



International Civil Aviation Organization

**Fourteenth Meeting of the APANPIRG ATM/AIS/SAR Sub-Group
(ATM/AIS/SAR/SG/14)**

Bangkok, Thailand, 28 June – 2 July 2004

Agenda Item 3: Review and progress the tasks assigned to the ATM/AIS/SAR/SG by APANPIRG

**IMPLEMENTATION OF REDUCED VERTICAL SEPARATION MINIMUM (RVSM)
IN THE ASIA PACIFIC REGION**

(Presented by the Chairman of the ICAO RVSM Implementation Task Force)

SUMMARY

The Ninth Meeting of the Asia Pacific Air Navigation Planning and Implementation Regional Group (APANPIRG/9) established the ICAO RVSM Implementation Task Force to implement the reduced vertical separation minimum (RVSM) within the Asia Pacific Region. This paper provides an update on the implementation of RVSM in the Asia Pacific Region since the ATS/AIS/SAR/SG/13 Meeting.

1 INTRODUCTION

1.1 The RVSM Task Force continued its work programme established by APANPIRG to implement and follow-up on implementation of RVSM in the West Pacific/South China Sea (WPAC/SCS) and the Bay of Bengal and Beyond areas. This paper reviews its activities since the ATS/AIS/SAR/SG/13 Meeting on 23-27 June 2003 and the APANPIRG/14 meeting on 4-8 August 2003.

2 ICAO RVSM IMPLEMENTATION TASK FORCE

2.1 The Task Force met eight times since its activities were reported at the ATS/AIS/SAR/SG/13 Meeting as shown below:

RVSM/TF/18/19: 30 June - 4 July 2003, Bangkok, Thailand
(90-Day and One-year Review of Phases I & II WPAC/SCS and RVSM Implementation Bay of Bengal)

Special ATS Coordination Meeting: 11-13 August 2003, Kuala Lumpur, Malaysia
(Finalization of RVSM Operational Plan)

2nd RVSM Joint Coordination Meeting: 27-28 August 2003, Abu Dhabi, UAE
(Middle East/Asia Regions RVSM Task Forces)

Special ATS Coordination Meeting: 3-5 September 2003, Bangkok, Thailand
(RVSM Transition Issues Bay of Bengal)

RVSM/TF/20: 27-31 October 2003, New Delhi, India
(RVSM Implementation Bay of Bengal)

Special ATS Coordination Meeting: 7-9 January 2004, Bangkok, Thailand
(India and Pakistan RVSM Transition Procedures)

RVSM/TF/21: 8-12 March 2004, Bangkok, Thailand
(90-day Review of Bay of Bengal and Beyond Implementation)

Special ATS Coordination Meeting: 12-13 April 2004, Singapore
(Air Traffic Flow Management Bay of Bengal)

2.1.1 The Task Force meetings included a wide representation from States planning to implement RVSM, operators, international organizations and industry groups. In order to accomplish its work program, the Task Force has been divided into three Work Groups to focus on the following:

- a) Safety and Airspace Monitoring;
- b) ATC Operations; and
- c) Aircraft Operations and Airworthiness

RVSM/TF/18/19 Meetings

2.2 The APANPIRG/14 meeting reviewed the outcome of the RVSM/TF/18/19 meetings, which had carried out a one-year post implementation review of RVSM implementation in the WPAC/SCS area and ongoing implementation planning for the Bay of Bengal and Beyond area respectively.

2.2.1 The RVSM/TF/18 meeting noted that the harmonization of the FLOS between the WPAC/SCS areas and the Bay of Bengal areas was an outstanding matter, about which the APANPIRG/14 had expressed concern. In this regard, it should be noted that the single alternate FLOS was being used in all other areas in the Asia/Pacific Region, and under the present mixed FLOS arrangement, between the WPAC/SCS operating the modified single alternate FLOS and adjacent RVSM airspace operating the single alternate FLOS, transition procedures were required for aircraft operating from one FLOS area to the other. This matter would be examined further by the RVSM/TF/22 meeting scheduled for 20-24 September 2004.

Special ATS Coordination Meeting, Kuala Lumpur

2.3 The SCM, Kuala Lumpur was convened to finalize the operational plan for RVSM operations in the Bay of Bengal and Beyond, in order for the preparations for RVSM implementation to be completed. Taking into account the operational requirements of international traffic flows and domestic operations in the Bay of Bengal and Beyond, the meeting agreed on the assignment of RVSM levels. The meeting considered the No-PDC procedures for the assignment of levels for departures from Bangkok, Kuala Lumpur and Singapore to Europe, and agreed that the No-PDC flight levels for departures from Kuala Lumpur and Singapore would be FL280, FL320, FL340, FL380 and FL400 for the parallel routes over the Bay of Bengal.

2.3.1 In respect to Letters of Agreement, (LOA), the meeting agreed that all States involved in RVSM implementation in the Bay of Bengal and Beyond should complete the LOAs prior to RVSM/TF/20 in October 2003. Where necessary, the States should arrange for bi-lateral meetings to finalize the LOAs.

2.3.2 A review of operations on the EMARSSH routes was carried out, and the meeting recalled the issue of ATS route congestion that had been discussed at the ATS/AIS/SAR/SG/13 Meeting (23 – 27 June 2003). The following outstanding issues were considered:

- a) bottlenecks over Delhi India causing significant delays for Delhi westbound departures;

The meeting considered that this would be resolved under the proposed Traffic Orientation Scheme

- b) restrictions on flight levels on ATS route L333 over India due to military considerations – require additional FL 280;

The meeting was informed by India that lowering of the Minimum Enroute Altitude (MEA) on L333 from FL310 to FL280 is currently being coordinated with Indian Military Authorities. In the event that it could not be lowered FL300 would be considered.

- c) requirement for new ATS route joining ASOPO to Rahim Yar Khan (RK) within Indian airspace which at present is unable to be used due to military considerations;

India was considering the route extension and Pakistan had agreed to this route within their airspace.

- d) effective use of Mach Number Technique (MNT) procedures as application by some Bay of Bengal States was inconsistent and not in accordance with the ICAO Planning Manual, causing unnecessary delays to long-haul international aircraft; and,

States previously had been urged to follow the procedures as laid down in ICAO documents thus avoiding unnecessary delays. The meeting was assured that these issues had been resolved and that a smooth operation of MNT procedures across the Bay of Bengal could be expected in future.

- e) a Traffic Orientation Scheme (TOS) for flights transiting the Kabul FIR

IATA presented a TOS, which had been previously presented to the EMARSSH Post Implementation Review meeting held in April 2003. The TOS was only required for the night-time westbound peak period.

2.3.3 The meeting agreed to take follow-up action on the TOS and devise a management plan to optimize the use of available routes and Flight Levels through the Kabul FIR. This would require Malaysia, Singapore and Thailand to meet as a matter of urgency, to discuss and put in place a plan for aircraft departing from their airports and transiting the Kabul FIR, taking into account the level restrictions and other requirements through that airspace.

Other operational issues

2.3.4 The meeting also noted that departures from Singapore/Kuala Lumpur flight planning via I.R. Iran could be allocated P628, N877 or alternatively, the Bay of Bengal routes to the south, to avoid congestion over TIGER which is in non-radar airspace in the Delhi FIR.

2.3.5 In regard to Phuket departures to Europe, the meeting considered that these aircraft should not interfere with the scheduled services during the night-time rush hours. Consequently, the meeting concluded that these operations should be subject to PDC procedures and that such flights should be encouraged to operate outside the regular peak traffic period.

Second RVSM Joint Coordination Meeting (JCM), Abu Dhabi

2.4 The Second JCM between the Middle East and Asia Regions RVSM Task Forces reviewed and agreed to the revised RVSM implementation strategy for the MID and ASIA Regions.

2.4.1 The meeting reviewed and made some changes to the FLOS India presented to the SCM held at Kuala Lumpur (August 2003) for the Indian FIRs that took into account the requirements of international and domestic traffic flows over the Bay of Bengal and India. The FLOS for the RVSM band FL 290-410 inclusive was designed with in-built separation of crossing tracks, and for weather deviations over the Bay of Bengal, which were significant during cyclonic activity in the monsoon season.

2.4.2 The meeting was informed of the concern of the RVSM/TF/19 meeting that some States had not submitted large height deviation (LHD) reports, and incomplete data could have an impact on the estimation of operational risk and subsequent comparison to the target level of safety (TLS). The ICAO Bangkok Office would be taking follow-up action to inform the individual States concerned to submit their reports as matter of priority to ensure that the safety assessment was completed prior to the RVSM/TF/20 meeting in October 2003.

2.4.3 The meeting was advised that one of the major problems that would directly impact on the efficiency of RVSM operations was related to the provision of air traffic services in the Kabul FIR. The main problem being that FL 280 was not available and due to the heavy weight of the majority of flights on these routes, only FL310 and FL350 were operationally viable, and a significant number of aircraft could not reach FL350 by the Kabul FIR within which no flight level changes were permitted. In this regard, ICAO, IATA and States concerned had continuously pressed the Coalition Forces to release FL280 for international overflights, even if this was limited to a four hour window to accommodate the night time peak traffic flow. However, to date, no progress had been made and efforts continue to resolve this problem.

2.4.4 The JCM noted that the introduction of RVSM in the Kabul FIR and the FIRs in the Commonwealth of Independent States and the Russian Federation that were involved in the major traffic flows, was urgently required to enable RVSM benefits to be fully realized. Until progress was made to implement RVSM, the westbound traffic flow from Asia to Europe via the Kabul FIR would continue to suffer ongoing constraints. The ICAO Middle East Office, Cairo to which Afghanistan was accredited would peruse this matter further.

2.4.5 India and Pakistan provided the meeting with an update on transitional arrangements for aircraft transiting westbound from Indian airspace into Pakistan and to Afghanistan and beyond.

2.4.6 The meeting agreed to adopt 0200 UTC as the cut-over time for RVSM on 27 November 2003 and noted that this was the same time as was used for the implementation of the EMARSSH route structure on 28 November 2002.

2.4.7 The meeting was updated on the activities of the Regional Monitoring Agencies for the Asia and Mid Regions, i.e. the Monitoring Agency for the Asia Region (MAAR) operated by AEROTHAI, Thailand and the Middle East Central Monitoring Agency (MECMA) operated by the General Civil Aviation Authority, United Arab Emirates.

2.4.8 The States adjoining the Arabian Sea/Indian Ocean RVSM/CVSM interface area proposed a flight level allocation scheme (FLAS) for use between the RVSM and CVSM areas of the Arabian Sea and Indian Ocean. The proposed (FLAS) for the Arabian Sea area in the Mumbai FIR had been designed keeping in conformity with the traffic flow over the Bay of Bengal and continental Indian airspace. In this regard, due consideration had been given to both the west and eastbound traffic on EMARSSH routes over the Arabian Sea.

2.4.9 The Meeting was advised that at the MID/RVSM/TF/9 meeting 24-27 August 2003, the GO decision was taken to implement RVSM in the MID Region on 27 November 2003 based on the outcomes from the Safety and Monitoring Work Group (SAM/WG), the ATC Work Group (ATC/WG) and the Operations/Airworthiness Work Group (OPS/AIR/WG).

RVSM Special ATS Coordination Meeting, Bangkok

2.5 The RVSM SCM, Bangkok meeting addressed issues concerning the finalization of the operational plan for the implementation of RVSM in the Bay of Bengal and Beyond. In particular, the meeting considered the transition arrangements between the South China Sea and Bay of Bengal areas and developed coordination procedures for the transfer of control of aircraft using the modified single alternate flight level orientation scheme and single alternate flight level orientation schemes respectively. With these measures resolved this would facilitate the RVSM/TF/20 making a final decision as to whether RVSM would be implemented on 27 November 2003.

2.5.1 In regard to the safety assessment for A1/P901, MAAR advised the meeting that the total risk attributable to all causes for the use of bi-directional single alternate FLOS on A1/P901 exceeded the agreed TLS of 5×10^{-9} fatal accidents per flight hour. In the case of A202, the total risk did not exceed the TLS, but the technical risk was relatively high. In light of the results of the safety assessment, MAAR recommended that uni-directional single alternate FLOS be implemented on ATS routes A1/P901 and A202 in the future. In light of the foregoing, the meeting agreed that RVSM single alternate FLOS would not be implemented on A1/P901 in non-radar procedural ATC airspace between positions BUNTA and DAGON on A1, and ITBAM and IKELA on P901. The meeting agreed that the modified single alternate FLOS should continue to be used on A1/P901 on that portion of the routes.

2.5.2 In regard to A202, the meeting agreed that implementation of RVSM on A202 on the non-radar portion of the route, would be dependent on the coordination of the States concerned. The meeting noted that the technical risk of 2.3×10^{-9} fatal accidents per flight hour as determined by the safety assessment was close to the maximum permitted technical risk of 2.5×10^{-9} fatal accidents per flight hour, and this should be taken into account by States when determining whether to implement RVSM on A202 in non-radar airspace.

2.5.3 The meeting agreed that where appropriate, transition procedures should be incorporated in the respective LOAs. In addition, AIP Supplements published by States should contain detailed operational and transition procedures.

2.5.4 MAAR presented an update of the LHD reports for the period between June 2001 and July 2003 received by the Asia/Pacific Approvals Registry and Monitoring Organization (APARMO) and MAAR. It was found that one of the LHD reports showed that an aircraft had been operating at the wrong flight level, FL360 in the opposite direction to its assigned flight level, FL350 for a 10 minute period. Because the incident occurred in transition airspace, this raised cause for concern over transition airspace operations. Further, the transition taking place was from the single alternate FLOS to the modified single alternate FLOS, i.e. no transition was made from even to odd flight level in the transition area.

2.5.5 In light of the above, MAAR recommended that a comprehensive study of the use of different FLOS in the WPAC/SCS should be conducted with a view to harmonization. Use of a single FLOS would remove the requirement to conduct transition between RVSM FLOSs.

2.5.6 The meeting recognized the problems with RVSM operations using the single alternate FLOS and the modified single alternate FLOS in adjacent airspace in the WPAC/SCS and Bay of Bengal areas. In this regard, the meeting was reminded that at the RVSM/TF/18 meeting, it was agreed to carry out a detailed study of this matter, and to continue to operate the dual FLOS arrangement after implementation of RVSM in the Bay of Bengal area due to the limited time available to study the issue in detail.

2.5.7 The meeting recognized the safety issues related to transition operations, and the incident described above underlined the potential risks involved. Therefore, it was imperative that States and ATS Providers responsible for transition procedures ensure that an appropriate level of safety management was in place prior to conducting transition operations. Further, controller training should include a thorough understanding of transition procedures and operations in the transition area.

RVSM/TF/20, New Delhi, India

Operational Considerations

2.6 The RVSM/TF/20 carried out a final review of the RVSM Implementation Plan which had been successfully completed by the States concerned. The States present provided an update on their activities and readiness to implement RVSM.

2.6.1 In view of the concerns that had been expressed at previous meetings over the Myanmar communication problems, an operational trial was put in place by Myanmar for the Northern portion of the Yangon FIR (Sector 1) to make use the Mandalay VHF radio coverage and secondary surveillance radar to cover the transition area on A599 between the Kunming FIR boundary at LINSO and LASHIO VOR in the Yangon FIR. Also, direct speech circuits were available between Yangon ACC and Mandalay ATC for ground/ground communication on VSAT, IDD and HF. AFTN was also available and aircraft flight plans were being provided to Mandalay Approach Control by Yangon ACC for overflying traffic. A NOTAM had been issued requesting operators to address their flight plans to Mandalay APC. The foregoing measures were expected to provide significant improvements to controller/pilot communications and if the trial was successful, this would be made permanent until Yangon ACC communications were improved.

2.6.2 Myanmar had published RVSM transition procedures in AIC 03/03 for A599 between Kunming and Yangon FIRs for transition between China metric and RVSM levels. In light of discussions at the SCM/ATFMP for the Bay of Bengal area held at Bangkok on 13-15 October 2003, which Myanmar attended, AIC 03/03 would be cancelled and replaced by transition procedures to be discussed with China at a meeting in Yangon on 3 November 2003. Following the SCM/ATFMP meeting, China had been requested in addition to the existing transition procedure, to consider two new options for transition from China metric to RVSM levels for westbound traffic on A599. One option proposed that Kunming ACC effect transition from China metric to RVSM levels in the Kunming FIR (non-RVSM), and the other option proposed that China metric levels to be maintained to Kunming/Yangon FIR boundary (LINSO) and the transition to be effected in the Yangon FIR (RVSM).

2.6.3 In line with the flight level allocation scheme agreed by the RVSM Task Force, FL 310, 350 and 390 would not be used by India for eastbound flights on A599 and A201, and the existing transition arrangement for FL290, 330, 370 and 410 to China metric levels would continue.

Under this arrangement, Kunming ACC carried out the transition in the Kunming FIR between LINSO and GMA VOR on A599.

2.6.4 The meeting focused on several key issues relating to westbound RVSM/CVSM transition arrangements and related Air Traffic Flow Management (ATFM) procedures between India, Pakistan and Afghanistan. After a lengthy discussion, transition and traffic flow arrangements were agreed for traffic transiting Pakistan airspace to/from the Kabul FIR in Afghanistan. The meeting noted that the arrangements and ATC procedures would be contained in the Letter of Agreement between India and Pakistan, and would be on a one month trial basis. The meeting also agreed to hold a review meeting on 7 – 9 January 2004 at the ICAO Asia/Pacific Office, Bangkok to review the management of traffic with the implementation of RVSM. Traffic statistics for aircraft operating on these routes would be required for consideration by the review meeting.

2.6.5 With the generous assistance of the Civil Aviation Authority of Singapore and coordination by the ICAO Bangkok Office, RVSM training was successfully carried out in Yangon from 13 to 19 October 2003 for 40 air traffic controllers.

2.6.6 The amendment to the weather deviation procedures contained in the MID/ASIA Regional Supplementary Procedures (Doc 7030) to include RVSM procedures was being processed by ICAO.

2.6.7 In regard to lateral offset procedures, the Secretariat provided information regarding ICAO guidelines on procedures for the application of lateral offsets, as well as an update on progress to revise the on lateral offset procedures currently being undertaken by the Separation and Airspace Safety Panel (SASP). In further discussion, IATA proposed that the lateral offset procedures should be standardized on a global basis and in the interim, suggested that 1NM right of track be applied for strategic offsets and 2NM right of track for wake turbulence avoidance within RVSM airspace. The meeting noted this proposal and recommended that this matter be referred to the next meeting of the ATM/AIS/SAR/SG as well as being placed on the agenda for the 90-day RVSM Post Implementation Review meeting.

2.6.8 In response to concerns expressed by IFALPA, the meeting was informed that Radio Failure procedures for RVSM operations had been included within the respective State AIP SUPPs and that these procedures would apply at the cutover time and beyond.

2.6.9 The meeting reiterated the need for States to provide timely and accurate submission of Large Height Deviation reports to MAAR, including “Nil Reports” where appropriate.

2.6.10 The meeting reaffirmed that the change over time for RVSM implementation would be 0200 UTC on 27 November 2003, noting that this was the same time that had been used for the implementation of the EMARSSH route structure on 28 November 2002.

2.6.11 The meeting noted that most States had finalized LOAs with adjoining ATS Units and that other States had exchange drafts LOAs ahead of finalization.

Readiness Assessment for the Implementation of RVSM in Bay of Bengal

2.6.12 The meeting noted the readiness of aircraft and airlines for RVSM operations on international routes in the Bay of Bengal and Beyond area. More than 88 percent of civil registered aircraft were RVSM approved. Further, some domestic and regional airlines were in the process of receiving RVSM approval and the number of approved aircraft should increase. Hence, the 90 percent target should be reached in the near term. In light of the results of the readiness assessment, the meeting agreed that the readiness of operators and aircraft met the requirement for the planned implementation of RVSM in the Bay of Bengal on 27 November 2003.

2.6.13 The meeting noted that most RVSM operators had installed ACAS II (TCAS II V.7), and this was incorporated in the RVSM approval process, and was necessary to improve the operational and safety level of flights operating within RVSM airspace in accordance with the ICAO Annex 6 ACAS II requirement.

2.6.14 The meeting considered that the post RVSM implementation monitoring system of height-keeping performance should be established for the Bay of Bengal and Beyond area. The meeting proposed to renew the assessment of GMU flight monitoring by sampling method every two years for the group or non-group aircraft. The meeting however agreed that the frequency of monitoring should be decided on a global basis. The meeting considered that the State Authority should be responsible to coordinate the flight monitoring according to the ICAO procedures in Doc 9574.

2.6.15 The meeting was informed that the transfer of the duties and responsibilities of the Regional Monitoring Agency (RMA) for the Asia Region from the APARMO to the MAAR took place on 2 September 2003.

Final Safety Assessment for the Implementation of RVSM in Bay of Bengal

2.6.16 The meeting reviewed the summary of the TSD and LHD reports associated with the implementation of RVSM. The meeting reported that there had been no large height deviations reported due to aircraft system failure or pilot error and adverse weather in Bay of Bengal and Beyond area since 1997. The meeting reviewed the final safety assessment for the implementation of RVSM in the Bay of Bengal area presented by MAAR.

2.6.17 Based on the collision risk estimates, the technical and operational risks for the RVSM implementation in the Bay of Bengal were 1.00×10^{-9} and 2.08×10^{-9} fatal accidents per flight hour, respectively. The total risk attributed to all causes was 3.08×10^{-9} . The trends of collision risk estimates for each month using the appropriate 12-month interval of LHD reports received by MAAR are shown in Figure 1. Therefore, the risk estimates of both technical and total risks satisfied the agreed TLS value of no more than 2.5×10^{-9} and 5.0×10^{-9} fatal accidents per flight hour due to the loss of a correctly established vertical separation standard of 1,000 ft and to all causes, respectively.

2.6.18 IATA expressed concern regarding the occurrences of LHD due to operational errors, and sought solutions to prevent the reoccurrences of such errors. It was noted that the MAAR would notify the ICAO Asia Pacific Regional Office of the LHD occurrences, so that ICAO could liaise with the States concerned to take appropriate actions.

Review of the Monitoring Requirements for States in Bay of Bengal and Beyond Area

2.6.19 The meeting was reminded of the duties and responsibilities of MAAR related to maintaining the RVSM approval records and facilitating the transfer of approval data to/from other RVSM RMAs. Further, the meeting recognized the importance of maintaining an up-to-date global

database of State approved RVSM aircraft, and that the ICAO Bangkok Office would issue a State letter advising States of the transfer of responsibility of RVSM monitoring from APARMO to MAAR on 2 September 2003 as approved by APANPIRG/14 (August 2003). States would be requested to cooperate with MAAR and provide the required safety reports. The meeting was informed that MAAR would coordinate with the ICAO Asia Pacific Regional Office to send a state letter to States requesting the required information.

Implementation on 27 November 2003 (Go/No-Go Decision)

2.6.20 Taking into account the preparations that had been completed by the States concerned and the results of the operator readiness and safety assessments, the meeting agreed to go ahead with the implementation of RVSM in the Bay of Bengal and Beyond on 27 November 2003.

Air Traffic Flow Management Plan for the Bay of Bengal Area

2.6.21 The meeting noted the development of the ATFMP for the Bay of Bengal Area by the Bay of Bengal ATS Coordination Group (BBACG) to maximize air traffic management and operational efficiency for traffic departing from Southeast Asia, India and Pakistan airports to Europe through Afghanistan airspace. A coordination meeting to progress the ATFMP would be held from 3 to 5 November 2003 in Singapore.

Afghanistan airspace restrictions

2.6.22 The meeting recognized that traffic flows through Afghanistan airspace were constrained by restrictions imposed by the Coalition Forces (Afghanistan airspace control authority). This had a major effect on traffic delays being experienced at major airports in the Asia Region. Discussions had been ongoing between the Coalition Forces, ICAO and other concerned organizations to obtain more airspace capacity for international civil operations. The unavailability of FL280 was one of the main contributing factors to delay. Full benefits of RVSM cannot be realized due to RVSM not being implemented in the Kabul FIR. Accordingly, the meeting urged ICAO to arrange a meeting with the Coalition Forces and other parties concerned to gain additional use of airspace, in particular FL280.

EMARSSH route improvements

2.6.23 India informed the meeting that agreement had been reached between Airports Authority of India (AAI) and the Indian military authority to extend ATS route P628 from ASOPO to RK and to lower the MEA from FL310 to FL300. Further, the MEA on L333 was also lowered from FL310 to FL300. The route changes would be put into effect as soon as administrative arrangements were completed. The meeting expressed its appreciation to AAI and the Indian military for achieving this significant improvement to the EMARSSH routes, which would greatly enhance air traffic management arrangements over India and benefit operators.

2.6.24 The RVSM/TF/20 meeting noted that other ATM matters affecting the RVSM airspace were under consideration, i.e. development of an Air Traffic Flow Management Plan for the Bay of Bengal area by the BBACG; airspace constraints in the Kabul FIR had a major impact on delays to traffic from South-East Asia during the night time peak period and an additional flight level, FL 280 was being pursued with the Coalition Forces; and an extension of EMARSSH route P628 from ASOPO to RK had been approved by India and once implemented, would provide an alternative parallel route, thereby relieving traffic congestion over the Delhi area.

2.6.25 The extension of ATS route P628 from ASOPO-VIKIT (position on the Delhi/Karachi FIR boundary), and the segment VIKIT- RK VOR had been approved by India as

reported to RVSM/TF/20. The MEA for ASOPO-VIKIT had been lowered from FL310 to FL300, and the MEA on L333 was lowered from FL310 to FL300. India and Pakistan agreed to coordinate on issuing a NOTAM on the implementation of the P628 extension on 22 January 2004. The meeting agreed that further improvements to the routing was required and the sector RK-Kandahar should be implemented. In this regard, ICAO would coordinate with Afghanistan, the Middle East Office and other parties concerned as soon as practicable.

2.6.26 Pakistan informed the meeting that access to FL280 for aircraft transiting the Kabul FIR would resolve some of the RVSM/ CVSM transitional issues for westbound traffic and generally improve the flow of traffic across the region. In this regard, ICAO advised the meeting that arrangements were being finalized with the Coalition Forces for civil aircraft to operate at FL280 in Afghanistan airspace, and it was anticipated that FL280 would be made available in the near term. ICAO would provide details in due course.

2.6.27 IATA informed the meeting that with RVSM implementation on 27 November 2003 and the extra levels, the traffic flow was expected to be more effectively managed, and hence a reduction in delays. However, this had not occurred, and there had been no significant improvement in the situation at the departure aerodromes in Southeast Asia. It was recognized that the route structure over the Indian sub-continent was not ideal, and could be improved further.

2.6.28 The meeting agreed that all Bay of Bengal States, including Pakistan and Afghanistan should urgently work towards implementing an ATFMP as a means to resolving the night-time peak hour traffic delays. In this regard, the meeting recalled that considerable work had already taken place on developing an ATFMP and the issues involved were understood by all parties concerned. As the statistics showed, there was sufficient capacity on the existing Afghanistan routes to meet the present demand for the westbound peak night time traffic flow. However, taking into account future traffic growth and the need to cater for contingency situations such as short notice airspace closures and traffic disruption due to adverse weather over the Bay of Bengal, the meeting agreed that there was a requirement for States to continue their cooperative effort to put in place a comprehensive and permanent ATFMP. The meeting was advised by ICAO that this subject was on the work programme of the BBACG who would continue to progress this effort.

2.6.29 The meeting agreed that in the short term, the main concern was to optimize the use of the available airspace by applying a flexible use of available flight levels and routes, and to improve coordination and sharing of flight plan information between the ACCs concerned. In this regard, the meeting agreed that all flight level assignment for the Bay of Bengal routes should be subject to a flexible approach where due consideration is given to airports with the higher traffic load. In this context Malaysia, Singapore and Thailand agreed to review their practices and to optimize flight level assignment.

Long-Term improvements

2.6.30 The meeting identified the following improvements that could be achieved over the long term for operations over the Bay of Bengal and Beyond:

- ICAO Route Review Task Force – first meeting planned in May 2004);
- integrated ATFM system;
- progress Kabul/ Western interface with adjoining FIRs;
- establish full/remainder of EMARSSH routes;

- integration of ATM systems (e.g. ADS/CPDLC and ADS-B);
- reduction of longitudinal separation standards to 50NM; and
- improvements to ATS infrastructure in Kabul FIR.

2.6.31 ICAO reminded the meeting that considerable time and effort had been put into dealing with the air traffic management issues for the Bay of Bengal and Beyond area by States and international organizations during the past year. Some progress has been made to improve the situation but there remained considerable work to be done which would be undertaken by BBACG.

2.6.32 The meeting was encouraged to provide detailed information on their operational issues and planning to enhance their CNS/ATM systems, including traffic movement data for the RVSM/TF/21 90-day Review Meeting scheduled on 8-12 March 2004. In this regard, all ATS providers involved were requested to provide traffic movement data for the 24 hour periods from 19 to 25 January and 16 to 22 February 2004 using a standard format. It was stressed that the actual times of aircraft operation showing the hourly breakdown must be provided.

RVSM/TF/21, Bangkok, Thailand

2.7 The RVSM/TF/21 carried out a 90-day review of the implementation of RVSM in the Bay of Bengal and Beyond area on 27 November 2003. The meeting was updated by the States present (India, Indonesia, Maldives, Myanmar, and Thailand) who had implemented RVSM and the international organizations involved (IATA, IFALPA and IFATCA) in respect to RVSM operations since implementation. Information was provided to the Regional Office by Malaysia, Pakistan and Sri Lanka who were unable to attend the meeting.

Operational issues

2.7.1 IATA presented a review from the airlines perspective of the air traffic management situation over the Bay of Bengal, Indian Continental airspace and the Kabul FIR in the context of long-haul flights from South-East Asia to Western Europe, following RVSM implementation. In this regard, flight levels had doubled leading to overall easing of traffic congestion, and assignment of more economic levels to both overflying and Indian domestic traffic. However, there were a number of outstanding issues for example, longitudinal separation requirements for A466 and N644, flight level transition and communications in the Yangon FIR, air traffic management in the Bay of Bengal and overall optimization of the airspace capacity, which needed to be addressed to improve the overall traffic flow.

2.7.2 The meeting considered the issues raised by IATA. The meeting recognized that with FL280 available in the Kabul FIR since it was approved by the Coalition Forces for use on 26 January 2004 (available from 2000-2400 UTC on ATS routes A466, N644 and L750), the capacity had increased to 3 useable levels on each of the two routes, making a total capacity of 36 slots per hour. The meeting agreed to refer this matter to Pakistan for their consideration.

2.7.3 The meeting reviewed existing trial arrangements for aircraft operating on A466 (or N644) to route via M770 instead of L759. This was to free up slots on L759/L750 which would otherwise be occupied by flights routing via A466 or N644 which could route via M770 instead. The meeting discussed the possibility of making this a permanent arrangement. IATA informed the meeting that they had no objection to making permanent the current trial requesting operators to fly particular routes. However, if the intention was to fix the route operators could flight plan, they would need to coordinate with the operators who were affected and provide feedback on the proposal through ICAO.

Air traffic management plan

2.7.4 IATA recalled that traffic departing from some South-East Asian airports continue to suffer lengthy delays from time to time. Available statistics indicated that traffic departing Singapore airport suffer lengthy delays on occasions when traffic bunched on a specific route because of unfavorable winds and weight limitations. In particular, delays were significant when flights bunched on L759. Various measures to avoid such bunching had to date not led to significant improvement, as airlines had found it possible to flight-plan away from this preferred route only on rare occasions. Further downstream towards Kabul FIR, possible bunching of flights at the entry points could potentially result in re-routings. The availability of FL280 in the Kabul FIR had temporarily eased the situation by increasing the route capacity by 30 percent. The opening of P628 ASOPO/Kandahar route would provide a viable and attractive alternative to L759 and divert some of the traffic there. However, ultimately, with the inevitable increase of air traffic, in IATA's view a comprehensive air traffic management plan for the whole of the Bay of Bengal was the only viable long term solution.

2.7.5 IATA considered that an automated system would offer a more efficient system as it was airline regulated. In this regard, if States agreed to a slot allocation scheme as a way to ease the current traffic flow not just over the Bay of Bengal but also to take care of departing flights out of Indian and Pakistani airports through Kabul FIR, IATA was prepared to review the potential of any automated system available.

2.7.6 The meeting appreciated the detailed information provided by IATA on the air traffic management issues they considered required further improvement in the Bay of Bengal area.

Transition procedures and communications problems in the Yangon FIR

2.7.7 IATA reminded the meeting that flights transiting the Yangon FIR continue to experience communications problems with Yangon ACC both in the northern and southern segments of the Yangon FIR. The implementation of a procedure for Mandalay Approach to relay for Yangon ACC provided some relief, but the intermittent operation meant that a substantial percentage of aircraft were not able to communicate with Yangon ACC for long periods while transiting the FIR. This was highly unsatisfactory in view of westbound aircraft operating between LINSO and Lashio (LSO) VOR in the Yangon FIR being required to transition from CVSM to RVSM levels. Also, eastbound aircraft west of LINSO were required to transition to China metric levels. Experience had shown that while transitions between China metric and ICAO CVSM levels were not a problem, radio communications with Yangon ACC were not always possible.

2.7.8 The Meeting was also reminded that the IATA In-Flight Broadcast Procedure (IFBP) had been in force in the area since 29 August 2003. In regard to the RVSM transition procedures between the Yangon and Kunming FIRs, IATA considered that from a safety perspective, the best option was for transition from China metric to RVSM and vice versa to be carried out in Kunming FIR where radio communications were assured.

2.7.9 The meeting agreed that it would be preferable for China to take responsibility for the transition procedures. However, recognizing that China was not in a position to implement the RVSM transition procedures in the Kunming FIR at this stage, the meeting agreed that the present arrangements should continue, and that contingency procedures should be provided when air-ground radio communications were not available.

2.7.10 The meeting reviewed existing procedures for transition of aircraft from CVSM to RVSM levels between Kunming and Yangon ACCs. The meeting noted the difficulties faced by operators with regard to the lack of continuous availability of air-ground communications with

Yangon ACC (or Mandalay Approach). The meeting agreed that the procedures should be improved to cater for situations when there were no communications with Yangon ACC (or Mandalay Approach). IATA proposed a revised system for the transition of aircraft from CVSM to RVSM. China and Myanmar concurred with the proposed arrangements and Myanmar would issue an appropriate NOTAM.

2.7.11 The meeting recognized the longstanding difficulties Myanmar had experienced with its communications infrastructure. The Secretariat advised the meeting that in recent discussions with Myanmar, plans to upgrade the communications for their air traffic services were being progressed. There were positive signs that these may be overcome in the short term. ICAO would be conducting a further high level mission to Myanmar in March 2004 to address these issues with the Myanmar Government.

Direct route Rahim Yar Khan (RK) - Kandahar

2.7.12 The Secretariat informed the meeting that the ICAO Middle East Office had followed-up on the outcome of the Special Coordination Meeting between India and Pakistan held on 7-9 January 2004 and coordinated with Afghanistan, Pakistan and the Coalition Forces to obtain approval for the route. Good progress had been made and approval granted by Afghanistan and Pakistan. The Coalition Forces were considering the matter and was expected to make a decision whether to implement the route in the near term. The meeting recognized that with the availability of this direct segment, considerable benefits would be achieved in relieving the congestion on L759.

2.7.13 The meeting further recognized the on-going effort by ICAO, States and IATA to seek the cooperation of the Coalition Forces to release Afghanistan airspace for international civil overflights. Further, the meeting urged ICAO to continue to give priority for further work with the Coalition Forces to approve the RK-Kandahar segment.

Dhaka FIR communication requirements

2.7.14 IATA requested that States review their ATC and pilot coordination procedures in the area surrounding the Dhaka FIR. The Dhaka FIR was surrounded by Kolkata FIR, except for a short segment in the southeast which shares a common boundary with the Yangon FIR for about 75 NM. Four international routes traverse the Dhaka FIR, namely L507, B465/A599, G463 and A201. The transit times on these routes in the Dhaka FIR was of short duration ranging from 4 to 27 minutes. In the worst case scenario, an aircraft could fly through 4 FIRs within 27 minutes, or 215 NM.

2.7.15 At present communication procedures were published on Jeppesen charts and in the Bangladesh and Indian AIPs, which were not consistent leading to confusion for operators. IATA drew attention to the PANS-ATM, Doc 4444, paragraph 10.4.2.4.1, which states: “*where non-radar separation minima are being applied, the transfer of air-ground communications of an aircraft from the transferring to the accepting ATC unit shall be made five minutes before the time at which the aircraft is estimated to reach the common control area boundary, unless otherwise agreed between the two ATC units concerned.*”

2.7.16 In regard to the Dhaka FIR communication procedures, to meet the various ATS communication requirements, pilots could experience the situation where they were required to transmit to three ACCs simultaneously. This situation was exacerbated by the fact that both air/ground and ground/ground communications were frequently patchy making it difficult for pilots to accomplish. Further complications arose from the RVSM transition procedures from CVSM to RVSM levels and vice versa between Lashio and LINSO.

2.7.17 IATA requested that the current procedures and practices be reviewed and streamlined, taking into consideration cockpit workload, current air-ground and ground-ground communications difficulties, and provisions in PANS-ATM (Chapter 10, paragraph 10.4.2.4.5 refers).

2.7.18 The meeting noted the information provided by IATA and recognized that the communication requirements imposed by Bangladesh, India and Myanmar should be rationalized and the situation reviewed by the States concerned, as there appeared to be an unreasonable communication burdened imposed on pilots. As this matter was outside the scope of the agenda for this meeting, it was agreed to refer the matter to the States concerned and the ATM/AIS/SAR/14 meeting on 28 June-2 July 2004 for follow-up.

Pakistan introduction of FL280

2.7.19 Pakistan had provided information that FL280 had been implemented in concurrence with India since 6 March 2004. The LOA was updated and aircraft operating on ATS route N644, A466 and L750 were accepted at SAMAR and TIGER at FL280 between 1930 to 2230 UTC to meet the time restriction enforced on the above ATS routes in the Kabul FIR. The departures from Delhi, Lahore and Islamabad were accommodated between time 2231 to 1929 UTC as per the arrangements agreed between India and Pakistan for transition of air traffic through Kabul FIR at the last RVSM Task Force meeting held at Delhi on 20-24 October 2004.

2.7.20 With these improvements delays would be minimized if the aircraft departing from Singapore and Kuala Lumpur elected to operate via ATS routing P628. The direct routing from RK-Kandahar was expected to be approved shortly by the Coalition Forces, and this would further reduce the flying time.

2.7.21 The meeting recognized that in the longer term, especially with continued traffic growth, there was a need to give priority to establishing a comprehensive ATFM Plan.

Review of No PDC-Procedure

2.7.22 The meeting recognized the need to further enhance the allocation of all RVSM flight levels during the night-time peak traffic period for traffic operating over the Bay of Bengal. The meeting agreed that there needed to be a more flexible approach to sharing of levels based on the actual traffic demand. Singapore and Thailand agreed to coordinate with India, Malaysia, Myanmar, IATA, and IFALPA, and based on traffic statistics and operational requirements to develop appropriate arrangements. Further, the meeting emphasized that prior to implementing any changes, the agreement of all parties concerned was required. To this end, a Special Coordination Meeting involving India, Malaysia, Myanmar, Singapore, Thailand and IATA would be held as soon as possible, to finalize details of the procedures.

2.7.23 The meeting also agreed that the changes in the assignment of RVSM levels should be introduced as part of an operational trial from 15 April 2004. The operational trial would last for 2 months and each State concerned would issue a NOTAM on the revised procedures.

2.7.24 India also highlighted the need for AIP amendments to be published on the revised assignment of RVSM levels. The meeting agreed that the AIP amendments should be issued on AIRAC Date 15 April 2004 subject to agreement being reached by all parties concerned.

Airspace Classification for RVSM Operations

2.7.25 ICAO informed the meeting that it was necessary for States that had implemented RVSM to classify the airspace according to the ICAO Classification of Airspace in Annex 11. The

meeting agreed that States involved should review the airspace where RVSM was being applied and classify the airspace as appropriate.

RVSM Minimum Monitoring Requirements

2.7.26 The meeting reviewed the draft updated Pacific RVSM Minimum Monitoring Requirements (MMR) as issued by PARMO on 4 February 2004. The meeting noted some differences from existing minimum monitoring requirements on the subject of Monitoring Category (Experience and Non-experience Airlines); Aircraft Type (Group and Non-group Aircraft); Monitoring Time Limitation and Minimum Total Fleet for Monitoring. The meeting noted that some States of the Bay of Bengal and Beyond area were in the process of performing GMU height-keeping performance monitoring. In this regard, the meeting considered that GMU monitoring needs to be conducted by the States concerned with reference to existing requirements applicable as adopted by the ICAO Asia/Pacific RVSM/TF, and approved by APANPIRG.

2.7.27 The meeting was informed that the PARMO had recently proposed adoption of an MMR similar but not identical to that listed in the Draft RMA Handbook. In this regard, the meeting emphasized the need for consistency in applying global monitoring requirements. MAAR planned to adopt the global monitoring requirements when the RMA handbook was finalized and published by ICAO.

Monitoring Program for Height-Keeping Performance

2.7.28 The meeting reviewed the monitoring programme for aircraft height-keeping performance and large height deviation. Since RVSM implementation on 27 November 2003, there had been no reports on large height deviations due to aircraft system failure and adverse weather in the Bay of Bengal and Beyond.

2.7.29 The meeting noted that most domestic and regional operators of some States required their aircraft to be monitored. India expressed a concern that there were a limited number of GMUs available in the Asia Region, and this would require operators to wait for monitoring to be carried out by MAAR. The meeting noted that most of the fleets were issued their airworthiness approval before RVSM implementation on 27 November 2003, which would expire within the next two months. In this regard and in order to avoid the suspension of the airworthiness approval, the meeting suggested that the airlines and the States concerned requiring GMU monitoring services, should closely coordinate with MAAR.

2.7.30 MAAR advised on the Potential Non-Compliant Aircraft in the RVSM airspace of the Asia Region. In this regard the meeting considered that non-compliant aircraft operating in RVSM airspace would significantly affect the operational safety risk and thus the total collision risk. In this regard, the meeting highlighted that it remained the responsibility of the State authority, ATS provides and airlines to prevent Non-Compliant Aircraft operated from entering RVSM airspace.

2.7.31 The meeting emphasized that it was important for the authorities responsible for RVSM approvals to ensure that the registry of RVSM approved aircraft was kept up-to-date. This would facilitate ATC verifying aircraft suspected not to be RVSM approved.

Continuous Airworthiness Program and Monitoring

2.7.32 The meeting considered that the continuous airworthiness and post implementation height-keeping performance monitoring programme should be included in the State Authority Procedures and the Airline Manual. The meeting noted that the post implementation of aircraft height-

keeping performance included sampling by GMU. The frequency of GMU monitoring should be established and harmonized on a global basis under the ICAO RVSM monitoring programme

Airspace Classification for RVSM Operations

2.7.33 ICAO informed the meeting that it was necessary for States that had implemented RVSM to classify their airspace according to the ICAO Classification of Airspace. The Task Force agreed that States involved should review the airspace where RVSM was being applied and classify the airspace as appropriate.

Approval Process

2.7.34 The meeting adopted the guidelines and procedures in the Asia Pacific RVSM Programme for Operator and Aircraft Approval for the introduction of RVSM in the Bay of Bengal and Beyond. In addition, a 90 percent operator approval target was set for the introduction of RVSM in the Bay of Bengal and Beyond.

Flight Crew Procedures

2.7.35 The meeting adopted the flight crew procedures (including contingency procedures) that had been developed for RVSM operations in the Pacific and Western Pacific areas. The meeting reviewed the large scale weather deviation procedures contained in the Jeppesen manual for the Bay of Bengal and Beyond area in regard to the weather deviation procedure, which specified that aircraft deviating due to weather had to climb or descend 500 ft. The meeting agreed that the contingency procedure for large scale weather deviation in the Bay of Bengal should be in line with the procedure applied in South China Sea of 300 ft climbing or descending, and that the correct procedures had been incorporated within the respective State AIP SUP documents. The meeting agreed that Jeppesen should be informed of this matter. ICAO would follow-up as appropriate.

Safety and Airspace Oversight Issues

2.7.36 With the approval of APANPIRG, the AEROTHAI assumed responsibility as the Monitoring Agency for the Asia Region on 2 September 2003.

Review of Safety Oversight

2.7.37 A pre-requisite for RVSM implementation was the monitoring of the overall system performance to ensure that the established target level of safety (TLS) was met and maintained. In this context, States provided monthly reports on large height deviations (LHDs) to the MAAR. Details of operational errors were also provided to the airlines/operators of aircraft involved.

2.7.38 The meeting reviewed the safety oversight for the post implementation of RVSM in the Bay of Bengal area presented by the MAAR. Based on the traffic sample data collected between 15 December 2002 and 15 February 2003, and the summary of the LHD reports, the technical and operational risks for the RVSM implementation in the Bay of Bengal were 1.83×10^{-9} and 1.25×10^{-9} fatal accidents per flight hour, respectively. The total risk attributed to all causes was 3.41×10^{-9} . The trends of collision risk estimates for each month using the appropriate 12-month interval of LHD reports received by MAAR are shown in Figure below. The risk estimates of both technical and total risks satisfied the agreed TLS value of no more than 2.5×10^{-9} and 5.0×10^{-9} fatal accidents per flight hour due to the loss of a correctly established vertical separation standard of 1,000 ft and to all causes, respectively.

Trends of Risk Estimates for the Post RVSM Implementation in Bay of Bengal

2.7.39 The meeting emphasized that all States must continue to provide MAAR with monthly reports on LHD, including a 'NIL' occurrence report. The reports should be sent to the MAAR via email or fax by the first week of the following month.

2.7.40 The meeting agreed to collect new traffic sample data to accurately represent the traffic volume for the 1-year review after RVSM was implemented in Bay of Bengal. In this context, the MAAR requested a one month traffic sample data for the month of July 2004. In order to allow sufficient time to prepare for the one-year safety oversight review, the traffic sample data should be submitted to the MAAR (via e-mail) no later than 31 August 2004.

2.7.41 The meeting discussed the continuous monitoring for post RVSM implementation in the Asia Region and long-term monitoring requirements. In this regard, the meeting acknowledged the need for the development of the global long-term monitoring plan, which required the consultation of ICAO and related Regional Monitoring Agencies.

2.7.42 The meeting agreed that regions that had implemented or planning to implement RVSM, when making changes to procedural requirements, such as MMR, which had global implication, should only do so as agreed through ICAO. The meeting noted that variations in the MMR already existed between the Asia/Pacific, North Atlantic, Middle East and European Regions. ICAO would coordinate with the RMAs to address this matter.

Future Work

2.7.43 The meeting recalled that at the RVSM/TF/18 meeting held in Bangkok, Thailand on 30 June-4 July 2003, Japan and Korea informed the meeting of their plans to jointly implement RVSM in the Incheon, Naha and Tokyo FIRs on 9 June 2005. In this regard, the monitoring programme would come under the PARMO. Further, at RVSM/TF/18 Japan and Korea had indicated that they would be interested to work with the ICAO RVSM/TF to develop and implement their RVSM plan. The meeting agreed that in view of the successful implementation of RVSM in the Bay of Bengal area and follow-up, the Task Force was in a position to support Japan and Korea. In this regard, Korea requested ICAO to coordinate with Japan and PARMO to consider progress of their implementation planning, and to convene a meeting at the earliest convenience at a date and venue to be confirmed by the Secretariat

2.7.44 The meeting agreed on the future work of the Task Force as follows:

Special Coordination Meeting on RVSM Implementation by Japan and the Republic of Korea: 5 - 7 July 2004, Bangkok

RVSM/TF/22: 20 - 24 September 2004, Bangkok
(Review of FLOS for Western Pacific/South China Sea area)

RVSM/TF/23: 8 - 12 November 2004, Bangkok (tentative)
(One-year follow-up review on Bay of Bengal and Beyond focus)

Special ATS Coordination Meeting, Singapore (ATFM Bay of Bengal)

2.8 At the 21st Meeting of the ICAO RVSM Task Force, it was agreed that a review of the existing No-PDC arrangements for the assignment of RVSM levels should be done. The aim was to reduce ground delays for westbound international departures from Bangkok, Kuala Lumpur and Singapore during peak traffic periods. In particular, the Special ATS Coordination Meeting should

look at the current No-PDC procedures with a view to introducing a flexible system that would cater for traffic based on actual demand at departure airports.

2.8.1 The SCM reviewed the existing assignment of RVSM levels to reduce ground delays for westbound international departures from Bangkok, Kuala Lumpur and Singapore during peak traffic periods.

2.8.2 With regard to the arrangement of sending ATFM messages for the release of FL300 to westbound international departures from Kuala Lumpur and Singapore, Thailand reported that there were difficulties in providing accurate time slots. The main reason was the significant difference between the estimated time of departure (derived from the flight plan) and the actual time of departure. Thailand also informed the meeting that some operators could not comply with the Mach Number restrictions imposed for operations on ATS route L759 during peak traffic periods, as these were not within the capabilities of the aircraft.

2.8.3 Malaysia reported that during time slots when there were no westbound international departures from Kuala Lumpur, FL280 and FL320 had been released to Singapore. However in most cases, Malaysia had not been able to obtain the release of FL300 from Bangkok ACC when coordination was effected. Malaysia also informed the meeting that some operators could not comply with the Mach Number restrictions for operations on ATS route L759, as these were not within the capabilities of the aircraft. In addition, there were several cases when flights were not able to reach FL320 within Kuala Lumpur FIR, which required ATC to effect coordination for these flights to continue climb in Bangkok FIR. Malaysia and Thailand agreed to address this issue bi-laterally at a later date.

2.8.4 Singapore reported that additional levels were not available during the daily peak of westbound international departures. As a result, ground delays at Singapore had not been alleviated. In addition, airlines preferred to operate on ATS route L759 as compared to the other routes that were available. This had created a bunching effect and compounded the congestion on the ground.

2.8.5 The meeting reviewed traffic movement data of westbound international departures from Bangkok, Kuala Lumpur and Singapore, as well as overflights over the Indian FIRs. The meeting agreed that FL280, FL300, FL320 and FL340 could be better utilized to cater for peak traffic flows of international departures from 1330 UTC to 1930 UTC. During this period, FL300 and FL340 would be released (as No-PDC levels) to Bangkok ACC for traffic operating on ATS routes L301 and N895. Aircraft operating on ATS routes P762, L645 and A327 would be assigned FL300 (as a No-PDC level). In the event that FL300 and/or FL340 were not required, Bangkok ACC would release the levels for westbound departures from Kuala Lumpur or Singapore.

2.8.6 The meeting agreed that the assignment of FL280 and FL320 (as No-PDC levels) for westbound international departures from Kuala Lumpur and Singapore would continue on a 24-hour basis. In the event that additional levels were required, Kuala Lumpur ACC would coordinate with Bangkok ACC on the assignment of FL300 or FL340 respectively.

2.8.7 In addition, during the period 1330 UTC and 1930 UTC, pre-departure coordination would be effected between the ACCs concerned on the assignment of other levels, in order to maximize traffic flows on the respective ATS routes.

2.8.8 The meeting also agreed that the assignment of RVSM levels for traffic operating outside the period of 1330 UTC to 1930 UTC would be based on existing procedures specified in the respective State AIP Supplements for RVSM operations in the Bay of Bengal area. In addition, current No-PDC procedures between Malaysia, Singapore and Thailand would continue to be applied.

2.8.9 To facilitate the process, the meeting agreed that Malaysia, Singapore and Thailand would conduct a 3-month operational trial commencing 17 May 2004. The States concerned would issue a NOTAM on the revised assignment of RVSM levels, not later than 10 May 2004. In addition, the existing operational trial on the assignment of RVSM levels would be extended until 16 May 2004.

2.8.10 India reminded the meeting that Myanmar should continue to ensure that longitudinal separation of aircraft was maintained at MABUR and BUBKO (as agreed at the SCM/RVSM/IND-PAK Meeting). Thailand agreed to coordinate with Myanmar for the current arrangements to be continued.

2.8.11 The meeting agreed that Malaysia, Singapore and Thailand would collect 24-hour traffic movement data of westbound international departures for the period 7 to 13 June 2004. The data should be sent to MAAR for collation not later than 21 June 2004.

2.8.12 The meeting agreed to hold a meeting in late June 2004 to review the effectiveness of the measures that would be put in place for the operational trial. The dates and venue for the meeting will be confirmed through the ICAO Asia Pacific Regional Office.

3. ACTION BY THE MEETING

3.1 The meeting is invited to:

- a) note the activities of the RVSM/TF on implementation of RVSM in the Asia Pacific Region;
- b) consider the issues raised by the Task Force for further action;
- c) make recommendations to improve the overall management of traffic using RVSM as appropriate.

—END—