency plans for implementation in the event of disruption, or potential disruption, of air traffic services and related supporting services in the airspace for which they are responsible for the provision of such services. Such contingency plans shall be

developed with the assistance of ICAO as necessary, in close coordination with the air traffic services in adjacent portions of airspace and with airspace users concerned.

Note 1 – Guidance material relating to the development, promulgation and implementation of contingency plans is contained in Attachment C.

8.2 The model *National ATM Contingency Plans for Jakarta and Ujung Pandang FIRs* are available at the Regional Office website: http://www.bangkok.icao.int/edocs/index.html. The meeting recalled that the model National ATM Contingency Plans for Jakarta and Ujung Pandang FIRs have been developed as a referencing document by the other States in establishing their own national ATM contingency plan; and provided an update on the progress of their contingency planning development and promulgation, including coordination arrangements with neighbouring States.

Best Practices to Develop State ATM Contingency Plan and Regional ATM Contingency Plan

8.3 Indonesia, the Philippines, Singapore and Thailand jointly presented to the meeting regarding the effort by the States to collaborate and discuss the development of their respective State ATM Contingency Plan to meet Annex 11 requirements. This was done at the Special Coordination Meeting (SCM, January-February 2011) that was held in Singapore.

8.4 Through the discussions among the States involved, it was recognised that most States would have their various internal contingency plans to support continued operations to provide air traffic services in contingency situation such as fire or failure of equipments. However, those plans may not comply with Annex 11 requirements catering for worse-case scenarios where the States would not be able to provide the necessary services to allow international air traffic to continue to operate across their FIRs in a safe and orderly manner.

8.5 At the SCM, the States presented their draft State ATM Contingency Plans and provided opportunities for the States involved to discuss the best way forward to achieve an effective Contingency Plan. IATA, who was present at the meeting, provided invaluable users' and customers' perspective to the Contingency Plans and inputs to support the effectiveness of the plans. The SCM identified the following best practices that would help States to move forward in developing their State ATM Contingency Plans:

i) identifying the major traffic flows to preserve the availability of such routes and designating it as contingency routes;

ii) use of current Flight Level Assignment Scheme (FLAS) to minimize transition issues;

iii) apportioning segments of an FIR to the adjacent air traffic service providers to ensure flight information services can be provided to flights on the contingency routes;

iv) consideration for apportioning segments to minimise communication handover between the adjacent units;

v) apportionment of segments of the FIR need to apply only in areas where contingency routes exist. For areas in the FIR where there are no contingency routes, the State need not apportion such area to the adjacent air traffic service providers;

vi) publish the appropriate information of the contingency plan in the Aeronautical Information Publication (AIP); and

vii) formalise the contingency arrangement by including contingency provision clauses in their respective operational LOA with the adjacent States/ATS providers.

8.6 It was also noted that Annex 11 stipulates that ICAO initiate and coordinate appropriate contingency action in the event of disruption of air traffic services and related supporting services affecting international civil aviation operations. In such circumstances, ICAO would work in coordination with States responsible for airspace adjacent to that affected by the disruption and in close consultation with international organizations concerned. While the efforts of Indonesia, Philippines, Singapore and Thailand in moving forward to develop a coordinated and harmonized contingency plan were positive, it would only cover a sub-region within the wider Asia Pacific Region. Thus it was obvious that for the contingency plan to work effectively as stipulated in Annex 11, such efforts would be needed to be replicated on a wider scale. A Regional ATM Contingency Plan would be the most viable solution.

8.7 The development of a Regional ATM Contingency Plan would best serve the needs of all the States in this region. With the Regional ATM Contingency Plan, all the States in the region would be able to meet the Annex 11 requirement on contingency planning. Through coordinated effort and collaboration by all States in the region, the Regional ATM Contingency Plan would be much more effective and robust to cater for contingency situations.

Bilateral Coordination between Indonesia and Singapore during Volcanic Ash Contingencies and Development of Regional Contingency Arrangement

8.8 Meteorological conditions have an impact on ATM. The common weather phenomena that disrupt air traffic movements and increased Air Traffic Controllers and pilots' workload are typhoon, monsoonal rain belt, etc. States and the Regional Office had come up with agreed procedures that allowed flight operations to continue during the weather phenomena while ensuring flight safety, reduce controller/pilot workload and facilitate a regulated flow of air traffic through the affected areas. An example would be the LSWD procedures for the South China Sea area. However, volcanic eruptions which also affect air traffic movement and pose a greater risk to flight operations compared to the other weather conditions, since the volcanic ash cloud may neither be detected by on-board weather radar nor visible to pilots, has somehow not been accorded priority in contingency planning. It should be noted that the Asia Pacific Region sits in the Ring of Fire.

8.9 Arising from the eruption of Mt. Eyjafjallajokull, ICAO reacted immediately by setting up the International Volcanic Ash Task Force (IVATF) in April 2010, gathering subject matter experts to look at areas pertaining to aircraft operations and airworthiness, ATM and contingency planning, meteorological and natural sciences, and International Volcanic Ash Watch (IAVW). In the Asia/Pacific Region, the Volcanic Ash/Tropical Cyclone Implementation Task Force (VA/TC I TF) was renamed as Meteorological Advisories and Warnings Implementation Task Force (METWARN/I TF), recommended by the 14th Meeting of the CNS/MET Sub-Group (CNS/MET/SG/14, July 2010). One of the tasks of METWARN/I TF was to develop a regional contingency plan for weather phenomena that included volcanic ash.

8.10 Noting the development of a regional contingency plan will take time, interim measures had to be established in the Region as volcanoes would continue to erupt along the 'Ring Of Fire'. To address this, Singapore conducted a study visit to Darwin Volcanic Ash Advisory Centre (VAAC) in July 2010, attended the aviation conference in Iceland, and visited the UK CAA, London VACC and the Central Flow Management Unit (CFMU) in September 2010. Those study visits and

interactions helped Singapore understand the capabilities of VAACs and the problems faced during the volcanic eruption events. Singapore started to draft coordination processes to prepare for such contingencies with the aim to enhance flight safety and minimize disruptions to flight operations during the volcanic eruptions.

8.11 When Mt. Merapi erupted in November 2010, this draft plan was immediately put to the test. When Indonesia contacted Singapore to forewarn on the possible impact to flight operations, Singapore shared with Indonesia the information it had gathered using the draft plan format and suggested that both States could collaborate to share information and harmonize the contingency arrangements to help airlines/operators circumnavigate the contaminated airspace. With the good working relationship between Indonesia and Singapore through interaction at regional ICAO meetings and frequent bi-lateral consultations, the concept and the arrangement of the plan was agreed and put in place by both States.

8.12 According to the plan, the Indonesia POC will provide the latest meteorological information through ground observations and forecast from their Meteorological agency to Singapore at an agreed time interval. Such information, together with information from sources like Darwin VAAC's Volcanic Ash Advisories (VAA), pilots' reports, satellite observations, etc. was compiled by Singapore into a reporting format that could be easily understood. Information in the reporting format was shared with IATA, airlines and airport operator through established channels. Singapore also acted as a feedback centre for stakeholders to put in alternate routing requests and suggestions. These were relayed by the Singapore POC back to the Indonesia POC. The Indonesian authorities would consider these requests and through collaborative efforts among the various agencies, had led to the opening up of some military controlled airspace for use by the civil flights to circumnavigate the affected volcanic ash airspace. This paved the way for Indonesia to put in place contingency routes to avoid the contaminated airspace. The contingency routes were published in NOTAM.

8.13 Indonesia and Singapore felt that the success of their bi-lateral contingency arrangements showed it could be expanded and apply to a sub-regional or regional arrangement. This idea was mooted at the SCM in Singapore in January-February 2011. The SCM was attended by Indonesia, the Philippines, Singapore, Thailand and IATA. The SCM agreed that interim contingency arrangement would be able to provide a temporary solution before the regional contingency plan is developed. The SCM recognized that besides having procedures in place, it should be tested periodically to identify weak areas and to familiarise participants with the procedures. The SCM agreed to conduct regular teleconferencing among the participating States to allow the nominated POCs to interact and be familiar with the proceedings and reporting format.

8.14 During the first meeting of the METWARN/I TF (METWARN/I TF/1, Bangkok), the idea was presented by Indonesia and Singapore. It was well received by METWARN/I TF/1 and METWARN/I TF/1 felt that it could form a basis for the framework for the regional contingency plan. To further explore the idea, an ad-hoc group was convened at METWARN/I TF/1 to develop a framework for contingency plans that addresses the needs of the Region. The ad hoc group was made up of ATM experts from Indonesia, Malaysia and Singapore, and MET experts from Australia, New Zealand, Philippines, Thailand and United States. Singapore, as the Rapporteur will coordinate for the collection of comments from the group members and provide feedback to METWARN/I TF. The information will be used in formulating the contingency plan being developed by APANPIRG Regional Contingency Plan Task Force. One topic of interest in sub regional arrangements included the use of collaborative decision making via sharing information and teleconferences that now include Indonesia, Malaysia, the Philippines, Singapore and Thailand.

Sub-Regional Initiatives to Improve ATM and Implement Interim Arrangement during Volcanic Ash

8.15 Similarly, Indonesia, the Philippines, Singapore, Thailand and IATA jointly presented to the meeting regarding the SCM that was held in Singapore from 31 January to 1 February 2011. The SCM was attended by the States involved and focused on the following;

- Development of a Sub-Regional Volcanic Ash Contingency Plan
- Establishment of "Green Routes" (i.e. specified city pairs at specified times)
- Harmonization of State ATM Contingency plans (e.g. Contingency Routes)

8.16 The States involved discussed on the need and way forward for an interim volcanic ash contingency plan, an idea which was first mooted at the Second Meeting of the MET/ATM Task Force (MET/ATM/TF/2, January 2011) in Fukuoka, Japan. The proposed volcanic ash contingency plan requires each State to provide a POC so that sub-regional coordination arrangements can be set up among the States in the event of a volcanic eruption.

8.17 The proposed interim volcanic ash contingency plan consists of teleconferences between nominated POCs of participating States where real time information will be shared for collaborative decision making to be effected. Such arrangements would be a good interim measure but the teleconferences should be conducted regularly to allow the various POCs to be familiar with the process. The SCM also agreed to support the work of METWARN/I TF, which is tasked to develop the regional contingency plan for weather phenomena.

8.18 A teleconference facilitated by IATA was held on 27 April 2011 and participated by States involved which served as a practice session for the POCs. The teleconference discussed items such as a template of Order of Business that would be used in future teleconference in the event of significant volcanic eruptions, trigger conditions, follow-up teleconference frequency and other issues which would help to improve and streamline the interim arrangement.

8.19 It was agreed that the affected State with any significant volcanic eruption would be the Incident Manager. There would also be a Coordination Manager which would be on a rotational basis among the POCs from the various States (e.g. 6 monthly) to assist the Incident Manager. During such events, the States agreed that the affected State should concentrate on handling the crisis and provide any pertinent information to the Coordination Manager for dissemination. The main duties of the Coordination Manager are to manage information collation and dissemination between the various POCs and the Incident Manager.

8.20 The next teleconference has been scheduled in August 2011 where a table top exercise could also be carried out. The States involved agreed that the next meeting should be held in July 2011 where the scenarios for the exercise and refinement to the coordination process could be discussed.

8.21 The SCM also discussed on the possibilities of implementing "green" initiatives within the region which includes setting up "green routes" with gate-to-gate operational procedures that would reduce fuel burn and emissions for all phases of flight. The States involved considered exploring Continuous Descent Operations (CDO) implementation between identified city-pair as means of reducing emission. The possible city pair "green routes" identified was as follows:

- Bangkok – Chiang Mai (BKK – CMA)
- Bangkok – Singapore (BKK – SIN)
- Singapore – Jakarta (SIN – JKT)
- Bali – Jakarta (BLI – JKT)

- Manila – Mactan (MNL – MCT)
- Manila – Singapore (MNL – SIN)

Discussion on the Agenda Item as a Whole

8.22 After the presentations for the Agenda Item 7 from States and the Secretary, Hong Kong, China expressed the support for the idea of the establishing an appropriate forum to undertake the development of a Regional ATC Contingency Plan to meet Annex 11 requirements. Hong Kong, China added that while they have developed their State ATM Contingency Plan based on the ICAO model plan, more work has yet to be done to finalise the plan in terms of coordination with adjacent ACCs. Such a regional forum would help to speed up the progress of this matter.

8.23 IATA added that the discussion on the "green routes" was based on the ICAO Assembly resolution to reduce emission in the aviation industry. States involved were requested to look into city pair green routes concept and with a view to implement CDO. Other ATM initiatives to further reduce emission could be explored at subsequent meeting.

8.24 Malaysia updated the meeting on the progress of development of their State ATM Contingency Plan. Malaysia already put the contingency plan in place in March 2005 and in compliance with ICAO requirement. Malaysia in due will coordinate with neighbouring States to harmonize contingency plan. Malaysia also expressed interest to host the next SCM to discuss the issues mentioned. Malaysia will move further to harmonize the plan with their western neighbouring India.

8.25 The meeting thanked Malaysia for the offer to host the next SCM and look forward to their participation. The meeting also noted it was a good opportunity for other States to be involved in the discussion to finalise their contingency plans and acknowledged the benefit of a regional forum to gather all States in the region together to progress with the development of the respective State's plan.

8.26 The Secretariat also emphasised that the two contingency arrangements are different. The development of Contingency Plans as stipulated in Annex 11 addresses the situation where a State could not provide ATS in event such as natural disaster or industrial action by controllers and allow for the continuous provision of ATS over the high sea in the FIR. On the other hand, the Volcanic Ash Contingency Plan addresses the arrangement in the event where the volcanic ash from an eruption affects the safe flight operations. In the latter case, the respective States and service providers would still be able to provide ATS in their respective FIR.

Agenda Item 9: Civil Military Coordination

There was no discussion under this agenda item.

Agenda Item 10: Develop a Coordinated Plan for Implementation of Actions agreed by the Meeting

10.1 The meeting reviewed and updated the Action Plan as in **Appendix G** to this report, basing on the discussion made at the meeting.

Agenda Item 11: Any Other Business

There was no discussion under this agenda item.

Agenda Item 12: Date and Venue for the Next Meeting

12.1 The meeting agreed that the next SEACG meeting was tentatively scheduled in May 2012 in conjunction with a FIT-SEA meeting in Bangkok, Thailand.

Closing of the meeting

12.2 In closing the meeting, the Secretary, Mr. Kyotaro Harano thanked delegates for the excellent work achieved.

12.3 Mr. Raymond Kwok-chu Li thanked all the participants for their cooperation and wholehearted support, contributing to the successful meeting. He remarked that with the concerted efforts of States and participating organizations, the meeting discussed 20 WPs and 5 IPs under 12 agenda items, decided on relevant follow-up actions and updated its task list, which would be duly reported to ATM/AIS/SAR/SG/21 in June 2011. In particular, he thanked Mr. Kyotaro Harano for his professional advice and unfailing support to the Chair, without which the meeting would not be able to achieve its fruitful results. As it would be the last ICAO meeting for Mr. Harano before he completed his 7-year tenure at the ICAO regional Office, the Chairperson thanked him again for his sterling service to the civil aviation community in the Southeast Asia region and wished him every success in his new posting back in Japan.

ATTACHMENTS TO THE REPORT

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LIST OF WORKING AND INFORMATION PAPERS – FIT-SEA/11

WORKING PAPERS

WP/No.	Agenda Item	Title	Presented by
1	1	Provisional Agenda – FIT-SEA/11	Secretariat
2	3	ADS/CPDLC Equipage and ATS Status	Secretariat
3	5	Update FIT-SEA Task List	Secretariat
4	2	Summary Report of APANPIRG on FIT-SEA Activities	Secretariat
5	3	Report of FIT-SEA CRA	Japan
6	2	ADS/CPDLC Operational Implementation within Ujung Pandang FIR and Proposal the Ujung Pandang FIR to Joint FIT-SEA	Indonesia
7	4	Setting Up of CRA-Singapore	Singapore

INFORMATION PAPERS

IP/No.	Agenda Item	Title	Presented by
1	-	List of Tentative Working and Information Papers	Secretariat
2	-	Terms of Reference of FIT-SEA	Secretariat
3	2	Outcomes of RASMAG/13 and 14	Secretariat
4	2	Summary Report of the 13th Meeting of the FIT for the Bay of Bengal	Secretariat
5	2	ADS/CPDLC operational Implementation in Ho Chi Minh FIR	Viet Nam
6	2	Progress of ADS/CPDLC Trial Operations in Manila FIR	Philippines
7	3	ATS Data link System Performance /Operator Review - Singapore	Singapore

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LIST OF WORKING AND INFORMATION PAPERS – SEACG/18

WORKING PAPERS

WP/No.	Agenda Item	Title	Presented by
1	1	Provisional Agenda – SEACG/18	Secretariat
2	10	Review Action Plan From SEACG/17	Secretariat
3	3	Outcomes of APANPIRG/21	Secretariat
4	8	Status of State Contingency Plans	Secretariat
5	6	The Implementation of the NEW Flight Plan format	Secretariat
6	7	ICAO Asia Pacific Region ATS Route Catalogue	IATA
7	7	FL400 Restriction on G581	Hong Kong, China
8	3	Outcomes of RASMAG/13 and 14	Secretariat
9	3	Outcomes of SEA-RR TF/4	Secretariat
10	5	Radar Coverage Chart of the South China Sea Area and the Status Matrix of Application of Radar Handover Procedures	Secretariat
11	7	Review of the Asia/Pacific ATS Route Catalogue	Secretariat
12	2	Decision of ATM/AIS/SAR/SG/20 on Terms of Reference finalized in SEACG/17	Hong Kong, China
13	3	South East Asia Route Review Task Force	IATA
14	7	Proposals for New ATS Routes	Viet Nam
15	8	Bilateral Coordination between Indonesia and Singapore during Volcanic Ash Contingencies and Development of Regional Contingency Arrangements	Indonesia Singapore
16	5	Harmonisation of ATC Procedures for ADS-B Operations in the South China Sea Area	Singapore
17	5	Draft Report of the Mekong ATM Coordination Group Meeting *(Jointly submitted by Cambodia, Hong Kong China, Lao PDR, Thailand and Viet Nam)*	Thailand
18	8	Sub-Regional Initiatives to improve Air Traffic Management (ATM) and implement Interim Arrangements during Volcanic Incidents *(Jointly submitted by Indonesia, Philippines, Singapore, Thailand and IATA)*	Singapore
19	8	Best Practices to develop State ATM Contingency Plan and Regional ATM Contingency Plan	Indonesia Philippines Singapore Thailand
20	4	Review of FIT-SEA/11	Secretariat

INFORMATION PAPERS

IP/No.	Agenda Item	Title	Presented by
1	-	List of Tentative Working and Information Papers	Secretariat
2	5	Summary of the Discussion of the Third Meeting of AIS-AIMSG	Secretariat
3	6	Seamless ATM Implications	Secretariat
4	5	Updates on ATM activities in Viet Nam	Viet Nam
5	3	Outcome of the fourth meeting of East Asia ATM Coordination Group (EATMCG/4)	Japan

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