INTERNATIONAL CIVIL AVIATION ORGANIZATION
ASIA AND PACIFIC OFFICE

REPORT OF THE THIRTEENTH MEETING OF THE BAY OF BENGAL ATS COORDINATION GROUP (BBACG/13) AND SECOND FANS ACTION TEAM FOR THE BAY OF BENGAL (FAT-BOB/2) MEETING

Bangkok, Thailand, 8 to 12 September 2003

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

Approved by the Meeting
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PART I – HISTORY OF THE MEETING

1. Introduction

1.1 The Thirteenth Meeting of the Bay of Bengal ATS Co-ordination Group (BBACG/13) and the Second FANS Action Team for the Bay of Bengal (FAT-BOB/2) Meeting was held at the ICAO Asia & Pacific Regional Office, Bangkok, Thailand between 8 to 12 September 2003.

2. Attendance

2.1 The meeting was attended by 33 participants from 8 States and 2 international organizations. A list of participants is at **Appendix A**.

3. Opening of the Meeting

3.1 On behalf of Mr. Lalit B. Shah, Regional Director, ICAO Asia and Pacific Office, Mr. David Moores, Regional Officer ATM welcomed the participants to Bangkok. He briefed the meeting on the background to the reconvening of the BBACG and FAT-BOB meetings, which were last held in June 2000 (Bangkok) and August (Singapore) 2000 respectively. The Revised ATS Route Structure, Asia to the Middle East and Europe, South of the Himalayas (EMARSSH) project established by the 11th Meeting of the Asia Pacific Air Navigation Planning and Implementation Regional Group (APANPIRG/11, October 2000) took over the work programme of the BBACG. Following implementation of the EMARSSH routes on 28 November 2002, the EMARSSH Project had been substantially completed, and BBACG and FAT-BOB were being reconvened at this meeting. Also, APANPIRG/14 (August 2003) had noted that the reactivation of the FAT-BOB was considered essential to alleviate the problems presently encountered over the Bay of Bengal due to poor HF air/ground communications.

3.2 Mr. Moores pointed out that this meeting was facing the beginning of a new phase in the implementation of CNS/ATM systems in the region that would bring about significant changes to air traffic operations over the Bay of Bengal, and enhance safety and efficiency of operations providing benefits for users and ATS providers. With the introduction of automatic dependent surveillance (ADS) and controller-pilot data link communications (CPDLC) services, long awaited improvements to air traffic operations by IATA and the airlines would be realized. Also, since the implementation of the EMARSSH routes, operational problems have arisen largely due to airspace constraints in the Kabul FIR, causing serious delays to the traffic flow from Asia to Europe. Considerable effort has already gone into resolving these problems, and this meeting will be considering a traffic orientation scheme under development to improve the efficiency of the airspace and reduce delays.

4. Officers and Secretariat

4.1 Mr. David J. Moores, Regional Officer ATM, from the ICAO Asia and Pacific Office, Bangkok acted as the Moderator and Secretary for the meeting. Capt. Roger Mulberge, Regional Safety Officer assisted Mr. Moores.

5. Documentation and Working Language

5.1 The working language of the meeting and the language for all documentation were in English. 8 Working Papers and 7 Information Papers were presented to the meeting.

FAT – BOB/2

REPORT OF THE FAT-BOB/2 MEETING

Agenda Item 1: Introduction and Adoption of Agenda

1.1 The meeting adopted the following agenda as the Agenda for the meeting:

Agenda Item 1: Introduction and Adoption of Agenda

Agenda Item 2: Review TORs (CNS/ATM/IC/SG/7-Appendix A)

Agenda Item 3: Operations procedures document

Agenda Item 4: Selection of Central Reporting Agency

Agenda Item 5: Establishment of operational trial

Agenda Item 6: Data link monitoring requirements

Agenda Item 7: Any other business

Agenda Item 8: Venue for the next FAT-BOB meeting

Agenda Item 2: Review Terms of Reference (CNS/ATM/IC/SG/7-Appendix A)

2.1 The meeting noted that the BBACG/12 meeting on 5-9 June 2000 at Bangkok formed the FAT-BOB and developed terms of reference (TORs) and a work programme to evaluate the performance of ADS and CPDLC over the Bay of Bengal. Data was intensively collected from 1-14 July 2000 on routes in the Bangkok, Kolkata and Yangon FIRs. No formal Central Reporting Agency (CRA) for the tracking and analysis of CNS/ATM related problems reports had been put in place, and Boeing, ARINC and SITA undertook the major problem solving effort with support provided by the South Pacific FANS Interoperability Team (FIT) and CRA. A FAT-BOB review meeting was held in conjunction with the CNS/ATM/IC/SG/7 meeting on 21-25 August 2000 at Singapore. The CNS/ATM/ICSG/7 agreed to Boeing undertaking the CRA responsibilities. Following the review of the trial data, no further action was taken by BBACG to progress the implementation of ADS and CPDLC. It was noted that the EMARSSH project established by APANPIRG took over the work programme of BBACG.

2.1.1 The meeting recognized that the present task of FAT-BOB was to implement ADS and CPDLC services by States responsible for the FIRs over the Bay of Bengal. As a starting point, the meeting agreed to review the previous arrangements for FAT-BOB established by BBACG/12. The meeting also agreed to take into account detailed arrangements required to operate the CRA, funding of CRA activities, and for conducting safety assessments necessary for implementation of reduced separation minima using ADS and CPDLC in accordance with ICAO provisions in Annex 11 — *Air Traffic Services* nd the *Procedures for Air Navigation Services — Air Traffic Management* (PANS-ATM, Doc 4444). The meeting agreed that to conduct the safety assessments, this should be carried out by a regional monitoring agency (RMA), which would need to be identified.

2.1.2 The meeting established three work groups to undertake a review of the following FAT-BOB requirements: TORs and work programme, CRA and safety assessment, and funding arrangements for CRA and safety assessment activities.

2.1.3 The meeting agreed to the revised TORs and work plan presented by the Work Group as shown in **Appendix D**.

2.1.4 In discussion on the TORs, the meeting considered that the name FANS Action Team (FAT) did not accurately reflect this present phase, which was to implement ADS and CPDLC services in the Bay of Bengal area. Therefore, the meeting agreed to change the name to FANS Implementation Team (FIT). However, for this report, FAT-BOB will continue to be used and changed to FIT-BOB after this meeting.

Report of the Funding Review Work Group

2.2 The Work Group reviewed the Report of the APANPIRG/14 Meeting (August 2003), which under Agenda Item 3 considered the report of the Asia Pacific Airspace Safety Monitoring Task Force (APASM/TF) set up by APANPIRG/12 to establish a Regional Airspace Safety Monitoring Advisory Group (RASMAG) under APANPIRG. The APASM/TF had taken into account funding arrangements for provision of airspace safety monitoring services. However, it was noted that the APASM/TF and APANPIRG/14 had recognized in principle that user charges would be the main means of funding airspace safety monitoring services. Also, APANPIRG/14 agreed that provision of monitoring services would need to be provided in a cost effective manner based on cost/benefit considerations. The Work Group noted that APANPIRG had not progressed the issue further.

2.2.1 IATA had informed the meeting that States responsible for the provision of air navigation services for the international airspace over the Bay of Bengal would be expected to implement the CNS/ATM systems required in the Air Navigation Plan for the Asia/Pacific Region. The cost to States and ATS providers for such services would be expected to be included in air navigation charges levied on airspace users in line with ICAO policy. In the case of ADS/CPDLC implementation and operation, and provision of required monitoring and safety assessments, it was not clear to the Work Group whether the costs of CRA and RMA services were included in the current charges levied by States. In this regard, the Group agreed that it was not in a position to look into this matter further as it required user charges and financial expertise not available to the Group.

2.2.2 The meeting reviewed the report of the Work Group and recognized that States collectively had responsibility to provide CRA services and to conduct safety assessments for implementation and ongoing operation of ADS and CPDLC over the Bay of Bengal. Therefore, arrangements between States/ATS providers to provide funding for these services would need to be addressed.

2.2.3 The meeting further recognized that under Annex 11, States were required to implement systematic and appropriate ATS safety management programmes to ensure safety was maintained in the provision of ATS within airspaces. In the case of providing ADS and CPDLC services for the Bay of Bengal airspace, the meeting noted that States were obligated to establish safety arrangements, and this should include making appropriate provision for funding of these activities. The meeting agreed that this matter should be considered further by States and airspace users. Accordingly, the meeting agreed to refer the matter to the ICAO Asia/Pacific Regional Office Air Transport Section for further consideration and advice.

Report of the CRA and Safety Assessment Work Group

2.3 The Work Group reviewed the operating practices of a CRA based on the experience of the CRA that had been established by the Informal South Pacific ATS Coordinating Group (ISPACG) and Informal Pacific ATS Coordination Group (IPACG) for implementation of ADS and CPDLC in the Pacific Region. In this regard, Boeing had been providing the CRA for the States that comprise these groups since 1998 when it began operations. The detailed requirements for a CRA were contained in the Pacific Operations Manual and that information should be used as the basis for establishing the requirements for the FAT-BOB CRA.

2.3.1 The meeting noted that for the FAT-BOB to achieve its important goals of problem resolution, system performance assurance, and planning and testing of operations, the CRA work must be done on a daily basis. To address these concerns only a dedicated expert group could undertake this work, which included daily monitoring, coordination, testing, and problem research tasks.

Central Reporting Agency resource requirements

2.3.2 To be effective, the CRA must have two main components: dedicated staff and adequate tools. Staffing requirements would vary depending on the complexity of the region being monitored. There were several factors that affect regional complexity from an ATS monitoring standpoint such as amount of airspace, the amount of variety in operating procedures, number of airlines, number of different airborne equipment variants, number of air traffic service providers, number of different ground equipment variants, and number of network service providers.

2.3.3 Tool requirements were as follows: the CRA must be able to simulate an ATS ground station to the extent of exercising all combinations and ranges of CPDLC uplinks and ADS reports; the CRA must also have access to airborne equipment; for the airborne side, test benches capable of being connected to data link service provider networks must be adequate and engineering simulators offer additional capability; and in support of the problem report audit analysis task, the CRA must have software that can decode data link service provider audit report data and produce usable reports. Without these tools it is virtually impossible for a CRA to resolve problems identified by the Fans Action Team.

2.3.4 Coordination was also a big part of the CRA's job. In the pursuit of problem resolution, action item resolution, monitoring, and testing, many issues arise which require coordination among many FAT stakeholders. The CRA had the primary responsibility to provide this coordination function as delegated by the Fans Action Team.

Central Reporting Agency task and resource requirements table

2.3.5 Following is a list of CRA tasks and associated resource requirements:

CRA Task	**Resource Requirement**
• Manage data confidentiality agreement with all FAT members who provide problem reports	Legal services, technical expertise
– Develop and administer problem report process – De-identify all reports – Enter de-identified reports into a data base – Keep the identified reports for processing – Request audit data from data link service providers – Assign responsibility for problem resolution where possible – Analyze the data – Identify trends	Problem reporting data base, ATS audit decode capability, airborne test benches as a minimum, simulators highly recommended, ATS workstation simulation capability (CPDLC and ADS)
• Schedule, coordinate FANS procedures testing	Airborne test benches as a minimum, simulator capability highly recommended, ATS simulation capability (CPDLC and ADS), ATS audit decode and report capability, technical expertise, operational expertise

CRA Task	Resource Requirement
• Administer and monitor an informal end-to-end configuration process.	Technical expertise and associated knowledge of avionic and ground systems
– Develop (as recommendations) new end-to-end system performance requirements.	Technical expertise, operational expertise
• Receive, decode, and process monthly status reports from the air traffic service providers	Database tools, technical expertise
• Coordinate and test the implementation of proposed benefit enhancing procedures resulting from ATS data link systems for a given region (i.e. Dynamic Airborne Route Planning and or User Preferred Routes)	Technical expertise, operational expertise

2.3.4 The meeting recognized that for a CRA to carry out the specialized work indicated above, this work could only be effectively carried out by aircraft manufacturers, Boeing and Airbus who had the test equipment required to analyze data link system performance and identify the source of network problems. The meeting agreed to adopt the CRA tasks and resource requirements above. Reporting forms used by the CRA are provided in **Appendix E**.

Agenda Item 3: Operations procedures document

3.1 The meeting reviewed the documentation required for the implementation and operation of ADS and CPDLC in the Bay of Bengal area. The meeting noted that States in the Pacific Region had adopted the Pacific Operations Manual (POM) (the combined North and South Pacific Operations Manuals) as their operations procedures document for the operation of FANS 1/A and ATM systems for application of ADS and CPDLC. The meeting was informed by ICAO that the *ICAO Guidance Material on CNS/ATM Operations in the Asia/Pacific Region,* which had incorporated the operational procedures contained in the South Pacific Operations Manual (SPOM), would be reviewed by the ICAO Guidance Material Task Force at its first meeting in Honolulu, Hawaii on 2-4 October 2003. This review would take account the material provided by ICAO Headquarters in its review of the Guidance Material. Further, it was expected that the Guidance Material would be updated to include the POM material. It was hoped that once the ICAO Guidance Material was revised according to the guidance provide by ICAO Headquarters, the POM would also be brought in line with the revised Guidance Material.

3.2 Until the ICAO Guidance Material and the POM were revised, the meeting agreed to the POM Version 2.0 dated 15 August 2003 (Information Paper 3 to this meeting refers) to be used as the operations procedures document by FAT-BOB. Further, the PANS-ATM (Doc 4444) contains procedures for ADS and CPDLC operation in Chapters 3 and 4 respectively. The collision risk models for application of separation using ADS and CPDLC were contained in the *Manual on Airspace Planning Methodology for the Determination of Separation Minima* (Doc 9689), and these would be used as reference material.

3.3 The meeting agreed to compile a list of documents to be used by FAT-BOB and States for implementation of ADS and CPDCL services in the Bay of Bengal area.

Agenda Item 4: Selection of Central Reporting Agency

4.1 The meeting recognized that the establishment of a CRA was critical to enabling States to implement operational ADS and CPDLC systems. The CRA performs the essential technical analysis of the performance of these systems and undertakes the investigation of system failures and other technical malfunctions. This was essential to trace the cause of problems whether in the aircraft or ground systems, and to initiate remedial action by the responsible parties. The meeting agreed that operation of ADS and CPDLC in an operational air traffic control environment was safety critical, and the performance of aircraft and ground ADS and CPDLC systems, and their potential contribution to operational risk, must be thoroughly evaluated and effective monitoring carried out prior to implementation and for ongoing operations.

4.1.1 The meeting noted that the tasks performed by a CRA were highly specialized and required test equipment and simulation capability that was not readily available. Also, it was important that expertise was continuously available to support the FAT-BOB programme. Boeing who was operating the CRA for the Pacific Region, indicated that they would be willing to provide CRA services for FAT-BOB to support States in the Bay of Bengal area implement ADS and CPDLC services. However, to undertake this work, it would be necessary for Boeing's cost for providing these services to be funded. The meeting expressed its appreciation to Boeing for offering to operate the CRA. As discussed at this meeting, the funding issue requires further investigation to resolve difficulties in setting up a mechanism whereby funds could be made available. This matter was being referred to the ICAO Asia/Pacific Office Air Transport. In this regard, Boeing agreed to provide a cost estimate for CRA services, which would be forwarded to the Secretariat as soon as practicable**.**

4.1.2 In addition to establishing a CRA, the meeting recognized that it would be necessary to carry out the safety assessment work for implementation of reduced separation minima using ADS and CPDLC in line with ICAO requirements. The meeting agreed that in this first phase of starting the operational trial, it was not necessary to select an organization to carry out the safety assessment work. However, bearing in mind that the objective was to introduce operational ATC services that would use ADS and CPDLC to apply separation, it was a requirement to undertake the safety assessment work prior to implementation. Therefore, the meeting agreed that it would be desirable to identify the organizations willing to provide RMA services to the Bay of Bengal area. Further, the meeting agreed that at the next FAT-BOB meeting this matter should be addressed.

Agenda Item 5: Establishment of operational trial

5.1 The meeting agreed to start an operational trial of ADS and CPDLC performance capability by States operating ADS and CPDLC systems in the Bay of Bengal area on AIRAC date 19 February 2004. As a requirement to participate in the trial, the meeting agreed that the ATS providers must have ADS/CPDLC systems that could be evaluated with the objective of bringing these systems into full operational use at the end of the trial period. The CPDLC should be capable of replacing HF radio to become the primary means of communication, and ADS must be capable of replacing voice position reports. Further, these operational systems must be capable of supporting ATC separation services. The meeting noted that with the implementation of ADS, the 15 minutes longitudinal separation minimum for crossing traffic could be replaced by 50 NM distance separation using ADS position reports across the Bay of Bengal. The meeting recognized that this would be a significant benefit (the separation criteria for 50 NM lateral separation on intersecting tracks is contained in PANS-ATM, Chapter 5 and the collision risk model is in Appendix 1 to Doc 9689).

Agenda Item 6: Data link monitoring requirements

6.1 As agreed under Agenda Item 4, the data link performance monitoring requirements specified in the POM would be used for the operational trial and implementation of ADS and CPDLC in the Bay of Bengal area. Detailed requirements and operating procedures were contained in the information package prepared by the meeting and distributed to participants by CD.

Agenda Item 7: Any other business

7.1 The meeting agreed on a list of the action items that would be included on the agenda of future FIT-BOB meetings as shown in **Appendix F**.

Agenda Item 8: Date and venue for next meeting

8.1 The meeting agreed that the next meeting, FIT-BOB/3 would be held in conjunction with the BBACG/14 and this would be determined by BBACG/13, (see under Agenda Item 8 of the report of the BBACG/13 meeting).

LIST OF PARTICIPANTS

STATE/NAME	DESIGNATION/ADDRESS	CONTACT DETAILS
BANGLADESH		
Mr. Mohammed Nurul Amin	Assistant Director (COM OPS) Civil Aviation Authority of Bangladesh, Headquarters Z.I.A. Kurmitola, Dhaka-1229 Bangladesh	Tel: 880-2-8914810-19 ext 3416 Fax: 880-2-891 4709 E-mail: caabcom@bangla.net
Mr. Shahidul Islam	Senior Assistant. Secretary Ministry of Civil Aviation & Tourism Secretariat Dhaka, Bangladesh	Tel: 880-2-7171193, 8321125 E-mail: JyotiPrasad511@redifmail.com
INDIA		
Shri Aditya Kumar Mishra	Executive Director CNS Airports Authority of India Rajiv Gandhi Bhavan New Delhi - 110003 India	Tel: +91 11 2465 2075 Fax: +91 11 2465 4142
Shri Sri Krishan	Executive Director ATM Airports Authority of India Rajiv Gandhi Bhavan New Delhi - 110003 India	Tel: +91 11 2463 1684 Fax: +91 11 2461 1078 E-mail: edatmchqnad@airportsindia.org.in
Shri Jyoti Prasad	Addl. General Manager (ATM-TRG) Airports Authority of India IGI Airport New Delhi - 110037 India	Tel: +91 11 2565 4371 Fax: +91 11 2565 4367
INDONESIA		
Mr. Nanang Swastya Taruf	Deputy Director for System, Procedure Air Navigation Directorate of Aviation Safety, DGAC 23rd Gd. Karya Jl. Medan Merdeka Barat No.8 Jakarta 10110, Indonesia	Tel: +62-21 350 6451 Fax: +62-21 350 7569 E-mail: cns-atm@telkom.net cns_atm@telkom.net cnsatm@telkom.net
Mr. Yusfandri Gona	Head of Flight Test DGAC of Indonesia, Merdeka Barat No.8 22nd Floor – Karya Building Jakarta 10110 – Indonesia	Tel: 62-21-3506665/4 Fax: 62-21-3506663 E-mail: yugo_gona@yahoo.com
Mr. Wiyono	Automated ATC Systems Pt. Angkasa Pura II Gedung 611 Bandara Soekarno-Hatta Jakarta, Indonesia	Tel: 62-21-5506178 Fax: 62-21-5501135 E-mail: dss97@centrin.ne.id

Mr. Rosdi M. Abdullah	GM Operational Development Garuda Indonesia Garuda Operation Center (GOC) Soekarno-Hatta International Airport P.O. Box 1004, Bush 19120 Indonesia	Tel: 62 21 550 1521 Fax: 62 21 550 1528 E-mail: rosdi.ma@garuda-indonesia.com
MALAYSIA		
Mr. Vausu Dev Varma	Instructor Department of Civil Aviation Air Traffic Control Centre LTSAAS, Subang, Selangor 47200, Malaysia	Tel: (603) 7846433 Fax: (603) 7847 3572 E-mail: vausuv@yahoo.com
NEPAL		
Mr. Mukunda Jwalananda Rajopadhayay	Deputy Director Air-route & Airspace Division Civil Aviation Authority of Nepal Head Office, Babarmahal Kathmandu, Nepal	Tel: 977-1-4262326 Fax: 977-1-4262516 E-mail: cnsatm@mos.com.np
Mr. Mishri Lal Mandal	Chief Officer (ATS) TIA Civil Aviation Office, Gauchar, Kathmandu Nepal	Tel: 977-1-447 2259 Fax: 977-1-447 4180 E-mail: cnsatm@mos.com.np
SINGAPORE		
Mr. Low Cheow Meng	Chief, Singapore Air Traffic Control Centre Civil Aviation Authority of Singapore Singapore Changi Airport P.O. Box 1 Singapore 918141	Tel: 65 6541 2685 Fax: 65 6545 6252 E-mail: low_cheow_meng@caas.gov.sg
Mr. Lim Kim Chuan	Air Traffic Control Manager (Airspace) Civil Aviation Authority of Singapore Singapore Changi Airport P.O. Box 1 Singapore 918141	Tel: 65 6541 2401 Fax: 65 6545 6516 E-mail: sebastian_lim@caas.gov.sg
THAILAND		
Mr. Weerawath Thaitakul	Chief of Air Traffic Control Branch Aeronautical Communications and Air Traffic Group Department of Civil Aviation 71 Soi Ngarmduplee, Rama IV Road Bangkok 10120, Thailand	Tel: 66-2-286 8159 Fax: 66-2-286 8159
Mr. Aphinun Vannangkura	Director, Area Control Center AEROTHAI 102 Ngamduplee Tungmahamek, Sathorn Bangkok 10120, Thailand	Tel: 66-2-285 9057 Fax: 66-2-285 9489 E-mail: aphinun.va@aerothai.co.th

Mr. Channarong Chuacharoen	Director, Network Systems Department AEROTHAI 102 Ngamduplee Tungmahamek, Sathorn Bangkok 10120, Thailand	Tel: 66-2-285 9148 Fax: 66-2-285 9175 E-mail: cchan@aerothai.co.th
Mr. Chainan Chaisompong	Systems Engineer Planning and Project Department AEROTHAI 102 Ngamduplee Tungmahamek, Sathorn Bangkok 10120, Thailand	Tel: 66-2-287 8391 Fax: 66-2-285 9486 E-mail: chainan.ch@aerothai.co.th
Mr. Tinnagorn Choowong	Air Traffic Control Manager Bangkok Area Control Centre 102 Ngamduplee Tungmahamek, Sathorn Bangkok 10120, Thailand	Tel: +66-2-285 9975 Mobile: +66-9-8166486 Fax: +66-2-285 9406 E-mail: tinnagorn.ch@aerothai.co.th
Mr. Paisit Herabat, Ph.d.	Systems Engineer ATS Operations Bureau AEROTHAI 102 Ngamduplee Tungmahamek, Sathorn Bangkok 10120, Thailand	Tel: +66-2-287 8190 Fax: +66-2-287 8155 E-mail: paisit@aerothai.co.th maar@aerothai.co.th
Mr. Surasak Lurvisawakul	Aircraft Engineer, Avionics Systems Group Technical Department, Engineering (TE-E) Thai Airways International Limited Bangkok International Airport Bangkok 10210, Thailand	Tel: 66-2-563 8733 Fax: 66-2-504 3360 E-mail: surasak.l@thaiairways.com
Mr. Tanongsak Charoenpornkitwatana	Aircraft Engineer, Avionics Systems Group Technical Department, Engineering (TE-E) Thai Airways International Limited Bangkok International Airport Bangkok 10210, Thailand	Tel: 66-2-563 8262 Fax: 66-2-504 3360 E-mail: tanongsak.c@thaiairways.com
F/O Prapont Chittaputta	Director, Aviation Support Division CATC Bangkok P.O. Box 4-15 Samsennai Bangkok 10400	Tel: 02-2726115 Fax: 02-2726115 E-mail: chittaputta@yahoo.com
Flt.Off. Choochart Mainoy	Director, Aeronautical Service Division CATC Bangkok P.O. Box 4-15 Samsennai Bangkok 10400	Tel: 02-272 5292 Fax: 02-272 5292 E-mail: cmainoy@hotmail.com

UNITED STATES		
Mr. Allan Storm	Civil/Military Aviation Issues Division U.S. Air Force Flight Standards Agency 1535 Command Dr., Suite D/E Andrews Air Force Base, MD 20762 U.S.A.	Tel: 1-240-857 2146 Fax: 1-240-857 3194 E-mail: allan.storm@andrews.af.mil
Mr. Brad Cornell	Engineer Boeing U.S.A.	Tel: 1-425 266 8206 E-mail: bradley.d.cornell@boeing.com
Mr. Jim Nagle	Engineer Boeing 7901 Jones Branch Dr. McLean, Virginia 22102 U.S.A.	Tel: 1-703-584 2708 Fax: 1-703-584 2729 E-mail: jim.nagle@boeing.com
IATA		
Mr. Soon Boon Hai	Assistant Director Infrastructure – Asia/Pacific International Air Transport Association 77 Robinson Road #05-00 SIA Building Singapore 068896	Tel: 65-2397267 Fax: 65-5366267 E-mail: soonbhd@iata.org
Capt. Aric Oh	Management Pilot (Special Duties) Technical Singapore Airlines SIA Training Centre 04-C 720 Upper Changi Road East Singapore 486852	Tel: +65-6540 3694 Fax: +65-6285 8687 E-mail: aric_oh@singaporeair.com.sg ciraho@pacific.net.sg
Mr. A. Purushotomodas	Assistant Manager Flight Operations Technical Singapore Airlines SIA Training Centre 04-C 720 Upper Changi Road East Singapore 486852	Tel: +65-6540 3415 Fax: +65-6542 9564 E-mail: a_purushotomodas@singaporeair.com.sg
Mr. Owen B. Dell	Manager, International Operations Cathay Pacific Airways Limited International Affairs Department 9/F Central Tower, Cathay Pacific City 8 Scenic Road Hong Kong International Airport Lantau, Hong Kong, China	Tel: +852 2747 8829 Fax: +852 2141 8829 SITA: HKGVLCX E-mail: owen_dell@cathaypacific.com
Mr. Walter Dollman	Manager Regulatory Affairs QANTAS AIRWAYS QCC3 203 Coward St. Mascot 2020 NSW Australia	Tel: 61-2-9691 1195 Fax: 61-2-9691 1605 E-mail: wdollman@qantas.com.au

IFALPA		
Capt. Toby Gursanscky	Regional Vice President for the South Pacific IFALPA 34 Peronne Ave Clontarf NSW Australia	Tel: 61-2-99487532 E-mail: gursanscky@bigpond.com
ICAO		
Mr. David J. Moores	Regional Officer, ATM ICAO Asia and Pacific Office 252/1 Vibhavadi Rangsit Rd Chatuchak, Bangkok 10900 Thailand	Tel: 66-2-5378189 Fax: 66-2-5378199 AFTN: VTBBICOX E-mail: dmoores@bangkok.icao.int
Capt. Roger Mulberge	Regional Officer, SO ICAO Asia and Pacific Office 252/1 Vibhavadi Rangsit Rd Chatuchak, Bangkok 10900 Thailand	Tel: 66-2-5378189 Fax: 66-2-5378199 AFTN: VTBBICOX E-mail: rmulberge@bangkok.icao.int

FAT-BOB/2 – LIST OF PAPERS

IP/No.	Agenda Item	Subject	Presented by
1	-	List of Papers	Secretariat
2	3	Guidance Material on CNS/ATM Operations in the Asia/Pacific Region	Secretariat
3	3	Pacific Operations Manual, Version 2.0, 15 August 2003	Secretariat
4	3	Attachment B – Method of Establishing ATS Routes for use by RNAV-Equipped Aircraft, Annex 11	Secretariat
5	3	Chapter 5 of PANS-ATM (Doc 4444) Appendix 5 & Appendix 15 – Manual on Airspace Planning Methodology for the Determination of Separation Minima (Doc 9689) for application of 30NM and 50NM Longitudinal Separation using ADS-CPDLC	Secretariat

WP/No.	Agenda Item	Subject	Presented by
1	-	Provisional Agenda for FAT-BOB/2	Secretariat
2	2	Review of First ADS/CPDLC Trial Across the Bay of Bengal	Secretariat
3	3	Bay of Bengal FANS-1/A Problem Report & Description of Fields	Secretariat

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AGENDA FOR FAT-BOB/2

Agenda Item 1:	Adoption of Provisional Agenda
Agenda Item 2:	Review of TORs (CNS/ATM/IC/SG/7 – Appendix A)
Agenda Item 3:	Operations procedures document
Agenda Item 4:	Selection of Central Reporting Agency
Agenda Item 5:	Establishment of operational trial
Agenda Item 6:	Data link monitoring requirements
Agenda Item 7:	Any other business
Agenda Item 8:	Venue for next FAT-BOB meeting

FANS IMPLEMENTATION TEAM (FIT-BOB) FOR THE BAY OF BENGAL

TERMS OF REFERENCE AND WORK PLAN

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. Contact details of the FIT members are provided in Attachment A.

Terms of Reference

The FANS Implementation Team for the Bay of Bengal (FIT-BOB) shall be responsible for system configuration and oversee the end-to-end monitoring process to ensure the FANS 1/A systems are implemented and continues to meet its performance, safety, and interoperability requirements.

FIT-BOB 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-BOB. FIT-BOB will report to the Bay of Bengal ATS Co-coordinating Group (BBACG). ICAO will submit reports to appropriate sub-groups of APANPIRG.

FIT-BOB Work Plan

1. Develop and sign a data confidentiality agreement between Bay of Bengal States, airlines using FANS 1/A in the Bay of Bengal, Data Link Service Providers and the CRA. This agreement ensures that team members can submit identified problem reports to the CRA for provisions of problem resolution and that all problem reports will be de-identified before dissemination to the entire FIT-BOB team.

Action: CRA/States/Airlines/DSPs coordinate with CRA to sign data confidentiality agreement

2. Adopt the Pacific Operating Manual (POM) and ICAO regional *Guidance Material on CNS/ATM Operation in the Asia/Pacific Region* to establish operating and reporting procedures in the Bay of Bengal.

Action: FIT-BOB members make appropriate arrangements to incorporate technical, training and documentation aligned with the POM and ICAO Guidance Material.

3. States/ATSU Providers to ensure controllers are trained to operate their respective FANS 1/A workstations using the POM and ICAO Guidance Material on CNS/ATM Operations in the Asia/Pacific Region as a basis for developing training.

Action: FIT-BOB ATSUs adopt training requirements.

4. Participating operators to ensure flight crews are trained to operate their respective FANS 1/A systems using the POM and ICAO regional *Guidance Material on CNS/ATM Operations in the Asia/Pacific Region* as a basis for developing training. To obtain operational approval for FANS 1/A from their regulatory authorities as required, operators should take into account appropriate technical material such as: FAA documents "Controller-To-Pilot Data Link Communication Operational Approval Information Package" dated 25 February 1999 and FAA AC 120-70.

Action: Operators to implement training requirements as designated by appropriate regulatory authorities.

5. Co-ordinate with all FANS 1/A equipped operators prior to the start of ADS/CPDLC operational trials and urge them to participate.

Action: States/ATSUs to coordinate with operators and IATA for FANS 1/A trial participation.

CENTRAL REPORTING AGENCY RPORTING FORMS
FROM THE PACIFIC OPERATIONS MANUAL

FANS-1/A PERIODIC STATUS REPORT FORM

FANS-1/A PROBLEM REPORT FORM

3.10 FANS-1/A Problem Report

Number	

Date UTC		**Time UTC**	
Registration		**Flight Number**	
Sector			
Originator		**Aircraft Type**	
Organization			
Active Center		**Next Center**	
Position			
Description			

3.11 FANS-1/A Periodic Status Report Form

Originating Organization			
Date of submission		**Originator**	
Status for [Month/Year]			
Performance Measure	**Data**		
DELAY	**All times will be calculated "less than" < the time band to the right.**		
Uplinks: **Round-trip transit delay time** (ATS Provider - delay between the time a message is sent and the time the Message Assurance (MAS) referring to this message is received) (Network provider - delay between the time a message arrives at the router and the time the MAS referring to this message arrives back at the router)	**Number of messages with a round trip transit delay time of less than X seconds:** X= 10s 20s 30s 60s 90s 120s 180s ≥180s Total number of uplink messages: Total number of lost uplink messages:		
Downlinks: (ATS Provider - difference between embedded message time stamp and time message received from Network provider) Lost messages determined by: • Message assurance failure is received. After trying both VHF and SATCOM. Depending on reason code received, the message might, in fact, have made it to the aircraft. • No message assurance or flight crew response is received by ATSU after 900 seconds	**Number of messages with a downlink transit delay time of less than Y seconds:** Y= 10s 15s 30s 45s 60s 90s ≥ 90s Total number of downlink messages: Total number of lost downlink messages:		

OPEN ACTION ITEMS – FAT-BOB/2

	ACTION ITEM	TIME FRAME	RESPONSIBLE PARTY	STATUS	Remarks
2-1	Convene meeting to determine funding mechanism for CRA	As soon as practicable	ICAO/States/IATA	Pending - FAT-BOB/2 established requirement for CRA and funding	
2-2	Establish CRA	Prior to FIT-BOB/3	States/Airlines/ICAO	Pending – FAT-BOB/2 agreed on necessity of establishing CRA	
2-3	Once CRA established Sign Data Confidentiality Agreements	Prior to operational trials	States/Airlines and DSPs (coordinated by CRA)	Pending - FAT-BOB/2 briefed on necessity of Data Confidentiality Agreement	
2-4	Collection of system performance data	Delivered to CRA 2 weeks prior to FIT-BOB/3	ATSUs/Airlines/DSP (initiate collection process)	Pending - FAT-BOB/2 consensus to establish baseline of performance as identified in POM	
2-5	States/DSP/Airlines establish operating procedures based on the POM and ICAO Guidance Material	FIT-BOB/3	States/Airlines/DSPs and ICAO	**Closed** – FAT-BOB/2 adopted POM and updated ICAO Guidance Material	
2.6	Selection of Regional Monitoring Agency	FIT-BOB/3	States/ICAO/IATA	Pending – FAT-BOB/2 agreed to consider service provider for the RMA.	
2.7	Compile list of reference documentation to be used by FAT-BOB	FIT/BOB/3	CRA/ICAO	Pending – FAT-BOB/2 agreed to the compilation of reference material	Information CD on documentation distributed at FAT-BOB/2
2.8	Provision of estimate of annual operating cost for a CRA	As soon as practicable	Boeing/ICAO	Pending – FAT-BOB/2 agreed to need for estimate	

BBACG/13

REPORT OF THE BBACG/13 MEETING

Agenda Item 1: Adoption of Provisional Agenda

1.1 The meeting adopted the following agenda as the Agenda for the meeting:

Agenda Item 1: Adoption of Agenda

Agenda Item 2: Review status of recommended actions as agreed at the BBACG/12 Meeting

Agenda Item 3: Review current operations across the Bay of Bengal and identify problem areas

Agenda Item 4: Implementation of the new CNS/ATM systems in the Bay of Bengal airspace

Agenda Item 5: Develop a methodology for a coordinated implementation of ADS/CPDLC in the Bay of Bengal

Agenda Item 6: Develop a co-ordinated plan for implementation of actions agreed by the meeting

Agenda Item 7: Any other business

Agenda Item 8: Date and venue for the next meeting

Agenda Item 2: Review status of recommended actions as agreed at the BBACG/12 Meeting

2.1 The meeting reviewed and updated the implementation status of actions agreed upon at the BBACG/12 meeting held in Bangkok, Thailand, 5 to 9 June 2000.

2.1.1 The meeting reviewed the action items of the EMARSSH Post Implementation Review Meeting (Appendix F to the PIRM report refers), held at the Gold Coast Australia on 31 March-2 April 2003. Apart from the one year review meeting of EMARSSH, the meeting noted that the EMARSSH project had been completed and all outstanding action items on its work programme would be taken over by the BBACG. Accordingly, the PIRM action items were incorporated in the action plan for this meeting as shown in **Appendix D**.

2.1.2 The meeting commended the participants in the EMARSSH Project for the success of the project implemented on 28 November 2002, which had been widely acclaimed and was a major step forward in the provision of air traffic services with the implementation of RNAV and RNP-10 routes over wide areas in three ICAO regions, Asia/Pacific, Middle East and Europe. In addition, EMARSSH was a success story of civil/military cooperation with the dynamic sharing of airspace, which allowed night-time or high altitude flight level bands for civil operations. However, the meeting recognized that the full benefits of the EMARSSH route structure have yet to be realized, and resolving the outstanding difficulties was a priority matter for the BBACG as described below.

Agenda Item 3: Review current operations across the Bay of Bengal and identify problem areas

Review of action taken to address operational difficulties across the Bay of Bengal

EMARSSH PIRM meeting

3.1 The meeting was informed by ICAO of the outcome of the EMARSSH PIRM, which had considered operational difficulties being experienced across the Bay of Bengal and India since implementation of the routes on 28 November 2002. The PIRM noted that all of the planned EMARSSH Phase II programme, as originally agreed by States, could not be implemented. Therefore, instead of four independent Asia – Europe flows across the northern half of the Bay of Bengal and through India, Pakistan and Afghanistan, there were still the same two independent flows (via TIGER or SAMAR at the India/Pakistan FIR boundary) that existed prior to EMARSSH. Unfortunately, the favourable options of routes that could have allowed a more even distribution of traffic loads that was envisaged, did not occur due to all northern traffic flows having to route over the existing two bottlenecks.

3.1.1 Recognizing the impact of the restricted route structure on the overall traffic flow and combined with the long standing operational difficulties, IATA proposed a Traffic Orientation Scheme (TOS) (**Appendix E** refers) to improve the efficiency of air traffic management and make better use of the available capacity on the routes used by traffic transiting the Afghanistan airspace. The PIRM recognized the value of this proposal and agreed that the TOS required further study (further information on the TOS is provided below).

RVSM meetings

3.1.2 The Special ATS RVSM Meeting on the RVSM flight level orientation scheme (FLOS) held at Kuala Lumpur, Malaysia from 11 to 13 August 2003, which established the flight level allocation scheme to be implemented across the Bay of Bengal and continental India, also reviewed the issues identified by the PIRM affecting operations across the Bay of Bengal. The Special meeting considered the TOS IATA previously presented to the EMARSSH PIRM.

3.1.3 With regard to the westbound flight levels in the Kabul FIR, the Special meeting recalled that only FL310, 350 and 390 were available on the primary routes, and it did not appear likely FL280 would be made available in the near term. It was also noted that the minimum longitudinal separation was 10 minutes with Mach number technique (MNT) and that no level changes were permitted in the Kabul FIR.

3.1.4 Another factor to be considered was that, under the RVSM Table of Cruising Levels, aircraft routing via Afghanistan could be operating at FL300, FL320, FL340, FL360 or FL380. As Afghanistan was operating in accordance with the Conventional Table of Cruising Levels (CVSM), and with the restrictions on flight levels through Kabul FIR, a transition from RVSM to CVSM would be required using only FL310, FL350 and FL390, noting that FL390 would be most unlikely to be used by heavy long-haul aircraft due to weight limitations. Therefore, prior to the Kabul FIR, aircraft would require vertical transitions from multiple RVSM levels to only two CVSM levels (i.e. FL310/FL350) within Pakistan airspace. Taking into consideration the restricted number of flight levels available, plus the requirement for 10 minutes MNT separation through the Kabul FIR, this procedure would need to be carefully managed from the departure aerodrome, so as to avoid an overload on these routes and possible diversions.

3.1.5 The focus of the TOS was to share the available routes through Afghanistan during the peak westbound departure period by allocating particular ATS routes within the Kabul FIR to each of the major departure points i.e. Bangkok, Kuala Lumpur and Singapore, and for flights over-flying these airports from the east, as well as departures from Delhi and Mumbai in India. The orientation scheme was devised so that these aircraft would be managed to intercept their particular ATS routes through

Afghanistan. This was an interim solution proposed by IATA until all routes and levels were available within the Kabul FIR.

3.1.6 Taking the above into account, the Special Kuala Lumpur 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. The meeting agreed that the States concerned should hold a special meeting not later than mid-October prior to the RVSM/TF/20 meeting to be held in Delhi, India on 27-31 October 2003. The Department of Civil Aviation, Malaysia offered to host the meeting in Kuala Lumpur, Malaysia at a date and venue to be advised.

3.1.7 At the Joint MID/ASIA/RVSM/TF/2 meeting at Abu Dhabi, United Arab Emirates, 27-28 August 2003 the interface issues between Middle East and Asia Regions were resolved and the implementation strategy agreed including the flight level allocation scheme for the Arabian Sea area. The switchover time from CVSM to RVSM was agreed as 0200UTC. The MID/RVSM/TF/9 Meeting, (24-27 August 2003) made the decision to go ahead with implementation as planned in the Middle East Region. The Asia RVSM/TF had not completed all its tasks and the decision to go ahead would be made at the Asia RVSM/TF/20 meeting scheduled in Delhi, India from 20-24 October 2003 (the date was subsequently changed to 27-31 October 2003).

3.1.8 A further complication brought up at MID/ASIA/JCM/RVSM/TF/2 was the difficulty being experienced by India and Pakistan to obtain slots for flights departing from Delhi, Islamabad and Lahore to join the routes through the Kabul FIR. Lengthy delays were being experienced nightly and there was no arrangement in place to provide slots for this traffic. The meeting agreed that the traffic problems experienced by India and Pakistan would be taken into account in developing an air traffic flow management plan.

3.1.9 The meeting noted the progress made by the Middle East and Asia RVSM Task Forces and it appeared highly likely that RVSM would be implemented as planned on 27 November 2003. In this regard, the meeting noted that Myanmar had not progressed its arrangements to implement RVSM in the Yangon FIR and there was some concern that they may not be ready in time. Also, the meeting was informed by IATA that the ATC communications in the Yangon FIR were poor and highly unreliable. In this regard, IATA had recommended to its member airlines to operate the IATA In-flight Broadcast Procedure whilst transiting the Yangon FIR. Further, the transition arrangements between the Yangon FIR and the Kunming FIR had not yet been made available.

3.1.10 The Secretariat informed the meeting that the Asia/Pacific Office carried out a mission to Yangon in late July, and an update on the Myanmar situation had been presented to APANPIRG/14 and the RVSM Task Force. The Director General of Civil Aviation, Myanmar had assured ICAO that Myanmar would be ready and implement RVSM as planned. Arrangements were in-hand with the Civil Aviation Authority of Singapore to provide training for Myanmar controllers. Also, ICAO was in discussions with AEROTHAI and Myanmar to take urgent action to improve the VHF communications. It was worth noting that Myanmar was providing the information on large height deviations requested by the RVSM/TF. Indications at present were very positive that Myanmar would complete all necessary arrangements in time.

Air traffic flow management plan for the Bay of Bengal (ATFMP-BOB)

3.2 IATA requested the meeting to consider implementation of an air traffic flow management plan to optimize the flow of traffic following RVSM implementation on 27 November 2003 over the Bay of Bengal and Indian continental airspace, and to avoid re-routes during evening peak hours for the

westbound traffic flow. The meeting was reminded that the full EMARSSH route structure could not be implemented over India for a variety of reasons.

3.2.1 The meeting was further reminded that, as Afghanistan would not be implementing RVSM, the increase in the number of flight levels above FL290 resulting from RVSM implementation would therefore not apply to the Kabul FIR. Due to restrictions imposed by the Coalition Forces, the control authority for Afghanistan airspace, only FL310 and FL350 were currently available for the main trunk routes across Kabul FIR. There were choke points in India over Delhi, Tiger, Samar and Dera Ismail Khan (DI) where busy routes converge. This was exacerbated by operators' preference for some routes, resulting in re-routes for some aircraft on occasions, due to inadequate capacity.

3.2.2 IATA informed the meeting that the current ATC departure procedures agreed among Bangkok, Kuala Lumpur and Singapore ACCs, allowed for Kuala Lumpur and Singapore to launch one departing long haul aircraft each on the same route to Western Europe at 10 minute intervals (with no closing speed) in accordance with a No-PDC procedure agreed to by the States. This procedure addressed only the lengthy ATC coordination process, which in the past, was a major contributor to the overall delay experienced by flights. The procedure had reduced the loss of capacity due to ATC coordination but on the other hand, had resulted in lost slots, because it assumed equal demand on each route from the departure aerodromes. For example, there were occasions when either Singapore or Kuala Lumpur ACC did not utilize available slots, and these were not released for use by the ACC which had traffic waiting for departure.

3.2.3 Singapore clarified that because of the existing No-PDC arrangement as agreed by States concerned, available slots could not be fully utilized by the ACCs. In this regard, the meeting agreed that the States concerned should review the No-PDC procedure to improve coordination and make better use of available slots.

3.2.4 Further, IATA advised the meeting that the procedure did not manage the traffic flight planning on the same route, or where traffic converged at the same waypoint on routes to India or Afghanistan. There was a need to ensure that the traffic flow which originated from Bangkok, Kuala Lumpur and Singapore were not required by ATC to descend to unrealistic levels (e.g. FL260), or have to hold to lose time over India, or reroute on uneconomic or operational restrictive routes.

3.2.5 IATA considered that, if States were willing to consider implementing an air traffic flow management plan, and consequently sharing of flight plan information, with the TOS as a basis, the current congestion which occurs on some evenings would be alleviated. The sharing of flight plan information on a common database by ACCs would provide airlines with a more complete picture of route loading, and allow airlines to make informed choices as to whether to re-plan on an alternative route. At present there was no sharing of flight plan information filed by airlines between States, and this was a major cause of under-utilization of available slots.

3.2.6 IATA was of the view that implementation of the air traffic flow management plan would constitute a significant improvement to the way the current traffic flow was managed. However, it was only one of a number of traffic management measures required. The meeting was reminded of agreed action items from previous meetings concerning improvements to the ATS route structure and level availability, such as a direct track between ASOPO and Kandahar (KN) via Rahim Yar Khan (RK), the lowering of the minimum en-route altitude (MEA) of L333 to FL280, and the reinstating of FL280 to the routes over Kabul FIR (and possibly RVSM being implemented in the Kabul FIR in the future).

3.2.7 IATA drew attention to traffic statistics, which showed that the routes in the Kabul FIR had sufficient capacity to cater for all the traffic. The total number of slots available was 48 per hour, and the peak demand was about 40 per hour. However, it was recognized for many operational reasons that not all the routes and levels could be fully utilized. Operators' first choice was to plan the most economically beneficial route based on the forecast and actual wind conditions. At times, this could lead to re-routes and level changes as pilots adjust flight paths to optimize their flights. A number of flights

operated at maximum all up weights and had little flexibility but to take the flight planned primary route. In the present economic climate, there was additional pressure on operators to keep to their preferred routes and levels. Without effective air traffic management and more complete information to operators on flight planning, the system at present was too rigid.

3.2.8 The meeting appreciated the initiatives taken by IATA to find solutions to the complex traffic arrangements across the Bay of Bengal and India. It was recognized that there were constraints that made it difficult to make rapid progress to overcome some of the institutional and political problems that impacted on the situation. ICAO advised the meeting that discussions with the Coalition Forces have been ongoing since the early part of 2001, shortly after the Kabul FIR was opened to international overflights, when more stringent restrictions were in place. The military authorities concerned have shown a willingness to accommodate civil requirements and the FL280 requirement was well known to those concerned. Efforts continue by ICAO, and other parties concerned to gain the use of FL280. The United States advised that every avenue was being explored including a flexible use of FL280 during the peak period.

3.2.9 It was recognized that problems with operations across the Bay of Bengal, although not related to RVSM, would have a negative impact on RVSM operations for traffic on routes transiting the Kabul FIR. However, the meeting noted that RVSM implementation would have a positive effect on tactical air traffic management, as the additional flight levels would allow for greater flexibility and to resolve conflictions at converging points. However, the capacity limiting factor was the Kabul FIR that continues to operate CVSM with flight level and route restrictions.

3.2.10 India advised the meeting that they were having promising discussions with their military to solve the flight level restriction on L333 and hopefully this would be reduced to FL280. Also, some progress was being made to implement the outstanding EMARSSH routes. The meeting appreciated India's continued efforts to improve the airspace arrangements.

3.2.11 The meeting shared IATA's concern over the delays to the traffic, which had widespread impact. The ATS providers were equally concerned to find improvements to the situation and all parties were fully cooperating in the process. The ideas put forward by ICAO, IATA, IFALPA and others were given full consideration and meetings would continue to be held until acceptable workable solutions were found.

3.2.12 The meeting recognized that the traffic flow problems were not something recently experienced or as a result of the airspace changes made by the EMARSSH project. It was appreciated that the EMARSSH route structure was a significant improvement. The issues being addressed were not being experienced by traffic to the Middle East, which was gaining full benefit of the improved structure. The problems were multi-facetted, and to a large extent resulted from a combination of a lack of harmonized route structures, procedures, air traffic practices, and flight planning and scheduling which was influenced by economic considerations. In the case of the European bound traffic, the night-time curfew at European airports was a primary influence on the scheduled departure times from Asia.

3.2.13 The meeting progressed the development of the air traffic flow management plan for the westbound evening peak hour traffic over the Bay of Bengal in its Work Group.

3.2.14 The meeting, on reviewing the outcome of the Work Group, agreed that the ATFMP-BOB could use as a basis the TOS proposed by IATA. The meeting also agreed that the plan would aim to achieve the following objectives:

- eliminate re-routes;
- maximize available airspace capacity over the Kabul FIR;

- alleviate traffic congestion over bottlenecks in Delhi FIR;
- utilize all slots not available under NO-PDC arrangements; and
- create transparency by sharing flight plan information, to allow airlines to make informed choices to re-route flights.

3.2.15 The meeting agreed to the following action items to progress the ATFMP-BOB:

a) collect one-week data of actual flight plans filed by airlines;

b) ascertain the capacity of the routes over Afghanistan versus the actual flow;

c) review the efficacy of the No-PDC arrangements;

d) review the current MNT application, and entry and exit points;

e) consider establishment of a fixed Mach number route to eliminate faster in the back situations which leads to lost slots; and

f) make available relevant flight plan information before 1300UTC for airlines operations to review.

3.2.16 It was further agreed that a follow-up meeting involving India, Malaysia, Myanmar, Pakistan, Singapore, Thailand, and IATA should be convened in the immediate future. It was emphasized that participants at the forthcoming meeting should be appropriately briefed and have available the required data and statistics to ensure a fruitful meeting.

Agenda Item 4: Implementation of the new CNS/ATM systems in the Bay of Bengal airspace

CNS/ATM Implementation

4.1 The meeting reviewed the results of the FAT-BOB/2 meeting, which had developed an operational plan for States to commence an operational trial of ADS and CPDLC over the Bay of Bengal area tentatively scheduled to begin on 19 February 2004. The meeting agreed with the plan and the objective to implement ATC services using these systems. In regard to the operating procedures, the meeting emphasized the importance of harmonizing procedures worldwide form the operation of FANS 1/A aircraft systems and associated ATM system. The lack of standardized procedures had safety implications and the use of FANS 1/A in ATC operations continued to expand worldwide, it was imperative that a coordinated approach was taken by States through ICAO. Accordingly, ICAO was urged through its regional planning structure, to address this matter and seek a common position on the operating procedures to be adopted.

4.1.1 In regard to the above, them meeting recognized that the revision of the ICAO *Guidance Material for CNS/ATM Operations in the Asia/Pacific Region* by the APANPIRG Task Force to be carried out at Honolulu on 2-4 October 2003 was a significant step forward in achieving this goal. The meeting noted that the review had been instigated by the Air Navigation Commission and was intended to bring the regional guidance material in line with the PANS-ATM (Doc 4444) to the extent possible. Also, the Pacific Operations Manual would benefit from the ICAO review and should also be aligned. Once this was successfully completed, the meeting was of the view that these documents, which should satisfy ICAO requirements, should be adopted by all ICAO regions and States.

FAT-BOB CRA funding arrangements

4.2 The meeting noted that a major obstacle to commencing the FAT-BOB operational trial was the provision of funding for establishing and operating the CRA, which was necessary to implement the trial and for ongoing operation of ADS and CPDLC in an operational ATC environment. The meeting further noted that FAT-BOB/2 had recommended to refer the matter to the ICAO Asia/Pacific Office Air Transport. To progress the matter further, the meeting invited the ICAO Regional Officer Air Transport to brief the meeting on ICAO Joint Financing (JF) arrangements.

4.2.1 The Regional Officer Air Transport explained to the meeting that JF involves two or more States agreeing to share in the costs of implementing and operating air navigation facilities and services for international air transport operations. He pointed out that ICAO strongly encourages States to take advantage of the experience gained with JF arrangements since 1946 to fund new CNS/ATM systems where appropriate. Through JF States could efficiently divide the tasks, ensure the necessary funds were available when required, and recover costs through user charges in an equitable way while remaining in control of decision-making. Different approaches to JF were described including DEN/ICE Agreements, Height Monitoring in the North Atlantic and SADIS.

4.2.2 In regard to the development of a process to determine the issues that needed to be addressed to set up a funding mechanism, it was noted that the FAT-BOB was well advanced in addressing key requirements of a successful JF arrangement. The task and the objectives were well-defined, the need had been established, and it was accepted that cooperative action was necessary. It was further observed that there were different options for delivering the required service by one or other of the major airframe manufacturers. Noting that the amount of money required was relatively small compared to the other JF arrangements discussed, it was emphasized that any administrative and cost recovery mechanism need to involve very low overheads. The benefits of following the DEN/ICE model of having the National Air Traffic Services of the United Kingdom collect user charges on behalf of the other parties was discussed. The meeting recognized that the major task to be performed before seeking ICAO assistance in formulating a JF arrangement was to reach agreement among the States concerned about the most effective and equitable way to recover costs.

4.2.3 The meeting decided that further progress could not be made until the States concerned considered their position and the options they would be prepared to consider. Therefore, the States present were requested to discuss the matter with their administrations and to arrange a meeting of States with ICAO and IATA to find a way to provide the necessary funding to establish the CRA, and assure funding for the period of its operation. In this regard, the meeting noted that in the early stages of a CRA operation to prepare ATS providers and operators and the ADS and CPDLC systems for implementation, the workload and cost were at the highest level but this diminished over time as systems and operations matured and experience was gained.

4.2.4 The meeting further noted that it would also be necessary at a later date to provide for funding for the RMA services necessary for carrying out safety assessments to determine that the acceptable level of safety was achieved so that reduction in separation using ADS and CPDLC could be implemented. In this regard, the costs of the RMA was expected to be considerably less than the CRA. At this stage, the meeting noted that detailed costs were not available for the CRA and those concerned were requested to submit the estimated cost of operating the CRA to the Secretariat as soon as practicable.

4.2.5 The meeting agreed that the Secretariat would follow-up with the States concerned as a matter of priority, bearing in mind that the preferred date for commencing the operational trial was 19 February 2003, and determine whether a meeting of States and other parties concerned could be held in December or early January under the ICAO Asia/Pacific Office Air Transport. The meeting expressed its appreciation to the Regional Officer Air Transport for the informative briefing on ICAO funding arrangements, and the helpful information provided, which greatly assisted the meeting understand the issues involved, and for offering possible solutions to the funding problem.

4.2.6 The meeting emphasized that the operational trial could not commence until the funding of the CRA was resolved, and urged all concerned to do their utmost to overcome this difficulty. The benefits to users and ATS providers to introducing ADS and CPDLC ATC services were significant and had a very positive impact on safety.

Agenda Item 5: Develop a methodology for a coordinated implementation of ADS/CPDLC in the Bay of Bengal

5.1 The meeting agreed to the FAT-BOB developing the coordinated implementation plan for ADS and CPDLC implementation in the Bay of Bengal. There were no further CNS/ATM issues raised.

Agenda Item 6: Develop a co-ordinated plan for implementation of actions agreed by the meeting

6.1 Based on the review by the meeting of the action plan for the BBACG/12 Meeting and discussions during this meeting, the action plan was agreed upon with timeframes as shown in Appendix D. The meeting agreed to change the report presentation for ease of reference and the action plan is provided in a tabular format and would be presented as an appendix to the report of BBACG meetings.

Agenda Item 7: Any other business

7.1 The meeting noted that there was a need to simplify the agenda items and to avoid overlap with the FAT-BOB agenda. The Secretariat would take this into account when preparing the agenda for the next meetings.

7.2 The meeting endorsed the change of the name of FAT-BOB to FIT-BOB as decided by the FAT-BOB/2 meeting.

Agenda Item 8: Date and Venue for the next meeting

Venue for the Meeting

8.1 The meeting agreed to hold a combined meeting of FIT-BOB/3 and BBACG/14 at the ICAO Asia/Pacific Office, Bangkok on 2-6 February 2004 (tentatively). The meeting recognized that, depending on the outcome of the meeting on funding arrangements for operation of the CRA, which was expected to be held in early December 2003 or January 2004, the date for the FIT-BOB/3 and BBACG/14 meeting may need to be changed. The Secretariat would keep participants informed.

LIST OF PARTICIPANTS

STATE/NAME	DESIGNATION/ADDRESS	CONTACT DETAILS
BANGLADESH		
Mr. Mohammed Nurul Amin	Assistant Director (COM OPS) Civil Aviation Authority of Bangladesh, Headquarters Z.I.A. Kurmitola, Dhaka-1229 Bangladesh	Tel: 880-2-8914810-19 ext 3416 Fax: 880-2-891 4709 E-mail: caabcom@bangla.net
Mr. Shahidul Islam	Senior Assistant. Secretary Ministry of Civil Aviation & Tourism Secretariat Dhaka, Bangladesh	Tel: 880-2-7171193, 8321125 E-mail: JyotiPrasad511@redifmail.com
INDIA		
Shri Aditya Kumar Mishra	Executive Director CNS Airports Authority of India Rajiv Gandhi Bhavan New Delhi - 110003 India	Tel: +91 11 2465 2075 Fax: +91 11 2465 4142
Shri Sri Krishan	Executive Director ATM Airports Authority of India Rajiv Gandhi Bhavan New Delhi - 110003 India	Tel: +91 11 2463 1684 Fax: +91 11 2461 1078 E-mail: edatmchqnad@airportsindia.org.in
Shri Jyoti Prasad	Addl. General Manager (ATM-TRG) Airports Authority of India IGI Airport New Delhi - 110037 India	Tel: +91 11 2565 4371 Fax: +91 11 2565 4367
INDONESIA		
Mr. Nanang Swastya Taruf	Deputy Director for System, Procedure Air Navigation Directorate of Aviation Safety, DGAC 23rd Gd. Karya Jl. Medan Merdeka Barat No.8 Jakarta 10110, Indonesia	Tel: +62-21 350 6451 Fax: +62-21 350 7569 E-mail: cns-atm@telkom.net cns_atm@telkom.net cnsatm@telkom.net
Mr. Yusfandri Gona	Head of Flight Test DGAC of Indonesia, Merdeka Barat No.8 22nd Floor – Karya Building Jakarta 10110 – Indonesia	Tel: 62-21-3506665/4 Fax: 62-21-3506663 E-mail: yugo_gona@yahoo.com
Mr. Wiyono	Automated ATC Systems Pt. Angkasa Pura II Gedung 611 Bandara Soekarno-Hatta Jakarta, Indonesia	Tel: 62-21-5506178 Fax: 62-21-5501135 E-mail: dss97@centrin.ne.id

Mr. Rosdi M. Abdullah	GM Operational Development Garuda Indonesia Garuda Operation Center (GOC) Soekarno-Hatta International Airport P.O. Box 1004, Bush 19120 Indonesia	Tel: 62 21 550 1521 Fax: 62 21 550 1528 E-mail: rosdi.ma@garuda-indonesia.com
MALAYSIA		
Mr. Vausu Dev Varma	Instructor Department of Civil Aviation Air Traffic Control Centre LTSAAS, Subang, Selangor 47200, Malaysia	Tel: (603) 7846433 Fax: (603) 7847 3572 E-mail: vausuv@yahoo.com
NEPAL		
Mr. Mukunda Jwalananda Rajopadhayay	Deputy Director Air-route & Airspace Division Civil Aviation Authority of Nepal Head Office, Babarmahal Kathmandu, Nepal	Tel: 977-1-4262326 Fax: 977-1-4262516 E-mail: cnsatm@mos.com.np
Mr. Mishri Lal Mandal	Chief Officer (ATS) TIA Civil Aviation Office, Gauchar, Kathmandu Nepal	Tel: 977-1-447 2259 Fax: 977-1-447 4180 E-mail: cnsatm@mos.com.np
SINGAPORE		
Mr. Low Cheow Meng	Chief, Singapore Air Traffic Control Centre Civil Aviation Authority of Singapore Singapore Changi Airport P.O. Box 1 Singapore 918141	Tel: 65 6541 2685 Fax: 65 6545 6252 E-mail: low_cheow_meng@caas.gov.sg
Mr. Lim Kim Chuan	Air Traffic Control Manager (Airspace) Civil Aviation Authority of Singapore Singapore Changi Airport P.O. Box 1 Singapore 918141	Tel: 65 6541 2401 Fax: 65 6545 6516 E-mail: sebastian_lim@caas.gov.sg
THAILAND		
Mr. Weerawath Thaitakul	Chief of Air Traffic Control Branch Aeronautical Communications and Air Traffic Group Department of Civil Aviation 71 Soi Ngarmduplee, Rama IV Road Bangkok 10120, Thailand	Tel: 66-2-286 8159 Fax: 66-2-286 8159
Mr. Aphinun Vannangkura	Director, Area Control Center AEROTHAI 102 Ngamduplee Tungmahamek, Sathorn Bangkok 10120, Thailand	Tel: 66-2-285 9057 Fax: 66-2-285 9489 E-mail: aphinun.va@aerothai.co.th

Mr. Channarong Chuacharoen	Director, Network Systems Department AEROTHAI 102 Ngamduplee Tungmahamek, Sathorn Bangkok 10120, Thailand	Tel: 66-2-285 9148 Fax: 66-2-285 9175 E-mail: cchan@aerothai.co.th
Mr. Chainan Chaisompong	Systems Engineer Planning and Project Department AEROTHAI 102 Ngamduplee Tungmahamek, Sathorn Bangkok 10120, Thailand	Tel: 66-2-287 8391 Fax: 66-2-285 9486 E-mail: chainan.ch@aerothai.co.th
Mr. Tinnagorn Choowong	Air Traffic Control Manager Bangkok Area Control Centre 102 Ngamduplee Tungmahamek, Sathorn Bangkok 10120, Thailand	Tel: +66-2-285 9975 Mobile: +66-9-8166486 Fax: +66-2-285 9406 E-mail: tinnagorn.ch@aerothai.co.th
Mr. Paisit Herabat, Ph.d.	Systems Engineer ATS Operations Bureau AEROTHAI 102 Ngamduplee Tungmahamek, Sathorn Bangkok 10120, Thailand	Tel: +66-2-287 8190 Fax: +66-2-287 8155 E-mail: paisit@aerothai.co.th maar@aerothai.co.th
Mr. Surasak Lurvisawakul	Aircraft Engineer, Avionics Systems Group Technical Department, Engineering (TE-E) Thai Airways International Limited Bangkok International Airport Bangkok 10210, Thailand	Tel: 66-2-563 8733 Fax: 66-2-504 3360 E-mail: surasak.l@thaiairways.com
Mr. Tanongsak Charoenpornkitwatana	Aircraft Engineer, Avionics Systems Group Technical Department, Engineering (TE-E) Thai Airways International Limited Bangkok International Airport Bangkok 10210, Thailand	Tel: 66-2-563 8262 Fax: 66-2-504 3360 E-mail: tanongsak.c@thaiairways.com
F/O Prapont Chittaputta	Director, Aviation Support Division CATC Bangkok P.O. Box 4-15 Samsennai Bangkok 10400	Tel: 02-2726115 Fax: 02-2726115 E-mail: chittaputta@yahoo.com
Flt.Off. Choochart Mainoy	Director, Aeronautical Service Division CATC Bangkok P.O. Box 4-15 Samsennai Bangkok 10400	Tel: 02-272 5292 Fax: 02-272 5292 E-mail: cmainoy@hotmail.com

UNITED STATES		
Mr. Allan Storm	Civil/Military Aviation Issues Division U.S. Air Force Flight Standards Agency 1535 Command Dr., Suite D/E Andrews Air Force Base, MD 20762 U.S.A.	Tel: 1-240-857 2146 Fax: 1-240-857 3194 E-mail: allan.storm@andrews.af.mil
Mr. Brad Cornell	Engineer Boeing U.S.A.	Tel: 1-425 266 8206 E-mail: bradley.d.cornell@boeing.com
Mr. Jim Nagle	Engineer Boeing 7901 Jones Branch Dr. McLean, Virginia 22102 U.S.A.	Tel: 1-703-584 2708 Fax: 1-703-584 2729 E-mail: jim.nagle@boeing.com
IATA		
Mr. Soon Boon Hai	Assistant Director Infrastructure – Asia/Pacific International Air Transport Association 77 Robinson Road #05-00 SIA Building Singapore 068896	Tel: 65-2397267 Fax: 65-5366267 E-mail: soonbhd@iata.org
Capt. Aric Oh	Management Pilot (Special Duties) Technical Singapore Airlines SIA Training Centre 04-C 720 Upper Changi Road East Singapore 486852	Tel: +65-6540 3694 Fax: +65-6285 8687 E-mail: aric_oh@singaporeair.com.sg ciraho@pacific.net.sg
Mr. A. Purushotomodas	Assistant Manager Flight Operations Technical Singapore Airlines SIA Training Centre 04-C 720 Upper Changi Road East Singapore 486852	Tel: +65-6540 3415 Fax: +65-6542 9564 E-mail: a_purushotomodas@singaporeair.com.sg
Mr. Owen B. Dell	Manager, International Operations Cathay Pacific Airways Limited International Affairs Department 9/F Central Tower, Cathay Pacific City 8 Scenic Road Hong Kong International Airport Lantau, Hong Kong, China	Tel: +852 2747 8829 Fax: +852 2141 8829 SITA: HKGVLCX E-mail: owen_dell@cathaypacific.com
Mr. Walter Dollman	Manager Regulatory Affairs QANTAS AIRWAYS QCC3 203 Coward St. Mascot 2020 NSW Australia	Tel: 61-2-9691 1195 Fax: 61-2-9691 1605 E-mail: wdollman@qantas.com.au

IFALPA		
Capt. Toby Gursanscky	Regional Vice President for the South Pacific IFALPA 34 Peronne Ave Clontarf NSW Australia	Tel: 61-2-99487532 E-mail: gursanscky@bigpond.com
ICAO		
Mr. David J. Moores	Regional Officer, ATM ICAO Asia and Pacific Office 252/1 Vibhavadi Rangsit Rd Chatuchak, Bangkok 10900 Thailand	Tel: 66-2-5378189 Fax: 66-2-5378199 AFTN: VTBBICOX E-mail: dmoores@bangkok.icao.int
Capt. Roger Mulberge	Regional Officer, SO ICAO Asia and Pacific Office 252/1 Vibhavadi Rangsit Rd Chatuchak, Bangkok 10900 Thailand	Tel: 66-2-5378189 Fax: 66-2-5378199 AFTN: VTBBICOX E-mail: rmulberge@bangkok.icao.int

BBACG/13 – LIST OF PAPERS

IP/No.	Agenda Item	Subject	Presented by
1	-	List of Papers	Secretariat
2	-	ATS Routes and Co-ordination Activities in Nepal	Nepal

WP/No.	Agenda Item	Subject	Presented by
1	-	Provisional Agenda for BBACG/13	Secretariat
2	2	Review status of recommended actions agreed at the BBACG/12 Meeting	Secretariat
3	3	Outcome of the Post Implementation Review Meeting of EMARSSH and the Special ATS Coordination Meeting on RVSM at Kuala Lumpur relating to problems across the Bay of Bengal	Secretariat
4	3	Application of Mach Number Technique along Routes over the Bay of Bengal when the Following Aircraft is the Faster	Malaysia
5	3	IATA's Request for the Implementation of an Air Traffic Flow Management Plan	IATA

AGENDA FOR BBACG/13

Agenda Item 1:	Adoption of Provisional Agenda
Agenda Item 2:	Review status of recommended actions as agreed at the BBACG/12 Meeting
Agenda Item 3:	Review current operations across the Bay of Bengal and identify problem areas
Agenda Item 4:	Implementation of the new CNS/ATM systems in the Bay of Bengal airspace
Agenda Item 5:	Develop a methodology for a coordinated implementation of ADS/CPDLC in the Bay of Bengal
Agenda Item 6:	Develop a co-ordinated plan for implementation of actions agreed by the meeting
Agenda Item 7:	Any other business
Agenda Item 8:	Date and venue for next meeting

FOLLOW-UP OF EMARSSH PIRM FOR PROPOSED CHANGES TO CURRENT ROUTE STRUCTURE – TASKS ASSIGNED

	ACTION ITEM	TIME FRAME	RESPONSIBLE PARTY	Status	REMARKS
1.	Review the route description of L333 to include FL280	17 Oct 03	India	India holding discussions with the military	Report to BBACG/14 & ATM/AIS/SAR/SG
2.	Establishing a new route linking ASOPO to RK	17 Oct	India and Pakistan	Discussion underway	Report to BBACG/14 & ATM/AIS/SAR/SG
3.	Create a procedure whereby a fixed mach number requirement is applied on a route	31 Jan 04	All concerned States, ICAO and IATA	BBACG/13 agreed to convene meeting of States and IATA to progress ATFM Plan	Report to BBACG/14 & ATM/AIS/SAR/SG
4.	The development of a westbound flow management plan	31 Jan 04	All concerned States, ICAO, IFATCA, IFALPA, IATA and ATM/AIS/SAR SG	BBACG/13 agreed to convene meeting of States and IATA to progress ATFM Plan	Report to BBACG/14 & ATM/AIS/SAR/SG
5.	Pursue additional flight levels in Kabul FIR	On-going	ICAO	Coordination on going with military authority	Report to BBACG/14 & ATM/AIS/SAR/SG
6.	Investigate the capability of some flights climbing to FL350 before Kabul FIR	31 Jan 04	IATA and airlines	BBACG/13 agreed to convene meeting of States and IATA to progress ATFM Plan	Report to BBACG/14 & ATM/AIS/SAR/SG
7.	Pursuit of consistent application of proper MNT	17 Oct 03	All concerned States	States coordinating harmonizing of procedures	Report to BBACG/14 & ATM/AIS/SAR/SG
8.	Follow-up implementation of BB17 and BB18 with States concerned	31 Jan 04	All concerned States	India holding discussions with military	Two additional EMARSSH proposed routes which need further examination

BBACG/13

	ACTION ITEM	TIME FRAME	RESPONSIBLE PARTY	STATUS	REMARKS
1. (ATS)	RNAV route N625	Mid-Term	India, Malaysia, Myanmar, Singapore, Thailand	Closed.	Superseded by implementation of EMARSSH routes on 27 November 2003.
2. (ATS)	ATS route B203 (Amendment Proposal APAC 93/8-ATS) ICAO to confirm with route implemented	Mid-Term	ICAO, Myanmar, China	.On-going	APAC 93/8 approved on 9/2/99 and States to implement the route
3. (ATS)	CNS/ATM route Gawahati - Kunming ICAO will, advise China of the need for a CNS/ATM route Gawahati to Kunming, in addition to the Imphal - Kunming route, and request China to investigate the feasibility of such a route; and	Long-Term	ICAO, China, India, Myanmar,	On-going	ICAO to co-ordinate with all States as necessary to progress the establishment of such a route.
4. (ATS)	Yangon/Madras FIR boundary	Immediate	ICAO, India	On-going	A tripartite co-ordination meeting among the States concerned was suggested, and India advised that India has no objection in organising a meeting.

	ACTION ITEM	TIME FRAME	RESPONSIBLE PARTY	Status	REMARKS
5. (ATS)	Madras/Colombo FIR boundary India and Sri Lanka will advise ICAO of the result of a bi-lateral meeting regarding: a) the withdrawal of delegation of airspace in the western portion of Madras FIR; and b) the realignment of the FIR boundary between the Colombo and Madras FIRs so that all the domestic airspace of Sri Lanka is encompassed by the Colombo FIR.	Immediate	ICAO, India, Sri Lanka	On-going	
6. (ATS)	Chiang Rai - PONUK - SAGAG route - A581 a) Lao PDR will continue co-ordinating with China for implementation of the Chiang Rai - PONUK - SAGAG route; and b) ICAO will, recognizing difficulties in implementing this route segment, assist Lao PDR in co-ordination as required.	Mid-Term	Lao PDR, China and ICAO	On-going .	Chiang Rai-PONUK sector implemented
7. (ATS)	.ATS route B345, Beijing - Huairou - Huailai - Baotou - Yinchuan - Lanzhou - Yushu - Lhasa - Kathmandu – Delhi ICAO will co-ordinate with China and Nepal for implementing the Baotou - Kathmandu route segment of B345.	Long-Term	China, Nepal and ICAO	Discussions to be held in the short term to progress implementation	

	ACTION ITEM	TIME FRAME	RESPONSIBLE PARTY	Status	REMARKS
8. (ATS)	ATS routes B579 and R209 a) ICAO will co-ordinate with Malaysia for replacing the route indicator W525 of the Langkawi - Penang route with B579; and, b) ICAO will draft an amendment proposal for ANP, on behalf of Thailand and Malaysia, to include the new requirement for R209 and to delete the requirement for the Penang - Kuala Lumpur from B579.	Mid-Term	ICAO	ANP amendment APAC 98/2-ATS approved9/3/99. States to implement the route	a) and b) completed Subject to ICAO confirmation with States that route are implemented, the item closed.
9. (ATS)	ATS route G211 Penang - ANOKO .	Mid-Term	ICAO	On-going	ICAO to co-ordinate with Malaysia for implementation of ATS route G211
10. (ATS)	Contingency Planning a) in the light of events which have occurred subsequent to the formulation of a Framework for Contingency Plans, agreed to at a Special ATS Coordination Meeting held at the ICAO Bangkok Office in June 1997, ICAO will revise the document where necessary and distribute to States for their comment; and, b) each State in co-ordination with its neighbouring State, develop a contingency plan or plans for their airspace, taking into account the ICAO Framework for Contingency Plans mentioned in a) above.	Immediate	ICAO and all States	On going.	Action in a) completed.

	ACTION ITEM	TIME FRAME	RESPONSIBLE PARTY	STATUS	REMARKS
11. (ATS)	Search and Rescue Agreements between States a) States, in conjunction with their neighbouring State (s), will develop Search and Rescue Agreements, for the purpose of providing a more efficient response to a search and rescue action and increase the possibility of a successful search and rescue mission; States conduct joint training and exercises, as appropriate, to maximize proficiency; b) a State, together with a neighbouring State, establish common SAR procedures, where practicable; and c) a State, together with a neighbouring State, establish common SAR procedures, where practicable; and ICAO investigate the possibility of conducting a Search and Rescue Seminar together with an International SAREX involving States of the Bay of Bengal area in March 2001	Long-Term	All States and ICAO	On-going	Regional Office maintains a SAR register of agreements between States who are requested to notify the APAC Office when agreements are signed. A Seminar/SAREX was planned for 2003 for the Bay of Bengal area but postponed to 2004. An ICAO Seminar will be held in conjunction with the Hong Kong, China annual SAREX, 24-28 November 2003.
12. (ATS)	Revised ATS Route Structure - Southeast Asia - Middle East/Europe, South of the Himalayas EMARSSH routes implemented 28 November 2002	Long-Term	ICAO, IATA and All States	Closed	

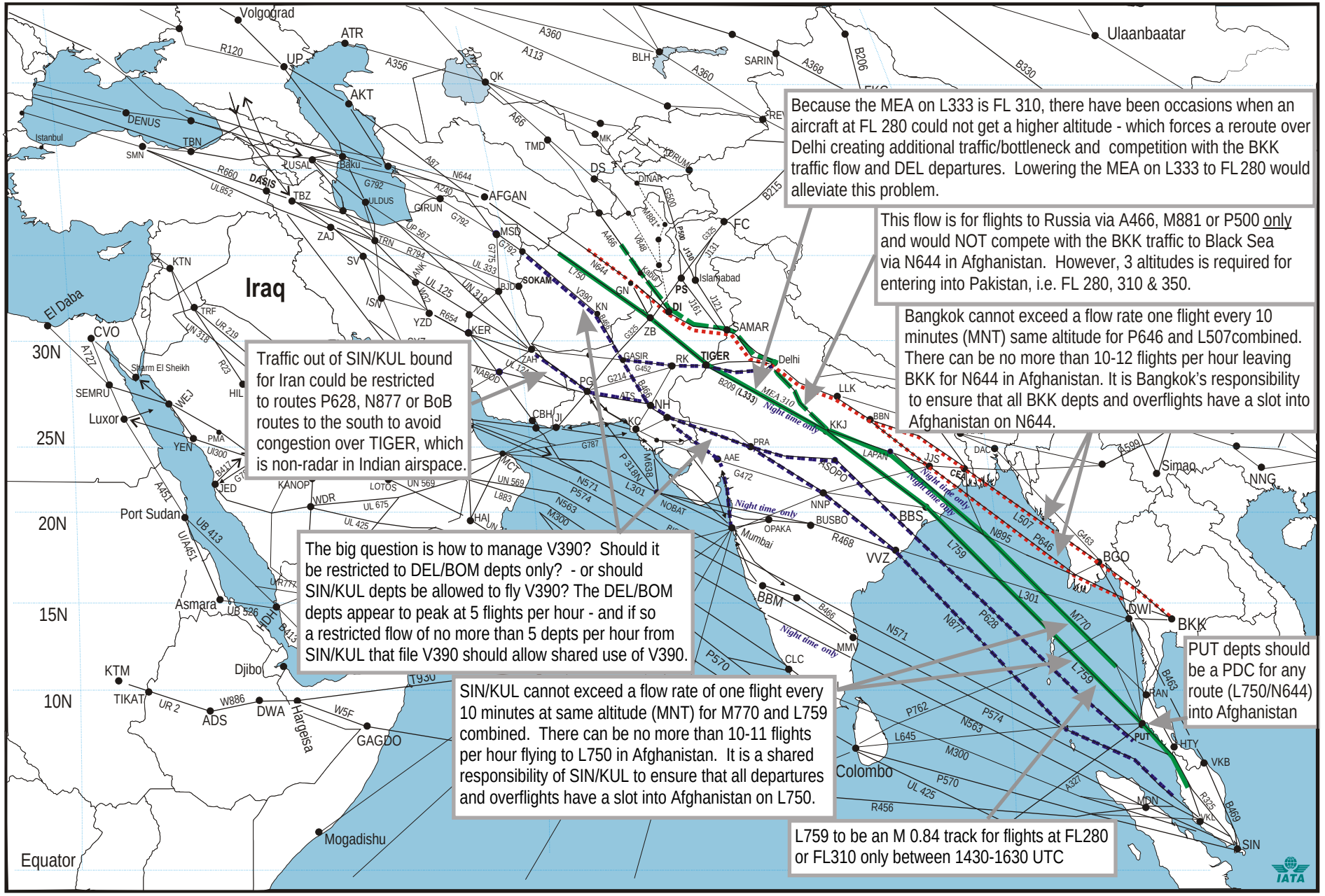
	ACTION ITEM	TIME FRAME	RESPONSIBLE PARTY	Status	REMARKS
13. (ATS)	Interim Revised Route Structure over the Bay of Bengal Area	Mid-Term (AIRAC 2 Nov 2000)	India, Myanmar and Thailand	Closed.	EMARSSH routes implemented 28 November 2002.
14. (ATS)	ATS route A473 India will co-ordinate with Nepal for implementation of JALALABAD-NEPALGNJ-KATHMANDU as A473 with necessary adjustment.	Immediate	India and Nepal	On-going	
15. (COM)	Kolkata/Dhaka ATS Direct Speech Circuits	Immediate	Bangladesh and India	On-going	Bangladesh and India have agreed to implement the 64 Kbps circuit by December 2003 to support both AFTN and DSC.
16. (COM)	Kolkata/Dhaka ATS Direct Speech Circuit IDD Hotline Bangladesh and India take urgent action to enhance the performance of the existing IDD service used for the Calcutta/Dhaka ATS direct speech communication by providing a dedicated telephone and automatic dialling capability – IDD Hotline at both ends.	Immediate	Bangladesh and India	Closed	Dhaka/Kolkata ATS DSC has been implemented with a dedicated telephone and automatic dialing capability. IDD Hotline at both ends since May 2003. The communications can be established within 15 seconds.

	ACTION ITEM	TIME FRAME	RESPONSIBLE PARTY	Status	REMARKS
17. (COM)	Agartala/Dhaka and Dhaka/Guwahati ATS Direct Speech Communication That, Bangladesh and India provide IDD service at Agartala, Dhaka and Guwahati to support ATS direct speech communication until requirements justify for establishment of dedicated ATS direct speech circuits between Agartala/Dhaka and Dhaka/Guwahati.	Mid-Term	Bangladesh and India	Closed	IDD hotlines established between Agartala/Dhaka and Dhaka/Guwahati using dedicated telephones and automatic dialing capability and the links are operating satisfactorily.
18. (COM)	Kunming/Yangon ATS Direct Speech and AFTN Circuits Myanmar take action to reactivate the Kunming/Yangon ATS direct speech circuits and implement the Kunming/Yangon AFTN circuit using the existing VSAT link between China and Myanmar. Since China had expressed readiness to implement the circuit Myanmar to initiate coordination action with China for implementation without further delay.	Mid-Term	Myanmar	On-going	VSAT link between China and Myanmar reactivated and Kunming/Yangon ATS speech circuit also reactivated. AFTN circuit between Beijing and Yangon has been tested with satisfactory result. AFTN circuit will be in normal operations from/on 10 September 2003. ICAO to co-ordinate with Myanmar for update.

	ACTION ITEM	TIME FRAME	RESPONSIBLE PARTY	Status	REMARKS
19. (COM)	VSAT Application to Upgrade AFS Communications India pursue with their telecommunication regulatory authority, the possibility of VSAT application to upgrade AFTN and ATS direct speech circuits with neighboring countries availing the service of the Indian VSAT service providers or AEROTHAI or any other VSAT service providers.	Mid-Term	India	On-going	Ground/ground AFS communications are established and improved with International Private Leased Circuits (IPLC). Indian VSAT service provider agreement in place with other service providers and action in-hand to provide VSAT links with neighbouring States.
20. (COM)	Implementation of Noted Shortcomings and Deficiencies Reliable communications between Kolkata-Dhaka.	Long-Term	Bangladesh and India	On-going	Reliable AFTN communications established and back-up system being installed to be completed by November 2003. .
21. (COM)	Bangladesh ER VHF Bangladesh takes urgent action to implement an ER VHF station to provide adequate VHF coverage in the southern part of Dhaka FIR by June 2001.	Mid-Term	Bangladesh	On-going	Bangladesh installing one RCAG station in southern Dhaka FIR by end of 2003. To expedite implementation of RCAG stations an interim agreement made for implementation of one RCAG site in southern part of Dhaka FIR. Technical arrangement being finalized with service provider.

	ACTION ITEM	TIME FRAME	RESPONSIBLE PARTY	Status	REMARKS
22. (COM)	Reliable VHF communication	Immediate	Myanmar	On-going	Further action required by Myanmar to improve reliability of VHF communications in the Yangon FIR.

— END —



Appendix E - IATA proposal for Traffic Orientation Scheme