INTERNATIONAL CIVIL AVIATION ORGANIZATION
ASIA AND PACIFIC OFFICE

REPORT OF THE SIXTH MEETING OF THE AIR TRAFFIC FLOW MANAGEMENT TASK FORCE
(ATFM/TF/6)

BANGKOK, THAILAND, 9 − 11 MAY 2006

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

Approved by the Meeting
And Published by the ICAO Asia and Pacific Office, Bangkok

Page

History of the Meeting

Report on Agenda Items

Appendices

……..

1.1 Introduction

1.1.1 The Sixth Meeting of the Air Traffic Flow Management Task Force (ATFM/TF/6) was held at the ICAO Asia and Pacific Regional Office, Bangkok, Thailand on 9 to 11 May 2006.

1.2 Officers, Secretariat and Participants

1.2.1 The meeting was opened by Mr. Andrew Tiede, Regional Officer ATM, on behalf of Mr. L. B. Shah, Regional Director, ICAO Asia and Pacific Regional Office.

1.2.2 Task Force Chairman, Mr. Ron Rigney, ATM International Liaison Manager, Airservices Australia presided over the meeting. Mr. Tiede acted as the Secretary of the meeting, assisted by Mr. Polawat Chootai, Regional Officer ATM.

1.2.3 Thirty-five (35) participants from Australia, Bangladesh, Cambodia, India, Indonesia, Malaysia, Singapore, Sri Lanka, Thailand, United States and IATA attended the meeting. A list of participants is in **Appendix A.**

1.3 Opening of the Meeting

1.3.1 Mr. Andrew Tiede, on behalf of Mr. Lalit B. Shah, Regional Director, ICAO Asia and Pacific Regional Office welcomed the participants to Bangkok. Mr. Tiede provided an overview of related meetings and activities that had taken place since ATFM/TF/5 in January 2006. These included the Special ATS Coordination Meeting which was held at the ICAO Asia and Pacific Regional Office during February 2006 and the visit to the Pakistan Civil Aviation Authority by the ATFM/TF Chairman and the AEROTHAI BOBCAT Development Team (ABDT) on 8th and 9th April 2006.

1.3.2 In his opening remarks Mr. Ron Rigney welcomed the participants to the sixth meeting of the ATFM/TF and noted that this was likely to be the last full meeting of the Task Force prior to the implementation of the BOBCAT system on an operational trial on 6 July 2006. Mr. Rigney urged all participants to actively participate in the discussions during the week, so that every opportunity was given to the successful development of BOBCAT and the successful implementation of an ATFM system for the Bay of Bengal.

1.4 Documentation and Working Language

1.4.1 The meeting was conducted in English. All meeting documentation was in English.

1.4.2 Nine (9) working papers, six (6) information papers and one (1) flimsy were presented to the meeting. A list of the papers is at **Appendix B**.

…….

Agenda Item 1: Adoption of Agenda

1.1 The meeting adopted the following agenda:

Agenda Item 1:	Adoption of Agenda
Agenda item 2:	Review Outcomes of BOBCAT Paper Trials
Agenda item 3:	Safety Assessment
Agenda item 4:	ATFM Handbook
Agenda item 5:	Operational Trial Arrangements
Agenda Item 6:	Any other business
Agenda Item 7:	Date and venue for the next meeting

Agenda Item 2: Review Outcomes of BOBCAT Paper Trials

BOBCAT System Development and Improvements

2.1 The meeting recalled that during ATFM/TF/5 meeting (January 2006) the task force had requested Thailand to continue development of BOBCAT system towards Operational Trial as well as incorporating various recommended parameter changes within the system.

2.2 The meeting was informed that the following significant changes to BOBCAT system had been made:

a) BOBCAT System Configuration;
b) BOBCAT Migration to www.bobcat.aero website along with implementation of secured communications within BOBCAT;
c) Implementation of BOBCAT Maintenance Policy;
d) Implementation of BOBCAT system versioning; and,
e) Upgrade to BOBCAT Version 1.01.

BOBCAT System Configuration

2.3 BOBCAT configuration had been changed so that entry waypoints east of Bay of Bengal (LIMLA, BETNO, IKULA, TAVUN and VPL), intermediate waypoints (LLK and KKJ) as well as exit waypoints out of Kabul FIR (AMDAR, LEMOD, RANAH and CHARN) had been deactivated. In this respect, the meeting was reminded that BOBCAT no longer considered time intervals or flight levels at these waypoints when allocating slots to aircraft for entry into the Kabul FIR.

2.4 Moreover, BOBCAT configuration had been set so that traffic would be metered 15 minutes apart, comprising a 10 minutes parameter for longitudinal separation plus a single 5 minutes buffer for the entire flight to the eastern boundary of the Kabul FIR (SITAX, PAVLO, ROSIE and ASLUM). The only exception to this metering is in the case where two aircraft following each other to DI but will enter Kabul at the same flight level at two separate waypoints (PAVLO/SITAX) after diverging at DI. In this situation, the metering would be reduced to 10 minutes apart, comprising 5 minutes required separation plus the 5-minute flow buffer, saving spacing time of 5 minutes.

BOBCAT Website Migration and Secured Communications Implementation

2.5 The meeting was further informed that during the last week of January 2006, the BOBCAT servers were relocated to their operational location alongside Bangkok ATFMU and the old BOBCAT address of http://bobcat.aerothai.co.th/ was changed to https://www.bobcat.aero/. This new permanent address is now linked to the AEROTHAI operational network with encrypted communications to ensure confidentiality and security between BOBCAT and the users of the system.

BOBCAT Maintenance Policy

2.6 BOBCAT maintenance policy had been established since February 2006. Accordingly, maintenance to the BOBCAT system would be performed during the off-peak time period between 0200UTC and 0300UTC daily. Any maintenance work would be notified via the BOBCAT announcements mechanism at least 30 minutes in advance of work being commenced.

BOBCAT System Versioning

2.7 Since March 2006, system versioning had been implemented on BOBCAT. The BOBCAT Version number is designated as Version *x.yy* where *x* denotes major release number and *yy* is the minor version number denoting minor changes made to BOBCAT system functionality. BOBCAT website as of 2 March 2006 had been labeled as BOBCAT Version 1.00.

Upgrade to BOBCAT Version 1.01

2.8 After discussions with ANSPs, airlines and other concerned parties, BOBCAT was upgraded to Version 1.01 during the last week of March 2006, with the following enhancements:

a) Ability to modify EET of a slot request after submission;
b) Slot Allocation Results page showing aircraft without allocated slots;
c) Webboard has been replaced by “Contact Us” page allowing direct contact with Bangkok ATFMU / BOBCAT Development Team;
d) Documents Pages have been added to include the following relevant documents:
   i. Model AIP Supplement;
   ii. BOBCAT Safety Assessment and Hazard Logs;
   iii. BOBCAT Concept of Operations;
   iv. ATFM Users Manual; and,
   v. BOBCAT Help Pages.
e) Frequently Asked Questions page (FAQ) has been established under “Documents” page; and,
f) A face lift to the BOBCAT website Menu bar and Announcement page.

2.9 The meeting noted that the BOBCAT Concept of Operations document had been revised with an up-to-date feature list of the BOBCAT system, BOBCAT user interface screenshots, BOBCAT system configuration and finally a BOBCAT slot allocation methodology feature to assist users to understand the BOBCAT system.

Testing of BOBCAT System

2.10 Since the BOBCAT website was now operational, it is possible for airlines as well as ANSPs to gain daily hands on experience of the complete BOBCAT system, including the process of viewing and selecting free slots after cutoff time.

2.11 Because of these improvements, Thailand considered it unnecessary to run the time-consuming Paper Trials previously used to test the BOBCAT system. Users could now input data directly to the system each day for testing and training purposes by logging into the BOBCAT website, submitting slot requests and using other BOBCAT features to obtain slot allocation after cutoff time.

2.12 Bangkok ATFMU staff were inputting dummy slot request with "ART" call sign during the working week to give more authenticity to the number of aircraft each night. As more airlines take advantage to logon for training and testing purposes, the number of ART aircraft will decrease accordingly.

2.13 The meeting noted that slot allocation results on some days show several flights not allocated slots, but no indication that dispatchers have followed-up in using the system to obtain a slot after cut-off time. On these occasions, airline dispatchers are urged to use the "View Free Slot" function within BOBCAT to complete the transaction to a successful conclusion.

Agenda Item 3: Safety Assessment

3.1 The safety assessment activities undertaken by the ATFM/TF recognized that the Bay of Bengal Cooperative Traffic Flow Management System (BOBCAT) was not intended nor designed to "control" aircraft or relieve any of the traffic separation responsibilities of the ATS providers concerned. ATS providers would retain full responsibility for all ATS functions, including traffic management.

3.2 The meeting reviewed, updated and accepted the Safety Assessment and associated Hazard Log (**Appendices C and D** refer) that had been prepared during previous task force meetings. Having conducted safety assessment activities in accordance with the methodology described in the safety assessment, including consideration of the associated Hazard Log and the ongoing work of the ATFM/TF, and recognizing that an immediate reversion to pre-trial arrangements could take place in the event of unforeseen difficulties, the States participating in the ATFM operational trial had not identified safety concerns that would impede the conduct of a Phase 1 ATFM operational trial using the BOBCAT system.

Agenda Item 4: ATFM Handbook

4.1 The meeting reviewed the ongoing work on the draft ATFM Handbook, updating the Handbook in accordance with feedback received during the meeting. A copy of the Handbook has been included at **Appendix E.**

4.2 The meeting agreed that the Handbook should be as comprehensive as possible and, noting the useful material in the BOBCAT electronic "Help" file, requested that the "Help" file be included as a Chapter or Appendix to the Handbook. The meeting also recognized that the Handbook would comprise the main training aid for the ATFM operational trial and therefore as much useful material as possible should be contained in the Handbook, including the relevant components of the BOBCAT Concept of Operations, AIP Supplement, Safety Assessment, BOBCAT Slot Allocation Mechanism Overview and any training syllabi or programmes prepared for training of ATFMU staff.

Agenda Item 5: Operational Trial Arrangements

Mission to Pakistan

5.1 The meeting recalled the difficulties that had been experienced in coordination with Pakistan as a result of the inability of delegates from Pakistan to regularly attend the routine ATFM/TF meetings. Recognizing the importance of Pakistan's involvement in the operational trial, the ATFM Special Coordination Meeting (ATFM SCM) of the ATFM Core Team held on 16-17 February 2006 had requested that the Regional Office attempt to make arrangements for a suitable delegation from the ATFM/TF to visit CAA Pakistan for the purposes of briefing them in relation to all aspects of the proposed ATFM operational trial.

5.2 Although the Regional Office did not have suitable staff available as a result of existing commitments, arrangements were made by the Regional Office with Pakistan to enable the Chairman of the ATFM Task Force to head an ICAO delegation including two members of Thailand's BOBCAT Development Team to conduct a mission to Pakistan. The mission took place in Karachi on 8 – 9 April 2006, during which training and briefing activities took place with approximately 40 staff members from CAA Pakistan. A number of relevant matters were raised by Pakistan for further consideration, as described in the full summary of the Pakistan mission included as **Appendix F.**

5.3 The Pakistan CAA gave a favorable endorsement of the work done by the ATFM task force as well as the introduction of the BOBCAT system to alleviate the bottlenecks by enhancement of a smooth flow of aircraft entering the Kabul FIR during the BOBCAT period of operations and, shortly after the mission, issued an AIP Supplement based on the Model AIP Supplement prepared by the ATFM/TF.

AIP Supplements issued

5.4 The meeting noted that, as requested by ICAO State Letter T3/8.134.2 – AP013/06(ATM) dated 24 February 2006, Malaysia, Pakistan, Singapore and Thailand had issued an AIP Supplement for the operational trial in accordance with the model AIP Supplement that had been prepared by the ATFM/TF. India will prepare a similar AIP Supplement for publication prior to the end of May.

5.5 Affected parties that had not yet obtained BOBCAT username and password details from the ATFMU were encouraged to do so immediately. Contact information for the ATFMU was contained in the AIP Supplement.

Flow Buffer time period

5.6 In considering the flow buffer time period applicable during the operational trial IATA and Singapore proposed that a period of 2 minutes be used as the parameter in BOBCAT. However, after extensive discussion the meeting agreed to the application of a single 5 minute Flow Buffer that could be absorbed either on the ground as ground/taxi delay or during flight, for application by BOBCAT during the 7 day ghosting period preceding the trial and for up to a maximum of 7 days into the operational trial. Every attempt would be made to reduce the flow buffer as soon as possible, and the data obtained during the ghosting period and the initial stages of the operational trial was expected to provide justification for the early reduction of the flow buffer. The reduction of the buffer from 5 minutes would be made after appropriate coordination with the ATFM/TF Core Team members and the Pakistan CAA, using telephone and Email communications.

5.7 In reflecting on these discussions, the Chairman reminded the meeting that in addition to an initial review of the 5 minute buffer during the first 7 days of the operational trial, the ATFM/TF would convene for a Post Implementation Review of the BOBCAT system on 31st July to 3rd August 2006. The Chairman said that AEROTHAI had agreed to develop the BOBCAT system on an operational trial basis and that the Post Implementation Review meeting would also consider the future arrangements for the continuation or changes to the ATFM system for the Bay of Bengal. The Chairman also informed the meeting that the outcomes of the Post Implementation Review meeting would form the basis of a report from the ATFM/TF to the next meeting of the BBACG and to the ATM/AIS/SAR/SG.

Assessment of trial performance

5.8 During ATFM/TF/5 (January 2006) the Task Force reinforced the need to establish a suitable methodology and set of objective criteria against which the operational trial performance could be measured, in order to facilitate objective assessment of the ATFM trial and the provision of high integrity information to enable States and users to evaluate the effectiveness of the BOBCAT system. The week of ghosting operations immediately prior to the live trial would provide a good opportunity to collect suitable data to serve as the reference point.

5.9 The meeting acknowledged that although there would no doubt be useful information forthcoming in the subjective assessments readily available from the operational parties (airlines and ANSPs) involved in the trial, an assessment methodology that was as objective as possible would provide a more robust and reliable assessment of trial performance. In preparing such an assessment methodology it was imperative that the magnitude of delays at departing airports and the frequency and complexity of in-flight rerouting be considered.

5.10 In presenting an initial draft of a potential assessment methodology, IATA had adopted a philosophy that perhaps the simplest way to provide an objective measurement of the effectiveness of the ATFM tool in resolving the flow problems appeared to lie in comparing the delay situation pre and post-implementation of the BOBCAT system vis à vis the number of flights delayed and the length of delay, and the numbers of in flight re-routes before and during the trial.

5.11 In order to provide the data for such comparisons to be made, ANSPs of departure aerodromes would be required to provide details such as callsign, route of flight, ETD, time of request for start and pushback, time ATC clearance was issued, time pushback was completed, and ATD. As the situations prevailing during the ghosting period and the operational trials which follow were likely to be somewhat different, sample templates for data collection of this nature during the ghosting period and then the operational trial were prepared by the Task Force and have been included as **Appendices G and H** respectively.

5.12 In addition, as Pakistan held responsibility for the FIRs which adjoin Kabul FIR, it would be necessary for Pakistan to provide the actual time and flight level over the Kabul FIR entry points in respect of each flight during the trial. Corroboration of data would be available from affected airlines if necessary.

5.13 It would also be necessary for affected ANSPs and airlines to provide a report of any ATFM related circumstances including in-flight rerouting, unscheduled technical stops etc that occurred during the ghosting period and subsequent operational trial.

5.14 The meeting agreed that the States should collect the ghosting and operational data in accordance with the Templates provided. This data will then be forwarded to AEROTHAI (ABDT) and other members of the core team for consideration ahead of the post implementation review meeting of the operational trial, which had been scheduled in early August.

Training Guidelines for ANSP's

5.15 The meeting reviewed the proposed BOBCAT Training Guidelines for Air Navigation Service Providers and noted that further improvement to some of the materials was required.

5.16 In this respect, a small working group comprising of Indonesia, Malaysia, Thailand and Singapore studied the contents and made suggestions enhancing the training guidelines to better suit the need of ANSPs. Once finalized, the document will be included in the BOBCAT website.

5.17 The draft BOBCAT Training Guideline for ANSPs has been included as **Appendix I** to this report and would be made available on the BOBCAT website, clearly labeled as a draft document. The meeting agreed that affected parties should continue working on the document in coordination with Thailand to ensure that a final version was available for review and adoption during the SCM Go/No Go meeting in June.

Operational Trial Implementation date

5.18 After consideration of the status of works, the meeting agreed to continue with an implementation date of AIRAC 6 July 2006 for the commencement of the operational trial. A seven day period of ghosting operations would commence on 29 June 2006. Notwithstanding, the commencement of the operational trial would be subject to the final decision of ATFM/TF Core Team, after a review of the level of preparedness. A Special ATS Coordination Meeting of Core Team members in respect of the Go/No Go decision was scheduled on 14 - 16 June 2005.

Work Programme

5.19 The meeting agreed to the following work programme in order to ensure preparedness for the commencement of the ATFM operational trial on 6 July 2006:

Date	Activity	Responsible	Remarks
14-16 June 2006	SCM Core Team Meeting	ICAO & Core Team Members	Go/No Go meeting • Establish benchmarking arrangements • Draft Trigger NOTAM
19 June 2006	Issue Trigger NOTAM	All	
29 June 2006	Commence ghost operations	All	Stage 1 – 1 week ghost;
29 June-31 July	On going review of delay data	All	As per standard templates
6 July 2006	Commence ATFM Operational Trial	All	Stage 2 – full ATFM trial operations

Date	Activity	Responsible	Remarks
31st July – 3rd August 2006	ATFM/TF/7 – Four day Trial Review Meeting	ATFM Task Force	Review outcomes of ATFM operational trial

Agenda Item 6: Any other business

SCM Kuala Lumpur/Singapore/Bangkok ACCs

6.1 The meeting was informed that during BBACG/17 (January 2006) the Regional Office had urged affected States to attempt to identify a more workable and effective solution to the restrictive flight level allocation arrangements in the Bay of Bengal. Accordingly, a Special Coordination Meeting between Kuala Lumpur, Singapore and Bangkok ACCs in relation to Bay of Bengal ATS routes utilization was held at the Chiang Mai Air Traffic Control Centre, Chiang Mai, Thailand from 27 to 28 March 2006. The purpose of the meeting was for these three ACCs to find an agreeable solution to the flight level allocations presently in use.

6.2 The SCM focused on the Europe bound traffic and crossing traffic during the busy westbound nighttime period in the first instance. The meeting then reviewed the present Flight Level Allocation Scheme (FLAS) and the No-PDC arrangement within the Bay of Bengal which had been in operation since the implementation of the EMARSSH and RVSM programmes some years ago. The copy of the draft report of the SCM between Kuala Lumpur, Singapore and Bangkok ACCs on Bay of Bengal ATS routes utilization has been included as **Appendix J.**

6.3 The SCM took the opportunity to analyze traffic movement data which had been collected on the ATS routes concerned and, as a result of this analysis, the FLAS described below was agreed by the parties present at the SCM:

ATS Routes	Flight Level Allocation Scheme (FLAS)
N877, P628, L759, M770, N571, P574, N563, M300	FL280, 300, 320
P646 and L507	All Westbound levels available
P762, L301, N895, L645, A327	FL260, 340

- *Flight levels mentioned above should be used for flight-planning purposes for flights departing (aerodrome of departure) or overflying (FIR) from xxxxUTC to xxxxUTC and operating on the routes mentioned in the table above.*
- *Availability of flight levels specified above are subject to ATC requirements.*
- *Other flight levels may also be available subject to traffic after departure.*
- *FL360 and above may be flight planned on all routes and will be available subject to ATC requirements.*

6.4 However, the SCM recognized that other concerned parties, namely India, Sri Lanka, Myanmar and airline operators would need to be consulted prior to implementation. Coordination would be undertaken in this respect with a view to agreeing and implementing the amended arrangements at a mutually convenient time.

India ATS Routes

6.5 India updated the meeting in relation to the implementation of relevant ATS routes which were expected to assist in alleviating traffic flow management issues over India. In coordination with the Indian Defence authorities India had implemented two new ATS routes with vertical limits FL280-FL460 viz., M 875 from KAKID to BUTOP and L509 from GAYA (GGC) to ASARI with effect from 11th May 2006, as notified by AIP Supplement No 11/2006. These routes would be available from 1630 UTC to 2230 UTC.

6.6 Route L509 is parallel to R 460 and avoids convergence over BBN and LLK, thereby providing an additional independent traffic flow into Kabul FIR. M 875 is an extension of M 770 and provides for parallel operations up to BUTOP. Subsequent to coordination and agreement by Pakistan, this route would be extended up to DI. Additionally, in consultation with India, IATA had agreed to assist with coordination with Pakistan for the early extension of the route segments PRA – SERKA and BUTOP – DI.

6.7 Both of the new routes relieve convergence and congestion over BBN and LLK, thereby improving access to preferred routes and flight levels. As the new routes are under the radar coverage of Varanasi and Delhi and to some extent Kolkata, this would assist controllers in applying radar separation tactically with respect to crossing traffic on other routes. Operators were requested to make use of these additional routes to enhance the capacity and optimum flow of traffic towards Kabul FIR.

6.8 IATA expressed its appreciation to India for their work done in the implementation of these new ATS routes which were expected to deliver additional airspace capacity enhancement.

BOBCAT Initiatives

6.9 The meeting noted that since the BOBCAT website had become available at https://www.bobcat.aero/, there had been many improvements made to BOBCAT features as well as the performance of BOBCAT operations. An example of such change was a set of additional features added to BOBCAT system from Version 1.00 to Version 1.01 on 22 March 2006, as described in **paragraph 2.8** above.

6.10 Thailand informed the meeting that as a result of feedback gathered through the "Contact Us" page on the BOBCAT website as well as communications with users, Thailand had undertaken development of some additional feature improvements planned for inclusion in BOBCAT Version 1.02 and Version 1.03. Both versions are expected to be incorporated into the BOBCAT system prior to the commencement of the operational trial.

BOBCAT Version 1.02

6.11 The meeting noted that, at the request of some dispatchers, the Slot Allocation Results screen in BOBCAT Version 1.01 had now been set to refresh every 3 minutes rather than the previous refresh of one minute.

6.12 As a result of discussions with several airlines as well as IATA, BOBCAT Slot Allocation Result for Version 1.02 would be modified so that changes in Slot Allocation Results would be clearly marked in a different color or with icons displayed next to the aircraft's call sign. These changes would no longer be highlighted after an "Acknowledge" button was pressed. It was noted that BOBCAT keeps different lists of acknowledged changes for each individual viewing BOBCAT Slot Allocation Results.

6.13 With respect to the BOBCAT slot allocation result display for an ANSP, the same system applies i.e. each ANSP computer showing BOBCAT slot allocation results will highlight changes made by dispatchers. This highlight would remain active until the individual viewing slot allocation results page acknowledges the changes. This may require ANSPs to resort their traffic flow information after changes have been made.

6.14 The meeting recognized that showing previous slot allocations which have been canceled or changed could assist airlines in looking for and selecting the most optimal slot allocation for their aircraft. In this respect, BOBCAT Slot Allocation Results pages in BOBCAT Version 1.02 would contain an additional table underneath the Slot Allocation Results showing previous slot allocations prior to changes. This table would be continuously updated as and when airlines change their slot allocation.

BOBCAT Version 1.03

6.15 The meeting recognized that for aircraft transiting Kabul FIR using A466 or N644 via SITAX/AMDAR and PAVLO/LEMOD waypoints respectively, there was a need to obtain a slot allocation for time and flight level at waypoint DI as well as the Kabul entry waypoint. The reason for this was to optimize route usage through Kabul FIR when two aircraft diverged at DI to SITAX and PAVLO.

6.16 The methodology in obtaining slot allocation after cutoff time for aircraft tracking via DI involves providing an ETO at the first waypoint (DI), which, in turn, would specify the aircraft's required ETD and Wheels Up Time (WUT) similar to the screenshot shown in Figure 1.

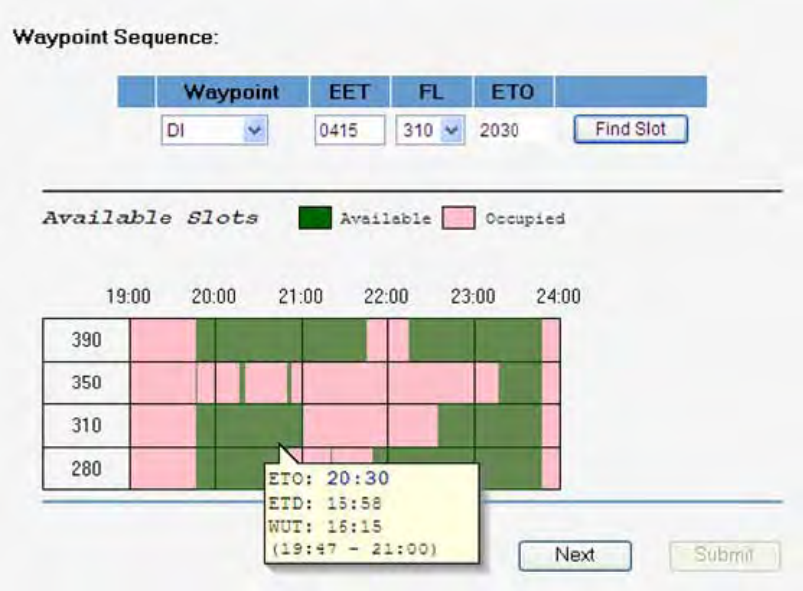

Figure 1: Pictorial Diagram for BOBCAT Slot Selection After Cutoff Time at DI

6.17 If a slot was available at DI, the dispatcher would then have to check using the same procedure to find a slot at either PAVLO or SITAX similar to the screenshot shown in Figure 2.

Figure 2: BOBCAT Selection After Cutoff Time for Kabul Waypoint after DI

6.18 The meeting noted that while the current process of selecting slot after cutoff time may have already been simplified through the use of the pictorial diagram depicting free and used slots at each waypoint, the requirement of allocation at more than one waypoint for several aircraft may still render the process of obtaining a slot cumbersome. Recognizing this, Thailand had undertaken development of an alternative screen to be used for obtaining slot allocation after cutoff time for aircraft tracking via DI, by combining the two processes mentioned in the following Paragraphs.

6.19 The new screen would simplify the process of obtaining slot allocation by asking airline dispatcher to provide EET to waypoints DI and PAVLO/SITAX. The screen would then process the EET's provided and show a unified pictorial diagram similar to the pictorial diagram used in selecting slots at the first BOBCAT waypoint used in BOBCAT Version 1.01 similar to that shown in Figure 1.

6.20 By clicking on a time at the first waypoint in the pictorial diagram, details of ETO and Flight Level at required waypoints, as well as ETD and WUT will automatically be calculated by BOBCAT. It has been anticipated that this new feature would save airline dispatcher substantial workload when trying to select slot after cutoff time for aircraft planning over DI.

Email Communications from BOBCAT to Airlines

6.21 The meeting recalled that according to the draft ATFM Users Handbook, BOBCAT utilized e-mail as a secondary mean of communications to airlines, which included:

a) Slot request submission confirmation E-mail;
b) Cutoff Time Slot Allocation Results E-mail;
c) Missed wheels up time options E-mail;
d) Missed wheels up time slot allocation selection E-mail;
e) Slot selection after cutoff time confirmation E-mail; and,
f) Slot allocation cancellation E-mail.

6.22 The purpose of this communication procedure was to provide airlines with a confirmation of transactions which had been made with BOBCAT.

6.23 The meeting noted that BOBCAT would only send e-mails to the nominated central e-mail address of the particular airline concerned. In addition to e-mail communications mentioned above, the meeting also noted that it was possible for BOBCAT to generate the following types of confirmation e-mails:

a) Confirmation of Slot Request Template Creation;
b) Confirmation of Slot Request Template Deletion; and,
c) Confirmation of Slot Request Cancellation before cutoff time.

6.24 A confirmation e-mail on creation and deletion of a slot request template allowed airlines to more efficiently manage the use of, as well as keep an inventory, of details of Slot Request Templates stored within BOBCAT.

BOBCAT Cutoff time prior to operational trial

6.25 The meeting recognized that it had been decided in past meetings that the cutoff time for BOBCAT Slot Request submission was 1200UTC. Moreover, the currently operational BOBCAT website accessible from https://www.bobcat.aero/ had also been configured with 1200UTC.

6.26 The meeting also recalled that BOBCAT functionality prior to cutoff time differed from that after initial slot allocation had been processed in the way that airline dispatchers could submit slot requests as well as any amendments prior to cutoff time and select available slots within BOBCAT system after cutoff time.

6.27 The cutoff time of 1200UTC translated to late afternoon time for the eastern side of the world, 1700 for Karachi, 1730 for New Delhi, 1900 for Bangkok and 2000 for Hong Kong, Kuala Lumpur and Singapore respectively. It was noted that from communications with several airlines it had been recognized that BOBCAT training activity for airlines or related ANSPs may need to be conducted during office hours time (0900-1700 local time). Therefore, the currently configured cutoff time in experimental BOBCAT system may pose training inconvenience for certain organizations.

6.28 Thailand informed the meeting that the BOBCAT system could be configured to have different cutoff time for different days of the week, for example 1200UTC for Monday, 0600UTC for Tuesday, etc. and Thailand would be willing to accommodate such requests from the ATFM/TF.

BOBCAT Concept of Operations Version 3

6.29 The meeting recalled that at ATFM/TF/3, BOBCAT Concept of Operation Version 2.1 was presented to the meeting. Since then, the document had been updated to include appropriate BOBCAT user interface screens from BOBCAT Version 1.01 as well as more detailed system functionality table and various minor changes to the document. This document had now been labeled as Version 3.0 incorporating changes up to the BOBCAT Version 1.01 system and is now posted on BOBCAT Website as from 21 March 2006.

6.30 The meeting also noted that additional new features were being developed in coordination with airlines, ANSPs and IATA. Once incorporated into BOBCAT website, the Concept of Operation document would be updated to future version and posted on the BOBCAT website to reflect the changes made.

Air Traffic Flow Management Unit (ATFMU) Update

6.31 The meeting recalled that throughout past task force meetings, Thailand provided updates on progress in the development of the Bangkok ATFMU. It was pleasing to note that the Bangkok ATFMU is now in the final stage of preparation and is already being used by ATFMU staff in monitoring inputs into the BOBCAT system by users of the service.

6.32 Necessary furnishings have been installed including 3 computer workstations with capabilities to interact with the internet and the BOBCAT website through dedicated operational servers located alongside. Systems within Bangkok ATFMU are now connected to the operational Uninterrupted Power Supply (UPS).

6.33 Many of the ATFMU staff are already rated while the final group are in the final stages of training to man the Bangkok ATFMU. This training covers all BOBCAT procedures and practices plus the ability to interact with users (ANSPs and airline dispatchers) when necessary. Familiarization of the system is ongoing to ensure a successful operational trial of BOBCAT.

6.34 Arrangements have been made for trained ATFMU personnel to assist airline dispatcher training activity by submitting slot requests into BOBCAT system using synthetic ART call signs in order to give more realistic numbers of aircraft for each night's operation. This also includes requesting a new slot when an ART aircraft fails to receive a slot in the allocation results list.

6.35 The meeting was advised that it is proposed to arrange coordination exercises with both ANSPs and airline dispatchers leading up to the operational trial period to benefit all concerned. These exercises are likely to include events such as:

a) Dealing with missed wheels up time;
b) closure of ATS routes (contingencies);
c) contingency measures when an ANSP or airline dispatcher cannot interact with the BOBCAT server; and,
d) Special Flights affecting aircraft slot allocation.

ATFM Material Extracted From ICAO DOC 9426

6.36 In recognizing the valuable information, practical guidance and recommendations on Air Traffic Flow Management (ATFM) published in the Air Traffic Services Planning Manual Doc 9426 (Part 2), the meeting reviewed relevant extracts from the ATS Planning Manual.

6.37 The ATS Planning Manual noted that the accumulation of air traffic may be due to the fact that operators adapt their services to their customers' demand and that the choice of routes and flight levels is limited, due to the need to share the airspace with other users, especially the military. In addition, operators may have to cope with restrictions imposed on them for environmental reasons, i.e. night curfews at aerodromes, noise abatement procedures, etc., which tend to concentrate the traffic in a narrow period of time.

6.38 An optimum flow of air traffic was not always possible due to various constraining factors, such as conflicting users' requirements, air navigation system limitations and unexpected weather conditions. In this context, alleviating measures, such as control of air traffic flow, would need to be considered, particularly when the ATC system could no longer fully cope with the volume of air traffic.

6.39 Such measures frequently result in delays of flights prior to departure, in-flight holdings, use of uneconomic flight levels, re-routing and diversions, disruptions of flight schedule, economic and fuel penalties for aircraft operators, congestion on aerodromes or in terminal buildings and passenger dissatisfaction.

6.40 The ATS Planning Manual further noted that ATFM service should fulfill the following basic strategic and tactical functions:

a) collection and collation of data on the air navigation infrastructure and on the capacities of the ATC system and selected aerodromes within the "ATFM area", including runway, taxiway and gates capacities. This embraces those areas in which traffic flow problems are likely to be encountered;

b) collection and analysis of data for all planned controlled flight operations into, out of, within and through the ATFM area;

c) determination of a coherent picture of expected traffic demand, including anticipated *ad hoc* traffic, comparison with available capacity and identification of areas and time periods of expected critical traffic loadings;

d) co-ordination with the appropriate ATS authorities in order to make every possible attempt to increase the available ATC capacity where required. In some particular situations it could be advantageous for national and local scheduling committees to be established, with representatives from national ATS, airport authorities, national and international operators. Such committees can make significant contributions when developing strategies to reduce the impact of peak demand periods; and

e) where ATC capacity shortfalls cannot be eliminated, determination and implementation in good time of suitable tactical measures co-ordinated throughout the ATFM area as necessary and with aircraft/aerodrome operators concerned.

6.41 Whenever measures to control the flow of air traffic have to be applied in the form of delays, they should, if possible, be applied by ATC to aircraft on the ground rather than to aircraft in flight. Whenever application of such measures in the form of delays to airborne aircraft becomes unavoidable, the flights concerned should be informed as soon as possible. Whenever en-route holding becomes necessary, the aircraft concerned should be held as closely as practicable to the entry point of the area causing the restrictions.

Agenda Item 7: Date and venue next meeting

7.1 In considering arrangements for the next meetings of the Task Force, a meeting schedule was agreed as described below. The Chairman requested that consideration be given for the SCM – Core team, Go/No Go decision meeting to be held at AEROTHAI Head Quarters. This would give the opportunity for the participants to visit and observe the BOBCAT ATFMU. This request would be subject to further discussion between the ICAO Regional Office and AEROTHAI.

- 14-16 June 2006 SCM – Core team, Go/No Go Decision
- 31 July-3 August 2006 ATFM/TF/7 – Review of ATFM Operational Trial

Closing of the Meeting

7.2 In closing the ATFM/TF/6 meeting, the Chairman thanked the participants and their Administrations for their excellent support and contributions, as well as to the Asia/Pacific Regional Office for the arrangements and support provided which had greatly contributed to the success of the meeting. The Chairman also thanked the representatives from IATA Member Airlines for their active participation and contributions to the meeting and working group discussions."

…….……

LIST OF PARTICIPANTS

STATE/NAME	DESIGNATION/ADDRESS	CONTACT DETAILS
AUSTRALIA		
Mr. Ron Rigney	ATM International Liaison Manager Airservices Australia Locked Bag 747 Eagle Farm QLD Australia 4009	Tel: +61-7-3866 3487 Fax: +61-7-3866 3402 Email: ron.rigney@airservicesaustralia.com
BANGLADESH		
Mr. Tapan Kanti Ghose	Deputy Director Zia International Airport Dhaka 1229 Bangladesh	Tel: +880-2-891 4870-4 ext 3440 Fax: +880-2-891 2322 E-mail: -
Mr. Abul Kalam Md Saiduzzaman	Aerodrome Officer Operation Building Zia International Airport Dhaka 1229 Bangladesh	Tel: +880-2-891 4870-4 ext 3440 Fax: +880-2-891 2322 E-mail: -
CAMBODIA		
Mr. Chhun Sivorn	Deputy Director State Secretariat of Civil Aviation No. 62 Preah Norodom Blvd. Phnom Penh Cambodia	Tel: +855-23-725 937 Fax: +855-23-725 938 E-mail: chhunsivorn@yahoo.com
Mr. Chea Sokkheng	Deputy Director State Secretariat of Civil Aviation No. 62 Preah Norodom Blvd. Phnom Penh Cambodia	Tel: +855-23-725 937 Fax: +855-23-725 938 E-mail:
INDIA		
Mr. M. Sarangapani	Deputy General Manager (ATC) Airports Authority of India ATS Complex Chennai Airport, Chennai 600-027 India	Tel: +91-44-2256 1538 Fax: +91-44-2256 1740 E-mail: sarankan@rediffmail.com
Mr. V. Somasundaram *(for communication & data)*	General Manager (ATM) Airports Authority of India Rajiv Gandhi Bhavan Safdarjung Airport New Delhi 110003 India	Tel: +91-11-2465 2648 Fax: +91-11-2461 1078 E-mail: gmatmchqnad@aai.aero
INDONESIA		
Mr. Indra Gunawan	ATC Specialist Directorate General of Civil Aviation Directorate of Aviation Safety Medan Merdeka Barat 8 23rd Fl. – Karya Building Jakarta 10110 Indonesia	Tel: +62-21-350 6451 Fax: +62-21-350 7569 E-mail: eechoex@yahoo.com

STATE/NAME	DESIGNATION/ADDRESS	CONTACT DETAILS
Mr. Gatot Haryanto	Deputy Director ATS Department PT. Angkasapura II Gd. 600 Lt. 3 Bandara Sukarno Hata Indonesia	Tel: +62-21-550 6120 Fax: +62-21-550 6106 E-mail: gatot.haryanto@angkasapura2.co.id
Mr. IK. Maruta Sena	Manager Airport & Aerospace Technology Garuda Operation Center Soekarno – Hatta Airport P.O. Box 1004, BUSH 19120 Cengkareng Indonesia	Tel: +62-21-550 1521 Fax: +62-21-550 8777 E-mail: maruta@garuda-indonesia.com
Mr. Ir. Imron Pramana	Department of Communications Jalan Medan Merdeka Barat No. 8 Gedung Karya Lt. 23 Jakarta Indonesia	Tel: +62-22-780 1536 Fax: +62-22-780 1690 E-mail: pramana@nusaweb.com
MALAYSIA		
Mr. Khairul A' amali Bin Ismail	Assistant Director Air Traffic Services Division Department of Civil Aviation Malaysia 4th Floor, Podium Block B Lot 4G4 Precinct 4 Federal Government Administrative Centre 62570 Putrajaya Malaysia	Tel: +603 8871 4272 Fax: +603 8871 4290 Email: khairulamali@dca.gov.my
Mr. Richard Tan Hock Chye	Assistant Director of KL ATCC Department of Civil Aviation Sultan Abdul Aziz Shah Airport 47200 Subang Selangor Darul Ehsan Malaysia	Tel: +603 7847 3573 Fax: +603 7847 3572 Email: imbmrich@gmail.com
SINGAPORE		
Mr. Kuah Kong Beng	Chief Air Traffic Control Officer Civil Aviation Authority of Singapore Singapore Changi Airport P.O. Box 1 Singapore 918141	Tel: +65-6541 2405 Fax: +65-6545 6516 Email: kuah_kong_beng@caas.gov.sg
Mr. Heng Cher Sian, Edmund	Project Officer (Airspace) Civil Aviation Authority of Singapore Singapore Changi Airport P.O. Box 1 Singapore 918141	Tel: +65-6541 2457 Fax: +65-6545 6516 Email: edmund_heng@caas.gov.sg
Mr. Hermizan Bin Mohd Jumari	Air Traffic Control Officer Civil Aviation Authority of Singapore Singapore Changi Airport P.O. Box 1 Singapore 918141	Tel: +65-6541 2686 Fax: +65-6545 6516 E-mail: hermizan@singnet.com

STATE/NAME	DESIGNATION/ADDRESS	CONTACT DETAILS
SRI LANKA		
Mr. Kottagoda H. Ratnasiri	Chief Air Traffic Controller Airport and Aviation Services (Sri Lanka) Limited Bandaranayake International Airport Colombo, Katunayake Sri Lanka	Tel: +94-11-225 2062 Fax: +94-11-225 2062 E-mail: rathnasiri@airport.lk
THAILAND		
Mr. Surath Sridech	ATC Instructor Civil Aviation Training Center 1032/355 Phaholyothin Road Ladyao, Jatujak Bangkok 10210, Thailand	Tel: +66-2-272 5741 Ext. 259 Fax: -
Mr. Tinnagorn Choowong	Air Traffic Control Manager En-Route Air Traffic Management Department Aeronautical Radio of Thailand Ltd. 102 Ngamduplee Tungmahamek, Sathorn Bangkok 10120, Thailand	Tel: +66-2-285 9975 Mobile: +66-09-816 6486 Fax: +66-2-285 8424 E-mail: tinnagorn.ch@aerothai.co.th
Mr. Piyawut Tantimekabut	Systems Engineer, Air Traffic Services Engineering Research and Development Department Aeronautical Radio of Thailand Ltd. 102 Ngamduplee Tungmahamek, Sathorn Bangkok 10120, Thailand	Tel: +66-2-287 8616 Fax: +66-2-287 8620 E-mail: piyawut.ta@aerothai.co.th
Mr. John Richardson	Air Traffic Management Consultant Aeronautical Radio of Thailand Ltd. 102 Ngamduplee Tungmahamek, Sathorn Bangkok 10120, Thailand	Tel: +66-2-287 8488 Mobile: +66-1-824 2467 Fax: +66-2-285 9488 Email: jricho282 @gmail.com
Ms. Saifon Obromsook	Senior Systems Engineer Aeronautical Radio of Thailand Ltd. 102 Ngamduplee Tungmahamek, Sathorn Bangkok 10120, Thailand	Tel: +66-2-287 8291 Fax: +66-2-287 8341 E-mail: saifon.ob@aerothai.co.th
Mr. Jirasak Netiprawat	Air Traffic Control Manager Aeronautical Radio of Thailand Ltd. 102 Ngamduplee Tungmahamek, Sathorn Bangkok 10120, Thailand	Tel: +66-2-285 9469 Fax: +66-2-287 8424 E-mail: jirasak.ne@aerothai.co.th
Mr. Somporn Putpan	Air Traffic Control Manager Aeronautical Radio of Thailand Ltd. 102 Ngamduplee Tungmahamek, Sathorn Bangkok 10120, Thailand	Tel: +66-2-285 9469 Fax: +66-2-287 8424 E-mail: -

STATE/NAME	DESIGNATION/ADDRESS	CONTACT DETAILS
UNITED STATES		
Mr. Daniel Hanlon	Senior Representative, Asia Pacific Region Federal Aviation Administration American Embassy 27 Napier Road Singapore 258508	Tel: +65 6543 1466 Fax: +65 6543 1952 E-mail: E-dan.hanlon@faa.gov
IATA		
Mr. Soon Boon Hai	Assistant Director, Safety Operations & Infrastructure – Asia/Pacific International Air Transport Association 71 Robinson Road #05-00, SIA Building Singapore 068896	Tel: +65-6239 7267 Fax: +65-6536 6267 E-mail: soonbh@iata.org
Mr. Danny Cheung Po Keung	Assistant Manager Flight Despatch Cathay Pacific Airways Limited Flight Operations Department G/F, South Tower, Cathay Pacific City 8 Scenic Road Hong Kong International Airport Lantau Island Hong Kong	Tel: +852-2747 2520 Fax: +852-2141 2521 E-mail: danny_cheung@cathaypacific.com
Mr. Henk Arends	ATM Operational Planning & Flight Support KLM Royal Dutch Airlines Department SPL/OL P.O. Box 7700 1117 ZL Schiphol Airport The Netherlands	Tel: +31-20-304 2521 Fax: +31-20-304 2529 E-mail: henk.arends@klm.com
Mr. Michael Dietz	Manager, Air Traffic Services and International Organizations Lufthansa German Airlines FRA OZ/G-5, Lufthansa Base D-60546 Frankfurt/Main Germany	Tel: +46-69-696 2217 Fax: +46-69-696 7070 E-mail: Michael.dietz@dlh.de
Mr. Robert J. Wong	Manager Flight Dispatch Asia/Middle East Lufthansa German Airlines Department HKG OZ/O Room 6N007, Passenger Terminal Hong Kong International Airport Hong Kong, China	Tel: 852-2769 6650 Fax: 852-2351 6075 E-mail: Robert.wong@dlh.de
Mr. Bryan Lai Nyit Sen	Flight Operations Executive (Flight Despatch) Malaysia Airlines East Wing, 2nd Floor Flight Management Building Kuala Lumpur International Airport 64000 Sepang Selangor Malaysia	Tel: +603 8777 5767 Fax: +603 8787 1244 E-mail: bryanlai@mas.com.my

STATE/NAME	DESIGNATION/ADDRESS	CONTACT DETAILS
Mr. Walter Dollman	Manager Regulatory & Industry Affairs Qantas Airways Limited Qantas Centre Building C/3 203 Coward Street Mascot 2020 Australia	Tel: +61-2-9691 1195 Fax: +61-2-9691 1605 E-mail: wdollman@qantas.com.au
Mr. Matthew Bouttell	Principal Navigation Analyst Qantas Airways Limited Qantas Centre Building C/2 203 Coward Street Mascot 2020 Australia	Tel: +61-2-9691 1034 Fax: +61-2- 9691 1118 E-mail: mbouttell@qantas.com.au
Capt. Aric Oh	Deputy Chief Pilot (Technical) Singapore Airlines Flight Operations Technical (SIN-STC 04-C) SIA Training Centre 04-C 720 Upper Changi Road East Singapore 486852	Tel: +65-6540 3694 Fax: +65-6542 9564 E-mail: aric_oh@singaporeair.com.sg
Mr. Giram Singh Sandhu	Manager, Flight Operations Control Center Singapore Airlines SIN T2 01A Airmail Transit Centre P.O. Box 501 Singapore 918101	Tel: +65-6541 1452 Fax: +65-6543 0760 E-mail: S_Giram@singaporeair.com.sg
Mr. Manoch Suesat	Route Planning Analysis Thai Airways International Room 4214, Central Block Bangkok International Airport Bangkok 10210, Thailand	Tel: +66-2-535 2450 Fax: +66-2-504 3814 E-mail: manoch.s@thaiairways.com
ICAO		
Mr. Andrew Tiede	Regional Officer, ATM ICAO Asia & Pacific Office P.O.Box 11 Samyaek Ladprao Bangkok – 10901 Thailand	Tel: +66-2-5378189 ext 152 Fax: +66-2-5378199 E-mail: atiede@bangkok.icao.int
Mr. Polawat Chootai	Regional Officer, ATM ICAO Asia & Pacific Office P.O.Box 11 Samyaek Ladprao Bangkok – 10901 Thailand	Tel: +66-2-5378189 ext 151 Fax: +66-2-5378199 E-mail: pchootai@bangkok.icao.int

LIST OF WORKING PAPERS (WPs), INFORMATION PAPERS (IPs) and FLIMSY

WORKING PAPERS

NUMBER	AGENDA	TITLE	PRESENTED BY
WP/1	1	Provisional Agenda	Secretariat
WP/2	3	Safety Assessment for operational trial of BOBCAT	Secretariat
WP/3	2	BOBCAT System Development and Improvements since ATFM/TF/5	Thailand
WP/4	5	BOBCAT Feature Improvement Initiatives	Thailand
WP/5	5	E-Mail Communications from BOBCAT to Airlines	Thailand
WP/6	5	Arrangement of BOBCAT Cutoff Time Prior to Operational Trial	Thailand
WP/7	4	ATFM Users Handbook (Draft Version 2.0)	Thailand
WP/8	5	BOBCAT Training Guidelines for Air Navigation Service Providers	Thailand
WP/9	5	Air Traffic Flow Management Unit (ATFM) Update	Thailand

INFORMATION PAPERS

NUMBER	AGENDA	TITLE	PRESENTED BY
IP/1	-	List of Working Papers (WPs) and Information Papers (IPs)	Secretariat
IP/2	6	ATFM extracted from ICAO Doc 9426	Secretariat
IP/3	5	ICAO Delegation Visit to Pakistan CAA	Thailand
IP/4	6	Report of the SCM between Kuala Lumpur, Singapore and Bangkok ACCs on BOB ATS routes utilization	Thailand
IP/5	5	BOBCAT Concept of Operation Version 3.0	Thailand
IP/6	5	Update on implementation of new ATS routes to provide independent flow into Afghanistan airspace	India

FLIMSY

NUMBER	AGENDA	TITLE	PRESENTED BY
1		IATA's Benchmarking Proposal	IATA

…….

ICAO Bay of Bengal ATS Coordination Group – ATFM Task Force

SAFETY ASSESSMENT

Operational Trial Implementation of Bay of Bengal Cooperative Traffic Flow Management System (BOBCAT)

1 Background

Despite airspace capacity improvements including the EMARSSH realignment of ATS routes (November 2002) and the implementation of RVSM in the Bay of Bengal area (November 2003), recent meetings of the Asia/Pacific Air Navigation Planning and Implementation Regional Group (APANPIRG), the Bay of Bengal ATS Coordination Group (BBACG) and the RVSM Implementation Task Force (RVSM/TF) had all recognized a continuing need to improve the overall management of traffic flows across the Bay of Bengal and South Asia area.

APANPIRG/15 (August 2004) noted the considerable efforts being made by States to collaborate, together with IATA, to improve the ATFM over the Bay of Bengal area and encouraged all parties to continue their efforts in this respect and to take into account the benefits to be derived from ATM automated systems.

A Special ATS Coordination Meeting – Bay of Bengal (SCM-BOB) was subsequently held in conjunction with the BBACG/16 meeting at the ICAO Regional Office (Bangkok), from 31 January – 4 February 2005. The SCM-BOB concluded that a dedicated Air Traffic Flow Management Task Force (ATFM/TF) should be established under BBACG to progress flow management arrangements for the Bay of Bengal and South Asia traffic flows, and drafted terms of reference accordingly. To meet agreed objectives, the ATFM/TF adopted a phased implementation programme under which Phase One was confined to flights planning to transit the Kabul FIR during the night time peak period.

During the ATFM/TF/2 meeting (Delhi, India, 28 June - 1 July 2005) the Task Force noted Thailand's readiness to proceed to an operational trial and requested Thailand to continue to develop the Bay of Bengal Cooperative ATFM Advisory System (BOBCAT) automated system to the stage of an operational trial, in close cooperation with concerned States, ICAO and IATA. The ATFM/TF considered that an ATFM operational trial should be conducted to enable the States concerned to assess the effectiveness of the system.

In preparing for an ATFM operational trial, the ATFM/TF reviewed the standards and recommended practices relating to the implementation by States of safety management programmes for Air Traffic Services (ATS) contained in Section 2.26 of Annex 11 – *Air Traffic Services* and corresponding provisions in Chapter 2 of the *Procedures for Air Navigation Services – Air Traffic Management* (PANS-ATM, Doc 4444). The ATFM/TF noted the requirement for States to undertake a safety assessment prior to the implementation of any new separation minimum or procedure, in order to ensure that safety is maintained in the provision of ATS within airspaces and at aerodromes.

Version 2: 11 May 2006
Authorised: ICAO BBACG ATFM/TF

2 Safety Assessment

The safety assessment activities undertaken by the ATFM/TF recognized that the Bay of Bengal Cooperative Traffic Flow Management System (BOBCAT) was not intended nor designed to "control" aircraft or relieve any of the traffic separation responsibilities of the ATS providers concerned. ATS providers would retain full responsibility for all ATS functions, including traffic management.

In accordance with Phase One of the ATFM system implementation planning being coordinated by the ATFM/TF, the purpose of BOBCAT was to regulate, by the calculation and distribution of wheels up and gateway fix slot times, the flow of westbound air traffic departing airports from East Asia, South-East Asia and South Asia and which had planned to transit the Kabul FIR between the hours of 2000 and 2359 UTC daily.

The BOBCAT was an advisory system which did not have executive control of aircraft. Nevertheless, BOBCAT would provide scheduling information for aircraft departures and, if the system did not perform to design expectations, this could lead to traffic congestion. However, the ATFM/TF considered that in no case would erroneous advisory information from BOBCAT be expected to lead to breakdown of required ATS separation as ATS providers retained responsibility for tactical ATS and traffic management.

3 Methodology

The ATFM/TF conducted safety assessment activities in accordance with guidance in Chapter 6 the draft ICAO *Manual on Safety Management for Air Traffic Services*. In this context, commencing during the ATFM/TF/3 meeting (Bangkok, Thailand, 6-9 September 2005) the ATFM/TF undertook hazard identification activities in preparation for an operational trial of the BOBCAT system. The seven hazards and associated mitigators identified were recorded in the attached Hazard Log and the Hazard Log was reviewed and updated during subsequent meetings of the ATFM/TF.

Recognizing that the BOBCAT system was an advisory system only and that failure of the BOBCAT system during the operational trial would result in reversion to existing procedures, the ATFM/TF did not formally classify identified Hazards in terms of likelihood and severity. Nevertheless, mitigators were identified in many instances that would be applied with a view to enhancing the conduct of the operational trial.

4 Primary Requirements

As a result of the safety assessment activities and associated works, the ATFM/TF identified the following primary requirements for the conduct of the ATFM operational trial:

a) Proof of BOBCAT Concept by the conduct of desktop simulations/paper trials;

b) Preparation and publication of a comprehensive AIP Supplement containing procedures and requirements for the operational trial;

c) Preparation and publication of comprehensive ATFM Users Handbook containing procedures and requirements for the operational trial;

d) Computer based training capabilities via the BOBCAT website;

e) Adequate ATFMU staffing and equipment levels, including technical support;

f) Advanced BOBCAT system Hardware and Software requirements including equipment redundancy, firewall protection, etc

g) Ghosting of operations for 7 day period prior to live trial;

h) Immediate reversion capability to pre-trial conditions using existing State bi-lateral arrangements; and

i) Availability of suitable methodology and set of objective criteria against which trial performance could be measured.

5 Assumptions and Constraints

Assuming the full completion, or planned completion prior to commencement of an operational trial, of the items described above, the ATFM/TF would convene a meeting at a suitable time prior to the scheduled start of the 7 day ghosting period in order to conduct an assessment of the readiness level of trial participants and make a Go/ No Go decision in relation to the commencement, or otherwise, of the ATFM operational trial.

In the event of significant non compliance or lack of readiness in relation to the items described in Section 4 above, commencement of the trial would be delayed until a suitable readiness level was achieved.

6 Post Implementation Review

A post implementation review of trial performance would be completed by the ATFM/TF within approximately 3 weeks of the commencement of the trial using a suitable methodology and set of objective criteria. This would facilitate objective assessment of the ATFM trial and the provision of high integrity information to enable States and users to evaluate the effectiveness of the BOBCAT system.

7 Safety Statement

Having conducted safety assessment activities in accordance with the above, including consideration of the attached Hazard Log and the ongoing work of the ATFM/TF, and recognizing that an immediate reversion to pre-trial arrangements could take place in the event of unforeseen difficulties, the States participating in the ATFM operational trial had not identified safety concerns that would impede the conduct of a Phase 1 ATFM operational trial using the BOBCAT system.

- END –

ICAO Bay of Bengal ATS Coordination Group – ATFM Task Force

BOBCAT Safety Assessment - Hazard Log

Operational Trial Implementation of
Bay of Bengal Cooperative Traffic Flow Management System (BOBCAT)

	Hazard No 1
Description:	Non-standard, incorrect or corrupt data leading to erroneous advisory information.
Remarks:	The BOBCAT is a computerized system with user access via the public internet. This hazard identifies the possibility of incorrect data being presented to or utilized by BOBCAT, resulting in erroneous advisory information being promulgated by BOBCAT.
Mitigation:	1) BOBCAT provides advisory information only; ATS providers retain responsibility for tactical ATS and traffic management. 2) Hardware – The BOBCAT Concept of Operations includes details of system hardware architecture which incorporates contemporary firewall protection to ensure no unauthorized access is obtained, in particular to application and database servers. 3) Software – incorporates checking algorithms to ensure aircraft can not be scheduled at the same gateway fix at the same time and at the same flight level. 4) AEROTHAI support engineers will monitor BOBCAT Error Log and provide support for ATFMU staff to resolve non-standard, incorrect of corrupt data issues.

	5) Paper Trial – Paper trials/simulations of full functionality of BOBCAT prior to operational trial comprises validation exercises in order to identify data errors and other issues. 6) ATFMU – Structured training programme for ATFMU staff to ensure recognition of non-normal data configurations, and a "reasonableness" check of slot allocation lists is conducted by ATFMU staff prior to the list being published to users. 7) ATS Unit – The ATS Units adjacent to or controlling gateway fixes would identify situations where traffic was inappropriately sequenced and provide tactical ATS intervention. 8) Ghost Operations – Implementation of operational trial will utilize staged implementation of BOBCAT. Stage one (7 day period) would require full functionality and user input, but slots generated would not be issued to aircraft. Facilitates testing of databases and procedures under operational conditions. Stage 2 commences live operations only provided Stage 1 operations are acceptable. 9) Computer based training package for BOBCAT operations and interactive web board (i.e. discussion page) will be provided on BOBCAT web site.
	Hazard No 2
Description:	Errors or bugs in software update leading to erroneous advisory information.
Remarks:	This hazard identifies concerns in respect of major software changes or other major equipment changes which could result in introduction of catastrophic software threats.

Mitigation:	1) BOBCAT provides advisory information only; ATS providers retain responsibility for tactical ATS and traffic management. 2) Hardware – The BOBCAT Concept of Operations includes details of system hardware architecture which includes duplicated systems throughout enabling redundancy, allows one system to be non operational whilst duplicated system carries the load. 3) Bay of Bengal and South Asia ATFM Handbook includes requirements and procedures for major software updates. Significant system and software changes to be reviewed by suitable oversight authority e.g. Air Traffic Flow Management Task Force, Bay of Bengal ATS Coordination Group, AEROTHAI Senior Engineering Staff prior to implementation 4) Paper trial and ghost operations provide intensive testing of software.
	Hazard No 3
Description:	Hardware or networking failures or incompatibilities leading to absence of advisory information or promulgation of erroneous advisory information.
Remarks:	Hardware and/or hardware networking problems/public internet failures may create a situation where BOBCAT goes off line without warning, leading to an absence of data or erroneous data presentation to users due lack of update capability.

Mitigation:	1) BOBCAT provides advisory information only; ATS providers retain responsibility for tactical ATS and traffic management. 2) Hardware – The BOBCAT Concept of Operations includes details of system hardware architecture which includes duplicated systems throughout enabling redundancy of hardware without compromising entire BOBCAT system. 3) Software configuration includes user visible time/date stamp of slot allocation list and other time bound pages. 4) AIP Supplement and Bay of Bengal and South Asia ATFM Handbook includes requirements and procedures for internet outage, including manual procedures for contact with ATFMU via telephone, AFTN and fax to allow gateway allocation list to be updated and gateway allocations issued. Fax template will be included in ATFM Users Handbook. 5) ATFMU staffing includes provision for technician qualified and trained on all BOBCAT facilities to be on duty during hours of operation of ATFMU. 6) Paper trial and ghost operations provide intensive testing of system. Ghost operations allow testing of hardware and networked system under operational conditions.
	Hazard No 4
Description:	Inadequate or inappropriate information entered into the system by users leading to erroneous advisory information.

Remarks:	BOBCAT would have a large number of users, particularly dispatchers from many airlines, interacting with the system. Potential for the "wrong" information to be entered, leading to consequential erroneous data being promulgated by BOBCAT.
Mitigation:	1) BOBCAT provides advisory information only; ATS providers retain responsibility for tactical ATS and traffic management. 2) Two day BOBCAT Workshop (9 & 10 November 2005) for airline dispatchers and affected ATS officers conducted during ATFM/TF/4 meeting (7 – 11 November 2005). 3) Bay of Bengal and South Asia ATFM Handbook includes comprehensive requirements and procedures for users of the system. 4) Comprehensive AIP Supplement, including slot submission procedures, published 2 AIRAC cycles prior to commencement of trial. 5) Structured training programme for ATFMU staff to ensure recognition of non-normal data configurations, and a "reasonableness" check of slot allocation lists is conducted by ATFMU staff prior to the list being published to users. 6) BOBCAT software makes extensive use of simplified menus for user selection of data input, limited choices in each menu for routes, levels etc, no ability for users to vary menus or input data other than what is contained in the menus. Checking algorithms incorporated to test "reasonableness" of submitted Mach Number, elapsed time from departure to waypoint, wheels up time at least equal to ETD plus standard taxi time, unique aircraft registration number check to ensure single slot per airframe. 7) BOBCAT Concept of Operations includes provisions for security of user access to BOBCAT. Access only via password to authorized users with written approval from ATFMU manager. 8) Computer based training package for BOBCAT operations and interactive web board (i.e. discussion page) will be provided on BOBCAT web site.

	Hazard No 5
Description:	Unforeseen changes in airspace operational status leads to sudden reduction in airspace capacity.
Remarks:	If the airspace operational status changes without due notification e.g. sudden non-availability of an ATS route, it will take some time before BOBCAT can reschedule slots if the sudden change in status occurs prior to the publication of the nightly slot allocation list. If the change in airspace operational status occurs after the slot allocation list has been published, BOBCAT is unable to assist.
Mitigation:	1) BOBCAT provides advisory information only; ATS providers retain responsibility for tactical ATS and traffic management. 2) Sudden changes in operational status that occur prior to the cut off time for the calculation and promulgation of the gateway allocation list can be managed by BOBCAT, e.g. a route that is suddenly not available is removed from the route selections available to users. Users that have already selected the route that is no longer available would be allocated one of their other preferences that did not include this route. 3) In contingency circumstances, flight spacing can be redefined on any route or waypoint without requiring re-submission of slot requests. 4) Circumstances where the change in operational status occurs after the gateway allocation list has already been promulgated would require ATS providers to tactically manage the situation in accordance with normal ATS contingency plans/procedures.

	Hazard No 6
Description:	Industry does not comply with agreed wheels up and/or gateway fix times leading to congestion and un-flowed traffic sequence.
Remarks:	Non compliance by Industry with published wheels up and/or gateway fix times could lead to schedule conflicts at gateway fixes.
Mitigation:	1) BOBCAT provides advisory information only; ATS providers retain responsibility for tactical ATS and traffic management. 2) ICAO PANS ATM (Doc 4444) includes provisions at paragraph 7.8.1 which place responsibility on pilot and operator to ensure that aircraft is ready to taxi in time to meet ATFM requirements. 3) Implementation of flow management provided by BOBCAT is as a result of collaborative arrangements between Bay of Bengal ATS providers and IATA, including IATA member airlines. Industry consultation/liaison with/by IATA and ICAO Regional Office provides increased communications and agreement between users and ATS providers. 4) Comprehensive AIP Supplement agreed by users and issued by involved States requires compliance by users with gateway slots allocated by BOBCAT. 5) ATFMU procedures include analysis capability to identify users that regularly do not comply with ATFM procedures. ATFMU will contact these users to advise of non compliance and ascertain remediation proposed by users. 6) Bay of Bengal and South Asia ATFM Handbook includes comprehensive requirements and procedures for users of the system, including provision for exempted aircraft, and coordination activities required in the event of a missed slot. Includes procedures for ANSPs to submit report of non-compliance with BOBCAT procedures for review by BOBCAT oversight authority.

	7) Two day BOBCAT Workshop (9 & 10 November 2005) for airline dispatchers and affected ATS officers conducted during ATFM/TF/4 meeting (7 – 11 November 2005).
	Hazard No 7
Description:	ATS Units do not comply with agreed wheels up and/or gateway fix times leading to congestion and un-flowed traffic sequence.
Remarks:	Non compliance by ATS Units with published wheels up and/or gateway fix times would lead to schedule conflicts at gateway fixes.
Mitigation:	1) BOBCAT provides advisory information only; ATS providers retain responsibility for tactical ATS and traffic management. 2) ICAO PANS ATM (Doc 4444) includes provisions at paragraph 7.8.1 which enable adjustments to be made to sequence of departing aircraft in respect of aircraft subject to ATFM requirements. 3) Implementation of flow management provided by BOBCAT is as a result of collaborative arrangements between Bay of Bengal ATS providers and IATA, including IATA member airlines. Industry consultation/liaison with/by IATA and ICAO Regional Office provides increased communications and agreement between users and ATS providers. 4) Downstream ATS Units will be required to tactically manage non compliances from upstream ATS Units and submit a report to the ATFMU in accordance with procedures in the ATFM Users Handbook. 5) Comprehensive AIP Supplement agreed by users and issued by involved States requires compliance by users with gateway slots allocated by BOBCAT.

	6) ATFMU procedures include analysis capability to identify ATS Units that regularly do not comply with ATFM procedures. ATFMU will contact these ATS Units to advise of non compliance and ascertain remediation proposed by ATS Units. 7) Bay of Bengal and South Asia ATFM Handbook includes comprehensive requirements and procedures for users of the system, including provision for exempted aircraft, and coordination activities required in the event of a missed slot. Includes procedures for submission of report of non-compliance with BOBCAT procedures for review by BOBCAT oversight authority. 8) Two day BOBCAT Workshop (9 & 10 November 2005) for airline dispatchers and affected ATS officers conducted during ATFM/TF/4 meeting (7 – 11 November 2005).

BAY OF BENGAL
AND
SOUTH ASIA
AIR TRAFFIC FLOW MANAGEMENT
HANDBOOK

DRAFT VERSION 3.0

Updated on 11 May 2006

Table of Contents

Glossary of Terms

Term	Description
ACC	Area Control Centre
ADC	Aerodrome Control
AEROTHAI	Aeronautical Radio of Thailand, Limited
AFTN	Aeronautical Fixed Telecommunications Network
AIP	Aeronautical Information Publication
AIS	Aeronautical Information Services
ANSP	Air Navigation Service Provider
ATC	Air Traffic Control
ATFM	Air Traffic Flow Management
ATFM Users Handbook	Bay of Bengal and South Asia ATFM Handbook
ATFMU	Air Traffic Flow Management Unit
ATM	Air Traffic Management
ATS	Air Traffic Services
ATT	Additional Taxi Time
AWUT	Allocated Wheels-Up Time
BOBCAT	Bay of Bengal Cooperative Air Traffic Flow Management Advisory System
CHG	Change Message
CNL	Cancel Message
CSRT	Contingency Slot Request Template
DEP	Departure Message
DLA	Delay Message
EET	Estimated Elapsed Time
ETD	Estimated Time of Departure
FIR	Flight Information Region
FL	Flight Level
FPL	Flight Plan Message
IATA	International Air Transport Association
ICAO	International Civil Aviation Organization
ICAO PANS ATM	ICAO Procedures for Air Navigation Services: Air Traffic Management
MAD	Maximum Acceptable Delay

NOTAM	Notice to Airmen
PIC	Pilot in Command
PSR	Past Slot Request
SMC	Surface Movement Control
SRT	Slot Request Template
STT	Standard Taxi Time
TWR	Control Tower
WUT	Wheels Up Time

1. Introduction

Purpose and Scope

1.1. As per ICAO Annex 11 Chapter 3.7.5, an ATFM service shall be implemented for airspace where air traffic demand at times exceeds or is expected to exceed the declared capacity of the air traffic services concerned.

1.2. Further, Annex 11 recommends that an ATFM service should be implemented on the basis of a regional air navigation agreement or through a multilateral agreement, which should make provision for common procedures.

1.3. Doc 4444 (PANS-ATM) Chapter 3.2.1.5 states that *"Detailed procedures governing the provision of the ATFM measures, and service within a region or area should be prescribed in a regional ATFM manual or handbook".*

1.4. Accordingly, the purpose of this Handbook is to provide in one document, the procedures for the operation of the Bay of Bengal and South Asia ATFM service, which have been developed through the effective use of Collaborative Decision Making between the States, ICAO Asia and Pacific Regional Office and airspace users concerned.

Objectives of Air Traffic Flow Management (ATFM)

1.5. Air Navigation Service Providers (ANSPs) concerned, ICAO Asia Pacific Regional Office, and the International Air Transport Association (IATA) considered that there was a need to introduce an automated air traffic flow management system, due to present flight level constraints at the Kabul FIR gateway points together with the limited number of route segments through the Kabul FIR. This would ensure a smooth flow of traffic through Kabul waypoints and associated route segments.

1.6. The objectives of ATFM across the Bay of Bengal and South Asia are:

a) To enhance and facilitate the orderly and efficient flow of air traffic across the Bay of Bengal and South Asia;

b) To minimize ground and enroute delays;

c) To maximize capacity and optimize the flow of air traffic within the area;

d) To plan for and manage future ATS workload in the light of forecast increased traffic flow within the area; and

e) To assess the economic and environmental impact of the implementation of the ATFM system.

1.7. The Bay of Bengal Cooperative ATFM Advisory System (BOBCAT) has been developed by Aeronautical Radio of Thailand Ltd. (AEROTHAI), in coordination with ICAO Asia Pacific Regional Office, affected Air Navigation Service Providers (ANSPs) concerned, the International Air Transport Association (IATA) and their member international airlines to assist in managing the present restrictions for westbound aircraft operating through the Kabul FIR during the busy night time period.

ATFM Users Handbook

1.8. This *Bay of Bengal and South Asia ATFM Handbook* (ATFM Users Handbook) provides information necessary for airline operators and ANSPs to carry out their responsibilities within the BOBCAT system. The AFTM Users Handbook will be updated as BOBCAT functionalities are enhanced.

Principles of BOBCAT

1.9. The following principles have been agreed to:

a) To introduce an automated air traffic flow management system in accordance with ICAO standards and recommended practices to enhance the smooth flow of westbound aircraft transiting the Kabul FIR during the period of 2000 to 2359UTC;

b) BOBCAT provides advisory information only. ANSPs retain responsibility for tactical ATS and traffic management;

c) BOBCAT will manage mandatory slot selection through interaction with airline dispatchers via the Internet using a dedicated website;

d) To maintain or improve aircraft operations through the Kabul FIR during the above period;

e) To maintain a high level of responsiveness to requests from ANSPs, IATA and their airline operators for procedure and system improvements; and,

f) To provide reports and statistics on ATFM operations for analysis.

References

1.10. The following documents are referred to within this handbook:

a) Annex 11 Air Traffic Services;
b) Doc 4444 Procedures for Air Navigation Services – Air Traffic Management;
c) Doc 9673 Basic Air Navigation Plan – Asia and Pacific Regions;

d) Doc 9750 Global Air Navigation Plan for CNS/ATM Systems; and,
e) Doc 9426 ATS Planning Manual

Control of the Manual

1.11. This Handbook is controlled, edited and produced by the **[insert name of ATFM coordination authority]**, which operates under the auspices of the ICAO Bay of Bengal ATS Coordination Group (BBACG).

1.12. The Editor for the Bay of Bengal and South Asia ATFM Handbook is:

Ron Rigney
Chairman, Bay of Bengal ATFM Task Force
Airservices Australia
Tel: +61 7 3866 3487
Fax: +61 7 3866 3402
Email: ron.rigney@airservicesaustralia.com

Validity

1.13. The date of application of this Edition number **1.0** is **[insert date]** and this manual shall not be used operationally before that date.

Changes to the ATFM Handbook

1.14. The ATFM Handbook will usually be updated once per year. However intervening amendments may be issued in conjunction with relevant State AIC and AIP documents.

1.15. Whenever a user identifies a need for a change to this Handbook, a Request for Change Form (RFC) should be completed and submitted to the Editor. A copy of the RFC Form is shown at Appendix A.

Version / Amendment Number	Date	Amended by	Comments
1.0			The original version

2. BOBCAT Operations and Functionality

BOBCAT System

2.1 The BOBCAT will be responsible for the ATFM activities within the Bay of Bengal and South Asia areas for the routes and at the times described in States' AIP Supplements. This responsibility will be managed by the Bangkok Air Traffic Flow Management Unit (ATFMU) in coordination with aircraft operators and ANSPs in the FIRs concerned.

BOBCAT Concept of Operations

2.2 The BOBCAT concept of operations has been formulated based on the following parameters:

a) BOBCAT shall ensure slot allocations at the same flight level are not less than the agreed required spacing at each Kabul FIR entry waypoints: SITAX (A466), PAVLO (N644), ROSIE (L750) and ASLUM (G792);

b) In order to efficiently utilize airspace with regard to aircraft diverting over Dhera Ismail Khan (DI) on A466 and N644, airline operators should indicate their CVSM flight level for entry into Kabul FIR at the DI waypoint;

c) Spacing requirements between two aircraft at the same waypoint into Kabul FIR and the same flight level shall be 10 minutes;

d) An additional buffer time will be applied within the system to ensure flexibility as well as efficient and safe flow of traffic operating through the Kabul FIR;

e) In order to ensure availability of an initial slot for westbound departures from Northern India and Pakistan, departures from these airports will be given priority at flight level 280 for entry into Kabul FIR. Conversely, aircraft departing from other airports with longer flight times will given priority at flight levels 310-390 for entry into Kabul FIR;

f) Allocated Wheel-Up Time (AWUT) assigned by BOBCAT is based on information derived from the airline operators and ANSPs' input. This time should be based on Estimated Time of Departure (ETD), individual aerodromes' Standard Taxi Time (STT) provided by ANSPs, and any additional time that aircraft operator considers necessary (Additional Taxi Time - ATT);

g) Aircraft sequencing at the departure airport according to AWUT order will be managed by the ANSP concerned;

h) ANSP should endeavor to assist aircraft operators in order for them to meet the required AWUT;

i) Airline operators should submit ATS flight plan based on BOBCAT slot allocation for entry into Kabul FIR;

j) It is the airline operators' responsibility to arrange en route flight profile to arrive over the Kabul FIR entry waypoint as allocated by BOBCAT;

k) It is an ANSP responsibility to tactically manage aircraft entry into the Kabul FIR in accordance with the assigned route and flight level;

Bangkok Air Traffic Flow Management Unit

2.3 Bangkok Air Traffic Flow Management Unit (Bangkok ATFMU), located in Bangkok ACC, has responsibility to manage the BOBCAT system on behalf of ANSPs and aircraft operators concerned. The ATFMU will operate for westbound flights operating through the Kabul FIR during night time period.

Area of Operation

2.4 All Westbound flights intending to transit the Kabul FIR on ATS routes A466, L750, N644 between FL280 to FL390 inclusive and G792/V390 between FL310 to FL390 inclusive between 2000UTC and 2359UTC daily shall participate in the BOBCAT system. These flights are required to submit slot allocation requests to the ATFMU for processing.

ANSP and aircraft operators system requirement

2.5 Aircraft Operators and ANSPs are required to have computer equipment capable of connecting to the BOBCAT website https://www.bobcat.aero via the Internet satisfying the following minimum requirements:

a) A Personal Computer of any operating system with the following characteristics;
   ii) Processor: minimum CPU clock speed of 150 MHz
   iii) Operating System: Any that operates one of the following web browsers (i.e. Windows 2000/XP, Linux, Unix, or Mac OS)
   iv) RAM: 64 MB or larger (depending on operating system),
   v) Hard disk Space: minimum of 500 MB or larger (depending on operating system)
   vi) Monitor Display Resolution: Minimum of 800 x 600 pixels
   vii) Web Browser: Internet Explorer 5.5 or newer, Mozilla 1.0 or newer, Mozilla Firefox 1.0 or newer, Netscape 7 or newer,

b) Internet Connection: 56 Kbps Modem or faster Internet connection.

c) Printer if required (e.g. printing out information for distribution to concerned persons).

BOBCAT Operating Procedures

2.6 Westbound flights intending to transit the Kabul FIR on ATS routes A466, L750, N644 between FL280 to FL390 inclusive and G792/V390 between FL310 to FL390 inclusive between 2000UTC and 2359UTC daily shall participate in ATFM.

Application of System Spacing

2.7 BOBCAT is designed to arrange 10-minute spacing plus a buffer time for entry into the Kabul FIR.

Wheels-Up Time

2.8 Wheels Up Time will be calculated based on information submitted by airline operators using an aircraft's ETD + ANSP-provided STT for specific departure aerodrome + Additional Time if required by the operator. It is defined as:

WUT = ETD + STT + Additional Time required by the operator

Allocated Wheels-Up Time

2.9 Allocated Wheels-Up Time (AWUT) is the adjusted WUT calculated by BOBCAT and issued to an aircraft based on submitted entry time into Kabul FIR.

Slot Allocation Process

2.10 The slot allocation process is divided into 3 phases, namely the Slot request, initial Slot allocation and finally Slot distribution to airline operators and ANSPs. All operators concerned are required to submit slot requests to the BOBCAT system by logging onto https://www.bobcat.aero and completing the electronic templates provided.

Slot Request Procedures

2.11 Slot requests including preferred ATS route, flight level and Maximum Acceptable Delay (MAD) should be lodged by the cut-off time of 1200 UTC. Submitted slot requests may be amended at any time up until 1200UTC. To enhance opportunities for preferred slot allocation, airline dispatchers are encouraged to submit additional options in case their first choice is not available. This may include alternative route, flight level and changes to MAD.

2.12 As BOBCAT will allocate FL280 on a priority basis to facilitate departures from northern India and Pakistan underneath over-flying traffic, dispatchers are encouraged to include FL280 in at least one slot request for departures from these airports. This should not discourage airline dispatchers who are requesting a slot from other airports to also submit FL280 as one of their requests, especially during the busiest period of 2100 – 2300UTC.

2.13 Flights that were not allocated a slot although a slot request was submitted prior to the cut-off time (1200UTC) and flights who did not submit slot request by the cut-off time, will have the opportunity to select a slot from the unallocated slots after the slot distribution has been completed.

Slot Allocation Procedures

2.14 Slot allocation shall take place after the cut-off time at 1200UTC. BOBCAT will process and generate the slot allocation based on the information submitted in the slot request, and notify the results not later than 1300UTC via e-mail and the BOBCAT website to concerned parties.

2.15 Flights departing without an allocated slot will be tactically accommodated after participating flights have been processed and should expect delays for requested routes and altitudes.

2.16 The ATFMU will continue to be staffed until 2359UTC, during which time aircraft operators can:

a) View the slot allocation result for flight planning purposes;

b) Cancel the assigned slot; and/or,

c) Request a change of slot allocation to another available slot in the published list.

2.17 ANSPs can view the slot allocation results at https://www.bobcat.aero/.

2.18 Once aircraft operators are satisfied with the slot allocation, they should submit their ATS flight plan using the route and level parameters of the allocated slot.

2.19 In addition to normal addressees, operators should also address flight plan and related ATS messages (e.g. FPL, DLA, CNL, CHG) to the ATFMU via AFTN address VTBBZDZX.

Vacant Slot Selection After Cut-off Time

2.20 Airline operators will be able to log into BOBCAT website at https://www.bobcat.aero/ to select slot allocation from vacant slot. The procedure of selecting slot after cut-off time is posted in the “Help” section of the website.

Cancellation or Change of Slot Allocation

2.21 Airline operators will be able to log into BOBCAT website at https://www.bobcat.aero/ to change or cancel slot allocation. The procedure of cancelling and modifying slot allocation is posted in the "Help" section of the website.

Viewing Available Slots

2.22 Airline operators will be able to log into BOBCAT website at https://www.bobcat.aero/ to view available slot. The procedure for viewing available slots is posted in the "Help" section of the website.

Pilot in Command Role and Responsibility

2.23 In accordance with ICAO PANS ATM provisions (Section 7.8), it is the responsibility of the Pilot in Command (PIC) and the operator to ensure that the aircraft is ready to taxi in time to meet any required departure time.

2.24 PIC shall be kept informed via their operators of the Allocated Wheels Up Time (AWUT), gateway fix times and flight parameters (route/level) nominated by BOBCAT.

2.25 In collaboration with airline operators, ANSPs shall ensure that every opportunity and assistance is granted to an aircraft to meet AWUT and allocated waypoint times.

2.26 The PIC shall include the AWUT in the ATC clearance request.

2.27 The PIC shall arrange take-off as close as possible to the AWUT.

Missing the Allocated Wheels-Up Time

2.28 In circumstances where it becomes obvious that the AWUT will not be met, a new slot allocation should be obtained by the most expeditious means (e.g. via coordination between flight dispatcher/ANSPs and ATFMU).

Operations of Special Flights Exempted from ATFM

2.29 The following flights are exempted from ATFM slot allocation:

a) Humanitarian or medical flights; or,

b) State aircraft with Head of State onboard.

2.30 Flights exempted from ATFM shall indicate the exemption in their flight plan (Field 18 – STS-ATFM EXMP).

2.31 ANSPs shall forward the flight plan information to the ATFMU.

2.32 Flights affected by special flight exempted from ATFM shall follow the same procedure as if the aircraft has missed the AWUT.

BOBCAT Username/Password Allocation and Security Policy

BOBCAT Username/Password Allocation

2.33 All concerned parties requiring access to BOBCAT are required to submit a written username/password request to Bangkok ATFMU, on the BOBCAT Username / Contact Information Modification Form included in **Appendix B**, signed by authorized personnel of the organization as well as the organization seal.

2.34 The username/password request should include the following information:

a) User's Full Name;

b) User's E-Mail address; and,

c) User's proposed username.

2.35 Each organization with users participating in BOBCAT system should maintain uniqueness of BOBCAT usernames within their organization. BOBCAT will then put suffix of organization name after each username to ensure that a BOBCAT user's username is unique.

2.36 If a particular airline operator is using the services of another airline's dispatch office, they shall submit an official letter to the Bangkok ATFMU informing them that this airline or dispatch organization has authority to submit slot request on their behalf. This formal letter shall be signed by an authorized person on the company's letterhead.

2.37 If there are any changes to users participating in BOBCAT, each participating organization is responsible to notify Bangkok ATFMU of the change so as to ensure access security for the system.

BOBCAT Security Policy

2.38 For the purpose of maintaining access security of BOBCAT, each user of the system is required to have a username/password, which should not be shared with others. Action taken under a username/password will be interpreted as action taken by the registered user.

2.39 To provide security for BOBCAT users, BOBCAT only stores the digest of the password to be verified against password provided by BOBCAT users. Each generated password will only be known to the BOBCAT user alone via e-mail.

2.40 Each BOBCAT user is responsible for maintaining personal password only known by the user alone. It is recommended that the password be regularly changed to protect against identity theft.

2.41 In the event of a lost BOBCAT username/password, contact should be made with Bangkok ATFMU to request a password reset. The reset password would then be sent to the registered user via e-mail. The user is responsible for changing the generated password into the personal password.

2.42 To protect against identity theft issues, users should logout of BOBCAT website once the task related to BOBCAT system is completed.

3. Bangkok ATFMU

ATFMU Staffing and Hours of Operation

3.1 The Bangkok ATFMU will operate from 0600UTC to 2400UTC daily for westbound flights only, with contact details as follows:

a) Telephone : +662 287 8024, +662 287 8025

b) Tel/Fax: +662 287 8026

c) Fax : +662 287 8027

d) ATFN: VTBBZDZX

e) E-mail: atfmu@bobcat.aero

ATFMU Functions and Responsibilities

3.2 Bangkok ATFMU has the following functions and responsibilities:

a) Manage operation of BOBCAT system so as to ensure that proper slot requests were submitted to the system, slot allocations are completed properly and processes after initial slot allocation are completed in a timely manner;

b) Coordinate with airline operators and ANSPs involved in BOBCAT operations with respect to:

i. Requesting username/password into BOBCAT system;
ii. Submitting slot request;
iii. Obtaining slot allocation for aircraft missing wheels-up time.

4. Airline Dispatchers and Private Operators

Submitting a Slot Request to BOBCAT

4.1 Slot requests including preferred ATS route, flight level and Maximum Acceptable Delay (MAD) should be lodged by the cut-off time of 1200 UTC. Submitted slot requests may be amended at any time up until 1200UTC. To enhance opportunity for preferred slot allocation, airline dispatchers are encouraged to submit additional options in case their first choice is not available. This may include alternative route, flight level and changes to MAD.

Use of Multiple Slot Request Options

4.2 Airline dispatchers are alerted that more slot request options (routes and flight level) submitted generally increase the potential that a flight would be allocated a slot based on the requests submitted.

Use of Estimated Elapsed Time

4.3 BOBCAT calculates Estimated Time over Kabul FIR entry waypoint based on Estimated Elapsed Time (EET) provided by airline operators in the ATS Flight Plan and the Wheels-Up Time. Airline operators are reminded that BOBCAT slot allocation is only accurate up to the precision of EET provided by airline operators.

Use of Standard Buffer Time

4.4 A standard buffer time of will be applied for entry into Kabul FIR. For example, aircraft allocated slot into Kabul FIR at 2100UTC can arrive at the waypoint up to the buffer time being nominated.

Use of Standard Taxi Time and Additional Time Required

4.5 Standard Taxi Time suggested by ANSPs at the departing airport will be used to compute Wheels-Up Time of an aircraft. Additional Time required by aircraft operator can also be added for Taxi purposes.

Calculation of Wheels-up Time (WUT)

4.6 Wheels-Up Time will be automatically calculated by BOBCAT user interface based on the following equation:

WUT = ETD + STT + Additional Time Required by Operator

Procedures if No Slot Allocated or Missing Cut-off Time

4.7 Flights that were not allocated a slot although a slot request was submitted prior to the cut-off time (1200UTC) and flights which did not submit slot request by the cut-off time, will have the opportunity to select a slot from

the unallocated slots after the slot distribution has been completed. The procedures for such operations are posted in BOBCAT Website under the "Help" section.

Use of BOBCAT Slot Request Templates (SRT) and Past Slot Request (PSR)

4.8 Airline operators will have the opportunity to save a slot request into a slot request template (SRT) with a name of their choice. This slot request template can be used to submit a slot request for a flight of a later date, or a slot request of a similar flight on the same date.

4.9 Furthermore, airline operators will have the facility to view slot requests submitted on previous days and use a Past Slot Request as template for the current day's operation.

Use of Contingency Slot Request Templates (CSRTs)

4.10 In addition to reducing workload with respect to slot request submission, the Slot Request Template feature can also be useful where airline operators are unable to reach the BOBCAT website, e.g. the airline operators' Internet connection is down. In this case, they should advise the Bangkok ATFMU of the problem, select the appropriate Contingency Slot Request Template (CSRT) forms which are shown in **Appendix C and D**, and transmit the information to the Bangkok ATFMU via fax.

4.11 Accordingly, airline operators are requested to store up-to-date Slot Request Templates corresponding to all scheduled flights in another location outside of the BOBCAT website.

5. Air Navigation Service Providers (ANSPs)

General ANSP Roles and Responsibilities

5.1 AWUT shall be included as part of the ATC clearance.

5.2 When requested by the PIC prior to push back, or if the aircraft has pushed back, ANSPs shall assist the PIC to coordinate for a new slot allocation with the ATFMU in the event that the aircraft is unable to meet the AWUT.

5.3 ANSPs shall notify specific Standard Taxi Time (STT) for the individual departure airports and any subsequent changes, e.g. taxi way works, to the ATFMU as guidance for airline operators in estimating WUT.

5.4 ANSPs shall notify Bangkok ATFMU of any change required in the spacing at specific waypoint within their area of responsibility.

5.5 The ATFMU (AFTN Address: VTBBZDZX) shall be included in the list of AFTN addressees for NOTAMs regarding any planned activities relevant to BOBCAT operations (e.g. reservation of airspace/closure of airspace, non-availability of routes, etc).

5.6 The ATFMU (AFTN Address: VTBBZDZX) shall be included in the list of AFTN addressees for ATS messages (e.g. FPL, DLA, DEP, CHG, CNL) related to flights participating in the ATFM operational trial.

Control Tower/ACC Responsibilities – Departure Airport

Standard Push-back and Taxi Time

5.7 ADC/SMC at departure airports are responsible for providing Bangkok ATFMU with representative time between the time an aircraft pushes back and the wheels-up time of the aircraft during the period of BOBCAT operation.

Priority Take-off for Aircraft Subjected to ATFM

5.8 In accordance with ICAO PANS ATM procedures (Section 7.8), flights with slot allocation should be given priority for takeoff over other departures to facilitate compliance with AWUT.

Procedures if aircraft unable to make AWUT

5.9 In circumstances where it becomes obvious that the AWUT will not be met, a new slot allocation should be obtained by the most expeditious means (e.g. via coordination between PIC/flight dispatcher/ANSPs and ATFMU).

5.10 In the case where the delay is expected to be no more than 5 minutes past the slot window, there maybe an opportunity to tactically manage the aircraft to avoid a new slot allocation as long as it will not interfere with another aircraft's slot at the Kabul FIR entry point. This will ultimately depend on close coordination between Tower, ACC and PIC.

5.11 Where the expected delay will be more than 5 minutes, the PIC will contact ATC with the expected delay, any other pertinent information and request a new slot. The TWR controller shall immediately contact his respective ACC and request a revised slot allocation based on the PIC information. ACC shall then coordinate with ATFMU, obtain a new slot allocation and pass the information to the PIC via the TWR.

5.12 The PIC has the choice of the following:

a) Choosing from alternates provided by ANSPs in co-ordination with Bangkok ATFMU, or;

b) Contacting airline operator's office to lodge a new slot allocation.

ACC Responsibilities – En Route

Coordination with Pilot In Command (PIC)

5.13 En Route ACCs should manage the transit of aircraft with BOBCAT slot allocation so that these aircraft would be in a position to make their slot allocation into the Kabul FIR.

Coordination between En Route ACCs

5.14 In circumstances where it becomes obvious that the allocated slot into Kabul FIR cannot be met, the en route ACC first becoming aware would:

a) Advise the PIC of the situation;

b) Advise details to downstream ACCs in order to find another slot the aircraft; and,

c) Pass the new slot allocation to the PIC.

5.15 In these circumstances, the appropriate en route ACC should file ATFM System Fault and Event Report Form in **Appendix E** and submit to Bangkok ATFMU by fax or e-mail.

AIS Responsibilities – Departure Airports

Coordination with Airline Operators and the Bangkok ATFMU

5.16 The AIS office is responsible for coordinating with Bangkok ATFMU to assist in obtaining a slot allocation for airline operators who do not have access to the BOBCAT website.

5.17 The AIS office shall ensure that an airline operator proposing to submit a flight plan for a flight entering the Kabul FIR during the BOBCAT time period has a slot allocation.

5.18 The AIS office shall provide a BOBCAT Slot Request form to the airline operator who proposes to enter the Kabul FIR during the hours of BOBCAT operations. Once completed, this form shall be submitted by the AIS office on behalf of the airline operator to the Bangkok ATFMU for processing. The slot request form is shown at **Appendix F**.

5.19 In the case of an AIS office that has access to the BOBCAT website, the aircraft's slot allocation result may be viewed and used by the airline operator to complete his ATS flight plan.

5.20 With regard to an AIS office which is unable to access the BOBCAT website, the Bangkok ATFMU shall transmit the aircraft's slot allocation result to the AIS office by fax or other means. This information shall be relayed to the airline operator by the AIS office to allow an ATS flight plan to be filed.

5.21 The AIS office shall also ensure that, when the flight plan is finally completed by the airline operator, it is based on the BOBCAT slot allocation with reference to the Estimated Elapsed Time (EET) from departure airport to the Kabul FIR entry point as well as the ATS Route and Flight Level entering the Kabul FIR before transmission by AFTN.

5.22 In the circumstances that the airline operator submits slot request prior to the cutoff time, the following steps should be undertaken by the airline operators:

a) The airline operator shall contact the AIS office to obtain the result of his slot allocation request. If satisfied, submit a flight plan using the slot allocation result; or,

b) Otherwise, request a new slot allocation through the AIS office.

5.23 The Bangkok ATFMU (AFTN Address: VTBBZDZX) shall be included in the list of AFTN addressees for ATS messages (e.g. FPL, DLA, DEP, CHG and CNL) related to affected flights.

6. Contingency Arrangements

Airspace Contingencies Affecting Sovereign Airspace

6.1 In the event of closure of ATS routes, flight levels or other airspace within a State's sovereign airspace that occurs prior to the cut off time for BOBCAT slot allocation and which may affect BOBCAT operations, Bangkok ATFMU should be notified as soon as possible. In turn, Bangkok ATFMU will pass on this information to airline dispatchers to re-file slot request on routes or flight levels which are not affected. Other ANSPs will also be advised by Bangkok ATFMU of this situation.

6.2 In the circumstance where closure of ATS routes or airspace as mentioned in Para 6.1 above occur after the slot allocation cutoff time, the following procedures are applicable:

a) If aircraft are already airborne, ANSPs will tactically manage these aircraft based on spare slot allocations en route as well as obtaining slots for them through the Kabul FIR in coordination with PIC to avoid diversions; or,

b) If aircraft have not yet departed, new slot allocations will be coordinated between Bangkok ATFMU and dispatchers/ANSPs for aircraft that would be affected by the closure.

Airspace Contingencies Affecting International Airspace

6.3 Extreme weather conditions, e.g. cyclonic conditions, affecting international airspace may cause:

a) Diversion on routes; or,

b) Aircraft electing not to plan on routes affected by the extreme weather condition.

6.4 Under condition mentioned in Para 6.3 a), ANSPs may elect to increase longitudinal spacing between aircraft being affected. If this situation occurs prior to cutoff time, Bangkok ATFMU should be notified so that they can increase the appropriate spacing within the BOBCAT system. If this situation occurs after the cutoff time, the following procedures are applicable:

a) For aircraft already airborne, ANSPs would need to tactically manage these aircraft. In doing so, coordination with Bangkok ATFMU should be considered if it will affect aircraft which are not yet airborne.

b) For aircraft who have not departed, there are two options:

i. If it is impractical to re-flight plan, proceed in accordance with a) above; or,

ii. If time is available, coordinate with Bangkok ATFMU to obtain a new slot which will avoid the affected airspace.

6.5 Under conditions mentioned in Para 6.3 b), this will increase the amount of aircraft on routes not affected by the weather condition, which may cause more departure delays. Airline dispatchers should consider using alternative routing through Kabul FIR so that it will lessen the delay in slot allocation through Kabul FIR. In this case, it is suggested that judicious use of all available routes and flight levels through the Kabul FIR be applied to reduce excessive delays.

Reduction in Airspace Capacity due to Other Reasons

6.6 In circumstances where an ANSP is required to increase the longitudinal spacing between aircraft, e.g. sudden loss of staff, degradation in facilities, etc., the ANSP affected would normally take NOTAM action regarding the event as well as contacting Bangkok ATFMU with details and the resultant effect on BOBCAT operations. Bangkok ATFMU would coordinate with all concerned advising them of any changes which would affect BOBCAT operation.

6.7 ANSP responsible for areas affected by any contingency for an area or areas which may affect normal BOBCAT operations shall notify Bangkok ATFMU of the contingency and possible consequences to aircraft as soon as possible, so appropriate action and coordination can be taken.

Communication Issues

6.8 In the event that an airline operator or an ANSP is unable to access the BOBCAT website, the following means of communication with Bangkok ATFMU shall be used:

a) Telephone : +662 287 8024, +662 287 8025

b) Tel/Fax: +662 287 8026

c) Fax : +662 287 8027

d) ATFN: VTBBZDZX

6.9 In the event that an ACC is unable to log onto the BOBCAT website, the Bangkok ATFMU, on being advised, will send a copy of the slot allocation results to the affected ACC ensuring that:

a) For departure airports, AWUTs are sorted the correct order;

b) For en-route ACCs, appropriate Kabul entry waypoint(s) are selected and aircraft allocations are sorted in the correct order of ETO with Flight Level;

Complete Failure of BOBCAT System

6.10 In the event of a complete failure of the BOBCAT system, Bangkok ATFMU shall notify all parties concerned and advise that ATFM procedures are suspended. In this event, procedures will be applied by States concerned in accordance with bi-lateral agreements.

Non-Completion of Flight

6.11 In circumstances where an aircraft aborts his flight en route and either diverts or returns for various reasons, this information should be transmitted to Bangkok ATFMU so that his original slot allocation for entry into the Kabul FIR can be cancelled and made available for use by other aircraft.

7. System Fault and Event Report

7.1 An ATFM system fault is defined as a significant occurrence affecting an ATS unit, an aircraft operator or ATFMU resulting from the application of ATFM procedures.

7.2 Aircraft operators and ATC units experiencing an ATFM system fault should complete an ATFM System Fault and Event Report Form from the ATFM Users Handbook (see **Appendix E**) and forward it to the ATFMU at the address indicated on the form. The ATFMU will analyze all reports, make recommendations/suggestions as appropriate and provide feedback to the parties concerned to enable remedial action.

Bangkok Air Traffic Flow Management Unit (Bangkok ATFMU)
Tel: +66-2-287-8024
+66-2-287-8025
Tel/Fax: +66-2-287-8026
Fax: +66-2-287-8027
E-Mail: atfmu@bobcat.aero
AFTN: VTBDZDZX

ATFM USERS HANDBOOK REQUEST FOR CHANGE FORM

To be submitted to Bangkok ATFMU

SECTION I: NATURE OF CHANGE

1. Subject: _____
2. Reason of Change: _____

   _____
3. Description: _____

   _____

   _____

   _____

   _____

   _____
4. References: _____

   Reference sections/paragraphs related to the change as well related documents.

SECTION II: INFORMATION OF PARTY INITIATING CHANGE

Organization: _____

Full Name: _____

Tel: _____ Date of Request: _____

E-Mail: _____ Signature: _____

SECTION III: CONSULTATION

Response due date: _____

Organization / Administration	Contact Person Name	Agreement (Agree/Disagree)	Date

SECTION IV: FEEDBACK

Action(s) Required: _____

Feedback Passed: _____ Editor: _____

RFC Number: _____ Date Received: _____

Bangkok Air Traffic Flow Management Unit (Bangkok ATFMU)
Tel: +66-2-287-8024
+66-2-287-8025
Tel/Fax: +66-2-287-8026
Fax: +66-2-287-8027
E-Mail: atfmu@bobcat.aero
AFTN: VTBDZDZX

BOBCAT USERNAME / CONTACT INFORMATION MODIFICATION FORM

To be submitted to Bangkok ATFMU

SECTION I: ADD NEW USERS

Prefix	First Name	Last Name	Proposed Username Up to 20 characters	E-Mail Address

SECTION II: REMOVE USERS

Prefix	First Name	Last Name	Username	E-Mail Address

SECTION III: RESET PASSWORD

Prefix	First Name	Last Name	Username

SECTION IV: NOTIFICATION E-MAIL ADDRESS

❒ Change our organization's notification e-mail address to _____

SECTION V: CONTACT INFORMATION

Organization: _____

Full Name: _____

Tel: _____ Signature: _____

E-Mail: _____ Date/Time of Request: _____

Bangkok Air Traffic Flow Management Unit (Bangkok ATFMU)
Tel: +66-2-287-8024
+66-2-287-8025
Tel/Fax: +66-2-287-8026
Fax: +66-2-287-8027
E-Mail: atfmu@bobcat.aero
AFTN: VTBDZDZX

CONTINGENCY SLOT REQUEST TEMPLATE FORM A

To be submitted to Bangkok ATFMU

SECTION I: AIRCRAFT DETAIL

Call Sign: _____ Registration: _____

Departure Aerodrome: _____ Departure Date: _____

Destination Aerodrome: _____ ETD (hhmm): _____

Aircraft Type: _____ Estimated Taxiing Time (minutes): _____
Estimated time between taxi and wheels up

SECTION II: ROUTE/FLIGHT LEVEL OPTIONS

Option No.	ETD (UTC)	MAD (Maximum Acceptable Delay)	WP1	EET1	FL1	WP2	EET2	FL2
1, 2, 3, ...	*hhmm*	*Minute(s)*	*DI*	*hhmm*	*390*	*SITAX*	*hhmm*	*390*
			DI		**390**	**SITAX**		**390**
			DI		**350**	**SITAX**		**350**
			DI		**310**	**SITAX**		**310**
			DI		**280**	**SITAX**		**280**
Option No.	**ETD (UTC)**	**MAD** (Maximum Acceptable Delay)	**WP1**	**EET1**	**FL1**	**WP2**	**EET2**	**FL2**
			DI		**390**	**PAVLO**		**390**
			DI		**350**	**PAVLO**		**350**
			DI		**310**	**PAVLO**		**310**
			DI		**280**	**PAVLO**		**280**
Option No.	**ETD (UTC)**	**MAD** (Maximum Acceptable Delay)	**WP1**	**EET1**	**FL1**			
			ROSIE		**390**			
			ROSIE		**350**			
			ROSIE		**310**			
			ROSIE		**280**			
Option No.	**ETD (UTC)**	**MAD** (Maximum Acceptable Delay)	**WP1**	**EET1**	**FL1**			
			ASLUM		**390**			
			ASLUM		**350**			
			ASLUM		**310**			

SECTION III: CONTACT INFORMATION

Organization: _____

Full Name: _____

Tel: _____ Signature: _____

E-Mail: _____ Date/Time of Request: _____

Bangkok Air Traffic Flow Management Unit (Bangkok ATFMU)
Tel: +66-2-287-8024
+66-2-287-8025
Tel/Fax: +66-2-287-8026
Fax: +66-2-287-8027
E-Mail: atfmu@bobcat.aero
AFTN: VTBDZDZX

CONTINGENCY SLOT REQUEST TEMPLATE FORM B

To be submitted to Bangkok ATFMU based on previously saved Slot Request Template

SECTION I: AIRCRAFT DETAIL

Call Sign: _____ Registration: _____

Departure Aerodrome: _____ Departure Date: _____

Destination Aerodrome: _____ ETD (hhmm): _____

Aircraft Type: _____ Estimated Taxiing Time (minutes): _____
Estimated time between taxi and wheels up

SECTION II: ROUTE/FLIGHT LEVEL OPTIONS

1. Slot Request Template Name: _____
   Name of Slot Request Template which will be used to submit slot request

2. Changes from Slot Request Template Detail:

   _____

   _____

   _____

   _____

SECTION III: CONTACT INFORMATION

Organization: _____

Full Name: _____

Tel: _____ Signature: _____

E-Mail: _____ Date/Time of Request: _____

Bangkok Air Traffic Flow Management Unit (Bangkok ATFMU)
Tel: +66-2-287-8024
+66-2-287-8025
Tel/Fax: +66-2-287-8026
Fax: +66-2-287-8027
E-Mail: atfmu@bobcat.aero
AFTN: VTBDZDZX

ATFM SYSTEM FAULT AND EVENT REPORT FORM

To be submitted to Bangkok ATFMU

SECTION I – GENERAL INFORMATION

1. Date and Time (UTC) of Occurrence _____ / _____ / _____ / _____ / _____
   yy / mm / dd / hh / mm
2. Type of Event
   - 2.1 Failure of BOBCAT system ❒
   - 2.2 Communication Link failure ❒
   - 2.3 Non compliance with ATFM procedures by Pilot / Airline Operator / ANSP ❒
   - 2.4 Error in FPL and associated messages ❒
   - 2.5 Failure in ATFM Slot Monitoring (i.e. TWR at Aerodrome of Departure) ❒
   - 2.6 Non compliance with slot allocation window ❒
3. Restrictions applicable to the flight: _____

SECTION II – DETAILED INFORMATION

1. Organization / Administration submitting the report: _____
2. Flight Data (if applicable) – Call Sign: _____

   Attach copies of Flight Progress Strips indicating DEP, EOBT, WUT, DES or Entry Point & ETO over entry point, FL to ATC Unit/Sector area of activity as applicable.
3. Other details necessary for analysis of the incident

   Attach copies of FPL or RPL, subsequent ATS modifying messages etc. if appropriate

   _____

SECTION III – SUPPLEMENTARY INFORMATION

1. Actions already initiated: _____

   _____
2. Contact information follow-up action:
   - 2.1 Name: _____
   - 2.2 Designation: _____
   - 2.3 Tel: _____
   - 2.4 E-Mail: _____
3. Signature: _____
4. Date/Time of Report: _____

Bangkok Air Traffic Flow Management Unit (Bangkok ATFMU)
Tel: +66-2-287-8024
+66-2-287-8025
Tel/Fax: +66-2-287-8026
Fax: +66-2-287-8027
E-Mail: atfmu@bobcat.aero
AFTN: VTBDZDZX

SLOT REQUEST FORM

To be submitted to Bangkok ATFMU

SECTION I: AIRCRAFT DETAIL

Call Sign: _____ Registration: _____

Departure Aerodrome: _____ Departure Date: _____

Destination Aerodrome: _____ ETD (hhmm): _____

Aircraft Type: _____ Estimated Taxiing Time (minutes): _____
Estimated time between taxi and wheels up

SECTION II: ROUTE/FLIGHT LEVEL OPTIONS

Option No.	ETD (UTC)	MAD (Maximum Acceptable Delay)	WP1	EET1	FL1	WP2	EET2	FL2
1, 2, 3, ...	*hhmm*	*Minute(s)*	*DI*	*hhmm*	*390*	*SITAX*	*hhmm*	*390*
			DI		**390**	**SITAX**		**390**
			DI		**350**	**SITAX**		**350**
			DI		**310**	**SITAX**		**310**
			DI		**280**	**SITAX**		**280**
Option No.	**ETD (UTC)**	**MAD** (Maximum Acceptable Delay)	**WP1**	**EET1**	**FL1**	**WP2**	**EET2**	**FL2**
			DI		**390**	**PAVLO**		**390**
			DI		**350**	**PAVLO**		**350**
			DI		**310**	**PAVLO**		**310**
			DI		**280**	**PAVLO**		**280**
Option No.	**ETD (UTC)**	**MAD** (Maximum Acceptable Delay)	**WP1**	**EET1**	**FL1**			
			ROSIE		**390**			
			ROSIE		**350**			
			ROSIE		**310**			
			ROSIE		**280**			
Option No.	**ETD (UTC)**	**MAD** (Maximum Acceptable Delay)	**WP1**	**EET1**	**FL1**			
			ASLUM		**390**			
			ASLUM		**350**			
			ASLUM		**310**			

SECTION III: CONTACT INFORMATION

Organization: _____

Full Name: _____

Tel: _____ Signature: _____

E-Mail: _____ Date/Time of Request: _____

Summary of Discussions
on a visit to Pakistan CAA regarding the provision of a Bay of Bengal Cooperative Air Traffic Flow Management Advisory System (BOBCAT)

(Karachi, Pakistan – 8 to 9 April 2006)

1. Visit Overview

1.1 In accordance with a request from the Air Traffic Flow Management (ATFM) Task Force, a visit to Pakistan Civil Aviation Authority took place on 8 – 9 April 2006. Due to other ICAO important tasks required by the ICAO Secretariat of the ATFM Task Force, the delegation representing ICAO was comprised of Mr. Ron Rigney, Chairman of the ATFM Task Force accompanied by two members of the AEROTHAI BOBCAT Development Team (ABDT), Mr. Piyawut Tantimekabut and Mr. John Richardson.

1.2 The meeting had been pre-arranged with Pakistan CAA for the purpose of updating their Administration on work already achieved by the ATFM task force as well as the present position regarding the Bay of Bengal Cooperative Air Traffic Flow Management Advisory System (BOBCAT), as well as to brief Pakistan CAA on their role in BOBCAT prior to the proposed operation trial of the system, scheduled to take place on AIRAC date of 6 July 2006. In addition, the ABDT took the opportunity to provide a presentation on training requirements for appropriate Pakistan CAA personnel as well as equipment necessary to be part of the BOBCAT programme. Approximately 40 delegates from Pakistan attended the meeting.

2. Details of the Visit

2.1 In his opening remarks, the Chairman of the ATFM Task Force conveyed greetings on behalf of Mr. Lalit Shah, ICAO Regional Director (Asia and Pacific Office) and expressed his warm appreciation to the Pakistan CAA for hosting the ATFM/TF visit to Karachi. In particular, Mr. Ron Rigney personally thanked the CAA Director of Operations (Mr. Nusrat Ullah Khan); the GM ATS (Mr. M. Akhtar Zaidi); and Mr. Tariq Rizvi (Sr. Manager Control Tower, GOC & PFIU – CAA Pakistan) for their combined efforts in facilitating the visit and meeting.

2.2 The delegation provided CAA Pakistan officials with a briefing of previous ATFM Task Force and Special Coordination meetings held over the past 16 months. In addition, a PowerPoint presentation on ANSP training requirements concerning on BOBCAT was also shown to the meeting. The briefing/training session was attended by approximately 20 officials from CAA Pakistan responsible for Lahore FIR as well as Karachi FIR, in addition to a representative from Pakistan International Airlines (Mr. Sajid Kalim – Asst.

Manager Routes & Navigation Flight Operations). It was pleasing to note that around 6 ATM personnel from the Lahore ACC had been given the opportunity to attend this ATFM briefing.

BOBCAT ATFM Briefing

2.3 The ICAO delegation provided an overall briefing of the BOBCAT system describing the purpose of the system as well as its functionalities and responsibilities. It was emphasized to the meeting that BOBCAT was a strategic ATFM tool and was not designed to take over any of the tactical responsibilities of air traffic control. The meeting noted that BOBCAT was designed to assist international airlines as well as ANSPs in carrying out their functions as well as enhancing a smooth flow of westbound aircraft entering the Kabul FIR between the hours of 2000 to 2359UTC.

2.4 The meeting was advised that Pakistan was considered to be an integral and important component of BOBCAT operations, due to its geographical position and the responsibilities the Lahore FIR was faced with regarding transition from RVSM to CVSM levels before aircraft entered the Kabul FIR. Because of this, it was most important that Pakistan was fully involved in the BOBCAT system. Pakistan advised that they were committed to BOBCAT and would do their best to ensure that their role was achieved successfully.

2.5 The meeting was advised that further ICAO ATFM meetings of BOBCAT would be convened prior to the proposed operational trial of the system which was scheduled to take place on AIRAC date 6 July 2006. The ATFM TF/6 meeting is programmed to take place on 9 – 11 May 2006 which is the last of the scheduled ATFM Task Force meetings. Pakistan advised that approval to attend this meeting has already been given by Pakistan CAA and they are now awaiting Government approval which is anticipated.

2.6 Pakistan CAA advised that notwithstanding their commitment to be part of BOBCAT, there were several important issues which they are presently faced with on a regular basis which have some effect on daily operations and may also effect BOBCAT operations in the future. These included:

a) closure of some part of Kabul FIR airspace without advance notification;

b) presence of unidentified aircraft near Pakistan-Afghanistan border;

c) communications difficulties between Lahore and Kabul ACCs and also unreliable communications between airline pilots and Kabul ACC;

d) Crossing westbound non-Kabul traffic at Dhera Ismail Khan (DI); and,

e) Frequent reroute of aircraft prior to entering Kabul FIR.

2.7 The ICAO delegation noted these issues and advised that they would look into ways of contacting the organizations concerned to overcome some if not all of the difficulties raised. It was mentioned by the ICAO delegation that, in regard to e) above, it was envisioned

that with judicious use of BOBCAT, these reroutes should be significantly reduced or eliminated completely.

Route Usage Authorization

2.8 CAA Pakistan advised that the current agreement between international airlines and CAA Pakistan authorizes aircraft to fly on either a primary or alternate route through Pakistan.

2.9 The ICAO delegation assured CAA Pakistan officials that since BOBCAT only allocates slots based on information provided by airline dispatchers, BOBCAT operations should not cause conflict with their route approvals currently in place with airlines. It was mentioned that slot requests are provided to BOBCAT by the international airlines who are aware of these limitations.

Prioritization of Flight Level 280 within BOBCAT system

2.10 Pakistan was given a detailed explanation of the flight level priority system as it affects India and Pakistan departures. Due to the comparative short distance for these aircraft to reach the Kabul FIR entry points, it had been agreed to at previous ATFM task force meetings that FL280 be allocated a higher priority within the BOBCAT computer system to India and Pakistan, whereas FL310 and above would be given a higher priority for airlines departing from airports further east. It was explained that all available levels can be planned and requested by all aircraft however, it is strongly suggested that, to increase the chances of receiving a slot allocation, aircraft departing from India and Pakistan airports during the BOBCAT time period, should have FL280 as one of their options.

BOBCAT Security Considerations

2.11 A question was raised by Pakistan CAA as to whether air traffic controllers needed a username/password in order to access BOBCAT slot allocation results.

2.12 The ICAO delegation advised the meeting that in order to ensure security of BOBCAT system as well as customization of the BOBCAT interface to specific ATC positions, username/passwords were only necessary for ATCs who would interface with the BOBCAT programme.

BOBCAT Contingency Procedures

2.13 The importance of contingency procedures as well as backups built into BOBCAT system was stressed to the meeting.

2.14 The meeting was provided with details of the overall redundancy/backups presently incorporated within the BOBCAT hardware architecture as well as contingency procedures to be used in the case that BOBCAT is inaccessible by any participant.

2.15 It was also mentioned that other contingency procedures have been devised and are mentioned in the ATFM Users Handbook which is displayed in draft form on the BOBCAT website.

Aerodrome Controllers' involvement in slot time coordination

2.16 The question of ATC workload issues was raised during the discussion, especially in relation to aircraft missing their allocated wheels up time.

2.17 It was pointed out to the meeting that there may be occasions where an aircraft has advised the control tower that the aircraft cannot make his allocated wheels up time (AWUT) due to technical difficulties e.g. late arrival of passenger, technical problem with the aircraft etc. It was further explained that many airlines have dispatch centres which are not at the aerodrome of departure. In these circumstances, where there is a delay, the pilot would contact the control tower or the clearance delivery position and advise of the delay with a revised estimated push-back time. The responsible position within the BOBCAT system to allocate an amended AWUT is the ATFMU located within the Bangkok ACC. A message by voice, email or fax would then be sent to the ATFMU by the ACC Watch Supervisor requesting a new AWUT.

2.18 In cases where it was estimated that a small delay on AWUT could be overcome prior to entry to the Kabul FIR, this delay may be tactically managed by the ACC concerned, In this case, it is the responsibility of the ACC not to cause delay to an aircraft who had been programmed to follow this aircraft at the Kabul entry point.

Verification of BOBCAT Slot Allocation vs. submitted flight plans

2.19 The issue of verification of slot allocation against actual flight plan was raised during the meeting.

2.20 The meeting was advised that ATFMU officers will be included in the AFTN address list of all BOBCAT airline flight plans, departure and cancellation messages as well delay messages. It is their responsibility to verify submitted flight plan against the slot allocation results to ensure that the flight details are similar. As a backup to the ATFMU, it was also suggested that the ACCs concerned should also check the verification of the flight plan against the slot allocation given to each aircraft.

Integration with Flight Planning Systems

2.21 A representative from Pakistan International Airlines (PIA) inquired whether it was possible in the future to integrate or interface BOBCAT with present or future Flight Planning System such as SABRE and EDS. The meeting was advised that this may be possible but it would take some time to appraise and implement such a proposal.

BOBCAT Training

2.22 As a part of ICAO delegation, Mr. Piyawut Tantimekabut provided CAA Pakistan and Pakistan International Airlines officials with training based on an overview of BOBCAT User Interface.

Other Matters

2.23 The ICAO Delegation also met with Mr Tahir Omar, GM Management Information System - Pakistan CAA, who requested assistance in computer and network specification requirements for the BOBCAT Operational Trials.

3. Summary

3.1 On behalf of the ICAO delegation, Mr. Rigney expressed his sincere thanks to Pakistan CAA for the excellent attendance to this ATFM briefing and for the thoughtful and meaningful questions raised in discussions.

3.2 The Pakistan CAA gave a favorable endorsement of the work done by the ATFM task force as well as the introduction of the BOBCAT system to alleviate the bottlenecks by enhancement of a smooth flow of aircraft entering the Kabul FIR during the BOBCAT period of operations.

3.3 The Director of Operations Mr. Nusrat Ullah Khan complemented ICAO for their initiative in this matter and confirmed that Pakistan CAA will be a supportive member in the BOBCAT programme.

3.4 Mr. Rigney thanked Mr. Khan for his positive remarks and assured Pakistan CAA that ICAO and the ABDT will assist Pakistan in all necessary matters to ensure a smooth implementation of the BOBCAT project.

3.5 In his closing remarks, Mr. Rigney again thanked the Pakistan CAA for the very warm welcome and hospitality that was extended to the ATFM Task Force Members. In particular and on behalf of the ATFM Task Force, Mr. Rigney expressed his deepest appreciation to Mr. Nusrat Ullah Kahn, Mr. M. Akhtar Zaidi and Mr. Tariq Rizvi for their outstanding efforts in hosting the visit and facilitating a very productive meeting.

…….

Appendix 1 (AIRPORT NAME) DEPARTURES TO EUROPE ENTERING KABUL FIR BETWEEN 2000 AND 2359 UTC (GHOSTING PERIOD)

Date: 00 Jan 06

S/N	ETD	Aircraft		Bay	BoB Route	Sub-Route	To	FPL LVL	Time FL Req (A)	Time FL Appvd	Time Push Back	Time Taxi	FL(s) approved with/without restriction	Mach No	RWY	ATD (B)	Raw Delay (B)-(A)	*Delay (mins)
		Callsign	Type															
1	2300	SIA002	B744	E5	L759	L750	LFPG	300	2300	2301	2301	2309	280: NIL	M84	02R	2318	18	0
2	2240	BAW01	B744	C24	L759	A466	EGLL	280	2309	2311	2312	2318	280: 10<SIA002	M84	02L	2328	19	0
3	2325	AFR001	B772	E3	L759	L750	LFPG	320	2317	2318	2321	2326	280: 10<BAW01	M84	02R	2339	22	0
4	2320	SIA003	B744	F56	P628	L750	EGLL	300	2320	2322	2327	2334	280: NIL	M86	02R	2345	25	0
5	2330	KLM001	B744	D46	L759	A466	EHAM	300	2320	2323	2327	2337	280: 10<AFR001	M84	02R	2350	30	5
6	2320	QFA1	B744	C23	L759	A466	EGLL	320	2319	2325	2342	2350	280: 10<KLM001	M84	02L	0002	43	**18**
7	2325	QFA2	B744	C22	L759	L750	LFPG	320	2324	2328	2352	2357	280: 10<QFA1	M84	02L	0015	51	**26**
8	2359	DLH001	B744	E4	N877	L750	EDDF	300	2353	2356	0001	0003	280: NIL	M86	02R	0017	24	0
9	2350	SIA005	B744	E28	P628	L750	EDDF	300	2354	2357	2359	0006	280: NIL	M85	02R	0020	26	1
10	2300	QFA3	B744	C26	L759	A466	EDDF	320	2335	2339	0001	0008	280: 10<QFA2	M84	02R	0025	50	**25**
11	2335	BAW02	B744	C13	L759	A466	EGLL	300	2355	2357	0012	0019	280: 10<QFA3	M83	02R	0037	42	**17**
12	2355	SIA006	B744	E24	L759	L750	LSZH	280	0004	0014	0036	0045	280: 16<BAW02	M85	02R	0059	55	**30**
13	0100	SIA007	B772	F37	L759	L750	EKCH	320	0057	0100	0101	0106	280: 10<SIA006	M83	02R	0114	17	0

* Delay = "x" less 25 minutes (negative values displayed as 0)

Flight Distribution										
					N877	P628	L759	M770	Total	%
0	0	0	0	0	1	2	10	0	13	100

Number of flights without delay	6	46.15%
Number of flights delayed from 1 to 15 minutes	2	15.38%
Significant Delays :		
Number of flights delayed from 16 to 30 minutes	5	38.46%
Number of flights delayed from 31 to 45 minutes	0	0.00%
Number of flights delayed from 46 to 60 minutes	0	0.00%
Number of flights delayed from 61 to 75 minutes	0	0.00%
Number of flights delayed more than 76 minutes	0	0.00%

Nos of flights delayed > 15 minutes	5
Total delay (in minutes)	116
Average delay per flight (in minutes)	23.2
Percentage of Flights Delayed	38.46%

Legend : Insert all timings in the following format:-
HH:MM eg. 23:55
All timings after 2400 or 0125 should be typed as 24:00 or 25:25 if it falls on the following day

W : B : YYS

BREAK DOWN OF DELAYS

S/N	CSN	ETD (A)	RCL (B)	FL APPVD (C)	P/B (D)	TIME TAXI (E)	ATD (F)	ATC lapse (C - B)	Push delay (D - C)	STD Diff (D - A)	Taxi lapse (F - E)	REMARKS
1	SIA002	2300	2300	2301	2301	2309	2318	0:01	0:00	0:01	0:09	Aircraft was initially No 2 in sequence behind XXX. However, XXX's ATC was cancelled and YYY becomes No 1. Revised ATC given at 2301.
2	BAW01	2240	2309	2311	2312	2318	2328	0:02	0:01	0:32	0:10	ATC cancel at 2251 and 2259. New ATC issued at 2311.
3	AFR001	2325	2317	2318	2321	2326	2339	0:01	0:03	0:00	0:13	
4	SIA003	2320	2320	2322	2327	2334	2345	0:02	0:05	0:07	0:11	
5	KLM001	2330	2320	2323	2327	2337	2350	0:03	0:04	0:00	0:13	
6	QFA1	2320	2319	2325	2342	2350	0002	0:06	0:17	0:22	0:12	
7	QFA2	2325	2324	2328	2352	2357	0015	0:04	0:24	0:27	0:18	Aircraft not able to pushback earlier due XXX pushback from C23. Aircraft was sent to 02L to expedite departure to be 10 minutes behind XXX However, was not able to let aircraft depart as an arrival YYYY4 was 6nm final.
8	DLH001	2359	2353	2356	0001	0003	0017	0:03	0:05	0:02	0:14	ATC cancel at 2310. New ATC issued at 2339.
9	SIA005	2350	2354	2357	2359	0006	0020	0:03	0:02	0:09	0:14	
10	QFA3	2300	2335	2339	0001	0008	0025	0:04	0:22	1:01	0:17	
11	BAW02	2335	2355	2357	0012	0019	0037	0:02	0:15	0:37	0:18	Aircraft's taxiing speed was slow.
12	SIA006	2355	0004	0014	0036	0045	0059	0:10	0:22	0:41	0:14	Aircraft reached holding point 02R at 0053. However, an arrival (XXX) was on 6nm final, so was not able to let XXX depart until after the arrival. XXXX was last on the sequence.
13	SIA007	0100	0057	0100	0101	0106	0114	0:03	0:01	0:01	0:08	

Appendix 2 (AIRPORT NAME) DEPARTURES TO EUROPE ENTERING KABUL FIR BETWEEN 2000 AND 2359UTC (OPERATIONAL TRIAL)

Date: 00 Jan 06

S/N	ETD	Aircraft		Bay	BoB Route	Sub-Route	To	FPL LVL	Time FL Req (A)	Time FL Appvd	Time Push Back	Time Taxi	ATFM Level	Gate Time Assigned By BOBCAT	ATO At Entry Gate	Mach No	RWY	AWUT	ATD (B)	Raw Delay (B)-(A)	*Delay (mins)
		Callsign	Type																		
1	2300	SIA002	B744	E5	L759	L750	LFPG	300	2300	2301	2301	2309				M84	02R		2318	18	0
2	2240	BAW01	B744	C24	L759	A466	EGLL	280	2309	2311	2312	2318				M84	02L		2328	19	0
3	2325	AFR001	B772	E3	L759	L750	LFPG	320	2317	2318	2321	2326				M84	02R		2339	22	0
4	2320	SIA003	B744	F56	P628	L750	EGLL	300	2320	2322	2327	2334				M86	02R		2345	25	0
5	2330	KLM001	B744	D46	L759	A466	EHAM	300	2320	2323	2327	2337				M84	02R		2350	30	5
6	2320	QFA1	B744	C23	L759	A466	EGLL	320	2319	2325	2342	2350				M84	02L		0002	43	**18**
7	2325	QFA2	B744	C22	L759	L750	LFPG	320	2324	2328	2352	2357				M84	02L		0015	51	**26**
8	2359	DLH001	B744	E4	N877	L750	EDDF	300	2353	2356	0001	0003				M86	02R		0017	24	0
9	2350	SIA005	B744	E28	P628	L750	EDDF	300	2354	2357	2359	0006				M85	02R		0020	26	1
10	2300	QFA3	B744	C26	L759	A466	EDDF	320	2335	2339	0001	0008				M84	02R		0025	50	**25**
11	2335	BAW02	B744	C13	L759	A466	EGLL	300	2355	2357	0012	0019				M83	02R		0037	42	**17**
12	2355	SIA006	B744	E24	L759	L750	LSZH	280	0004	0014	0036	0045				M85	02R		0059	55	**30**
13	0100	SIA007	B772	F37	L759	L750	EKCH	320	0057	0100	0101	0106				M83	02R		0114	17	0

* Delay = "x" less 25 minutes (negative values displayed as 0)

Flight Distribution										
P570	M300	N563	P574	N571	N877	P628	L759	M770	Total	%
0	0	0	0	0	1	2	10	0	13	100

Number of flights without delay	6	46.15%
Number of flights delayed from 1 to 15 minutes	2	15.38%
Significant Delays :		
Number of flights delayed from 16 to 30 minutes	5	38.46%
Number of flights delayed from 31 to 45 minutes	0	0.00%
Number of flights delayed from 46 to 60 minutes	0	0.00%
Number of flights delayed from 61 to 75 minutes	0	0.00%
Number of flights delayed more than 76 minutes	0	0.00%

Nos of flights delayed > 15 minutes	5
Total delay (in minutes)	116
Average delay per flight (in minutes)	23.2
Percentage of Flights Delayed	38.46%

Legend : Insert all timings in the following format:
HH:MM eg. 23:55
All timings after 2400 or 0125 should be typed as
24:00 or 25:25 if it falls on the following day

W : B : YYS

BREAK DOWN OF DELAYS

S/N	CSN	ETD (A)	RCL (B)	FL APPVD (C)	P/B (D)	TIME TAXI (E)	ATD (F)	ATC lapse (C - B)	Push delay (D - C)	STD Diff (D - A)	Taxi lapse (F - E)	REMARKS
1	SIA002	2300	2300	2301	2301	2309	2318	0:01	0:00	0:01	0:09	Aircraft was initially No 2 in sequence behind XXX. However, XXX's ATC was cancelled and YYY becomes No 1. Revised ATC given at 2301.
2	BAW01	2240	2309	2311	2312	2318	2328	0:02	0:01	0:32	0:10	ATC cancel at 2251 and 2259. New ATC issued at 2311.
3	AFR001	2325	2317	2318	2321	2326	2339	0:01	0:03	0:00	0:13	
4	SIA003	2320	2320	2322	2327	2334	2345	0:02	0:05	0:07	0:11	
5	KLM001	2330	2320	2323	2327	2337	2350	0:03	0:04	0:00	0:13	
6	QFA1	2320	2319	2325	2342	2350	0002	0:06	0:17	0:22	0:12	
7	QFA2	2325	2324	2328	2352	2357	0015	0:04	0:24	0:27	0:18	Aircraft not able to pushback earlier due XXX pushback from C23. Aircraft was sent to 02L to expedite departure to be 10 minutes behind XXX However, was not able to let aircraft depart as an arrival YYYY4 was 6nm final.
8	DLH001	2359	2353	2356	0001	0003	0017	0:03	0:05	0:02	0:14	ATC cancel at 2310. New ATC issued at 2339.
9	SIA005	2350	2354	2357	2359	0006	0020	0:03	0:02	0:09	0:14	
10	QFA3	2300	2335	2339	0001	0008	0025	0:04	0:22	1:01	0:17	
11	BAW02	2335	2355	2357	0012	0019	0037	0:02	0:15	0:37	0:18	Aircraft's taxiing speed was slow.
12	SIA006	2355	0004	0014	0036	0045	0059	0:10	0:22	0:41	0:14	Aircraft reached holding point 02R at 0053. However, an arrival (xxxx) was on 6nm final, so was not able to let yyy depart until after the arrival. XXXX was last on the sequence.
13	SIA007	0100	0057	0100	0101	0106	0114	0:03	0:01	0:01	0:08	

BAY OF BENGAL COOPERATIVE ATFM ADVISORY SYSTEM

TRAINING GUIDELINES FOR AIR NAVIGATION SERVICE PROVIDERS

DRAFT VERSION 1.0
11 May 2006

Table of Contents

1. Introduction

Purpose of the Training Guidelines

1.1 The purpose of this guideline is to assist ANSPs to achieve their responsibilities in managing aircraft involved in the BOBCAT program from pre-departure to into the Kabul FIR.

General

1.2 It is proposed that States of the ICAO Asia/Pacific Region within the Bay of Bengal, South Asia and Pakistan airspace will implement an operational trial of an integrated Bay of Bengal Cooperative Air Traffic Flow Management System (BOBCAT) commencing on 6 July 2006. The trial will be conducted under the auspices of the ICAO Bay of Bengal ATS Coordination Group – ATFM Task Force. The ATFM operational trial will be preceded by a 7 day ghosting period commencing on 29 June 2006.

1.3 The ATFM service is advisory in nature and will be provided by Aeronautical Radio of Thailand LTD (AEROTHAI) from the Bangkok Air Traffic Flow Management Unit (ATFMU).

1.4 The ATFMU will utilize the BOBCAT system in exercising its responsibility for the ATFM activities within the Bay of Bengal and South Asia areas for the ATS routes, flight levels for westbound aircraft entering the Kabul FIR between 2000 to 2359UTC daily. This responsibility will be managed in coordination with aircraft operators and ANSPs in the FIRs concerned.

1.5 The ATFM service will be limited to slot allocation/management for westbound flights transiting the Kabul FIR. The objectives of the ATFM services are to:

a) Reduce ground and en-route delays;

b) Maximize capacity and optimize the flow of air traffic entering the Kabul FIR;

c) Provide an informed choice of routing and flight level selection;

d) Alleviate unplanned in-flight rerouting and technical stops; and,

e) Assist regional Air Navigation Service Providers (ANSPs) in planning and managing future workload in the light of forecast increases of traffic flows within the area.

1.6 The operational trial will manage westbound flights transiting the Kabul FIR at specified times by satisfying minimum spacing requirements at established gateway fix points in the vicinity of the eastern boundary of the Kabul FIR.

1.7 Mandatory slot allocation will be managed via internet access to the automated BOBCAT system of the Bangkok ATFMU.

1.8 BOBCAT will provide advisory ATFM information only. ANSPs continue to retain responsibility for tactical ATS and traffic management.

1.9 The ATFMU will operate from 0600UTC to 2359UTC daily and will be responsible for westbound flights only. The Bangkok ATFMU may be contacted as follows:

Website:	https://www.bobcat.aero/
Telephone:	+66-2-287-8024, +66-2-287-8025
Fax:	+66-2-287-8027
Tel/Fax:	+66-2-287-8026
E-mail:	atfmu@bobcat.aero
AFTN:	VTBBZDZX

2. Identification of ATS routes, flight levels and applicable hours

2.1 All westbound flights intending to transit the Kabul FIR between 2000UTC and 2359UTC daily on ATS routes A466, L750, N644 from FL280 to FL390 inclusive and V390/G792 from FL310 to FL390 inclusive shall participate in the operational trials of BOBCAT.

2.2 In order to ensure availability of an initial slot for westbound departures from designated airports in northern India and Pakistan, (currently identified as VIDP, OPKC and OPLA), FL280 has been reserved in BOBCAT for priority allocation to departures from these airports.

2.3 Aircraft departing from airports east of India will have priority for FL310 to FL390.

2.4 Notwithstanding priorities mentioned in paragraph 2.2 and 2.3 above, aircraft may submit slot requests for any of the available levels to enter the Kabul FIR mentioned in paragraph 2.1 above.

3. BOBCAT Operating Procedures

Slot Allocation Process

3.1 The slot allocation process is divided into 3 phases, namely the Slot request, initial Slot allocation and finally Slot distribution to airline operators and ANSPs. All operators concerned are required to submit slot requests to the BOBCAT system by logging onto https://www.bobcat.aero/ and completing the electronic templates provided.

Slot Requests

3.2 Slot requests including preferred ATS route, flight level and Maximum Acceptable Delay (MAD) should be lodged between 0001 UTC and 1200 UTC on the day of operation. Slot requests may subsequently be amended up until 1200 UTC, which shall be the cut-off time. To enhance opportunities of preferred slot allocation, airline dispatchers are encouraged to submit additional options in case their first choice is not available. This may include alternative route, flight level and changes to MAD.

3.3 As BOBCAT will allocate FL280 on a priority basis to facilitate departures from northern India and Pakistan, dispatchers responsible for submitting slot request for these aircraft are encouraged to include FL280 as one of the option in their slot request.

3.4 Flights that were not allocated a slot although a slot request was submitted prior to the cut-off time (1200UTC), and flights that did not submit a slot request by the cut off-time, should select a slot from the listing of unallocated slots available immediately after slot distribution has been completed.

Slot Allocation

3.5 Slot allocation will take place shortly after the cut-off time at 1200UTC. BOBCAT will process and generate the slot allocation based on the information submitted in the slot request.

Slot Distribution

3.6 Notification of results will be distributed via the BOBCAT website “Slot Allocation” page not later than 1300UTC. In cases where the recipient has difficulties in receiving this information on the website, alternative arrangements for notification of slot allocation (e.g. E-mail, Fax, and Telephone) should be coordinated with the ATFMU.

3.7 Flights departing without an allocated slot will tactically be accommodated after participating flights have been processed and may expect delays for requested routes and flight levels.

3.8 After the slot allocation has been published at https://www.bobcat.aero/, aircraft operators may:

a) View the slot allocation result for flight planning purposes;

b) Cancel the assigned slot; and/or,

c) Request a change of slot allocation to another available slot by viewing available slot and selecting their preferred option.

3.9 ANSPs may view the slot allocation results at https://www.bobcat.aero by selecting Slot Allocation page.

3.10 Once aircraft operators are satisfied with the slot allocation, they should submit their ATS flight plan using the time, route and level parameters of the allocated slot.

3.11 In addition the ATFMU (VTBBZDZX) shall be included in the list of AFTN addressees for ATS messages (e.g. DEP, DLA, CHG and CNL) related to flights participating in the BOBCAT program.

Pilot in Command – Role and Responsibilities

3.12 In accordance with ICAO PANS ATM provisions, it is the responsibility of the Pilot in Command (PIC) and the operator to ensure that the aircraft is ready to taxi in time to meet AWUT window. The PIC shall be kept informed via their dispatcher of any changes to the Allocated Wheels Up Time (AWUT), Kabul FIR gateway fix(es) times and flight parameters (route/level) allocated by BOBCAT.

3.13 The PIC shall include the AWUT in the initial ATC clearance request.

3.14 The PIC, in collaboration with ATC, shall arrange take-off as close as possible to the AWUT.

3.15 In circumstances where it becomes obvious that the AWUT and the allocated slot time in Kabul FIR gateway fix will not be met, a new slot allocation should be obtained by the most expeditious means (e.g. via coordination between flight dispatcher, PIC, ATC and ATFMU).

ANSP – Role and Responsibilities

3.16 In accordance with ICAO PANS ATM provisions, flights with an ATFM slot allocation should be given priority for take off over other departures to facilitate compliance with AWUT.

3.17 AWUT shall be included as part of the initial ATC clearance.

3.18 In collaboration with airline operators, ATC shall ensure that every opportunity and assistance is granted to a flight to meet AWUT and allocated Kabul FIR gateway(s) times.

3.19 When requested by the PIC prior to push back or if for some other reason after push-back, there is some delay which would cause the aircraft to miss the AWUT and eventually the Kabul Entry waypoint slot time, ATC shall assist the PIC by coordinating with the ATFMU for a new slot allocation.

3.20 As guidance for airline operators in estimating WUT, ANSPs shall notify ATFMU of Standard Taxi Time (STT) for their departure aerodromes. Any additional temporary changes, e.g. taxi way works etc, which will affect STT, would be also notified to the ATFMU.

3.21 The ATFMU (VTBBZDZX) shall be included in the list of AFTN addressees for NOTAMs regarding any planned activities that could affect slot allocation (e.g. reservation of airspace/closure of airspace, non-availability of routes, etc).

Management of AWUT and Flow Buffer

3.22 The management of BOBCAT aircraft in the departure phase is critical to the overall success of the ATFM operation. Therefore, flight subjected to ATFM during departure should be given priority in obtaining their AWUT ahead of other departing aircraft in accordance with ICAO ATM-PANS (ATFM section) provisions.

3.23 Control Tower staff should be aware of fundamental issues to ensure the success of a smooth transition from pushback to takeoff for these aircraft. These items include:

a) Time aircraft calls for pushback;

b) Time aircraft commences taxiing; and,

c) The use of Standard Taxi Time (SST) from commencement of pushback to the runway threshold.

3.24 It should be noted that in interpreting AWUT and Allocated ETO at Kabul entry waypoints, an aircraft may depart within reasonable buffer time of the AWUT without any required coordination. Such buffer time to the AWUT must not compromise adherence to the allocated slot time at the Kabul entry waypoint.

3.25 The Control Tower should monitor the progress of aircraft prior to pushback request in order to assist as necessary if a short delay occurs.

3.26 In the event that an aircraft is likely to depart outside its AWUT, the control tower may consider the following options:

a) When an aircraft is ready to depart before the AWUT, the aircraft could be allowed to depart provided the PIC advises that the aircraft can arrive at the Kabul FIR entry waypoint within the allocated slot time;

b) When an aircraft departure is minimally delayed and missed the AWUT, the aircraft could be allowed to depart provided that the PIC reported the aircraft will be able to arrive at the Kabul FIR entry waypoint within the allocated slot time;

c) In any event, this procedure should not jeopardize the following aircraft's slot allocation for entry into the Kabul FIR; and,

d) When an aircraft could not meet its AWUT and it would not be able to arrive at Kabul FIR entry waypoint within the allocated slot time, a new slot allocation shall be obtained from Bangkok ATMFU.

3.27 The departing ACC concerned should be advised of any delay or time gained resulting from deviation from AWUT, so that they may be able to assist with different control techniques (track shortening/lengthening, increase/decrease of Mach No.) for the aircraft to make up or lose time to meet the allocated slot time at the Kabul FIR entry waypoint.

3.28 With regard to para. 3.27 and 3.28, these procedures should not jeopardize the given slot allocation of other aircraft’s for entry into the Kabul FIR.

4. Procedures for Operations of Special Flights Exempted from ATFM

4.1 The following flights are exempted from ATFM slot allocation:

a) Humanitarian or medical flights; or,

b) State aircraft with Head of State on board.

4.2 Flights exempted from ATFM shall indicate the exemption in their flight plan (Field 18 – STS-ATFM EXMP).

4.3 AIS offices concerned shall forward the flight plan information to the ATFMU (at AFTN: VTBBZDZX).

Flight affected by Special flight e.g. VIP movement

4.4 BOBCAT will provide advisory ATFM information only.

4.5 ANSPs retain responsibility for tactical ATS and traffic management during this period.

4.6 At the departure aerodrome, where necessary to do so, ATC shall assist the affected flight(s) by coordinating with ATFMU for a new AWUT.

4.7 Flights with slot allocations which may be affected by the exempted aircraft during the en-route phase should be tactically managed by ANSP(s) concerned.

5. Interaction between ANSPs and the BOBCAT system

5.1 Only authorized personnel are permitted to logon to the BOBCAT website. A designated person within the administration is responsible for submitting notification of the new nominee on the application form provided and submitting this form to the Bangkok ATFMU by fax or email.

5.2 ANSPs may view the slot allocation results page and customize the screen to suit functional requirements of each position with respect to airspace characteristics or working environment, etc. For example:

a) Departure aerodrome may choose to view only departure traffic from specific airport or airports, showing AWUT information;

b) Area control (e.g. Lahore ACC) may wish to view ETO at Kabul FIR entry waypoints as well as DI or;

c) ACC involved with departure airport(s) may also choose to view departure information (AWUT) from the aerodrome(s) involved as well as Kabul FIR entry waypoints.

5.3 Customizations mentioned in Para. 5.2 can be saved in "Preference" section of the BOBCAT website. Detailed instruction of how to save these preferences may be found in "Help Pages" part of "Documents" section of the BOBCAT website.

5.4 ANSPs are recommended to log into the BOBCAT website as soon as possible after the cut off time and monitor any subsequent changes made by airline operators.

Coordination Requirements Between Units Within an ANSP

5.5 This sub-section looks at proposed coordination arrangements between the ACC(s), Control Tower(s) and the AIS Office operated within a single ANSP. These procedures may vary at different locations depending on what BOBCAT facilities are available in each unit.

5.6 Where the Control Tower does not have the benefit of viewing BOBCAT slot allocation results, the ACC is responsible to ensure that information of AWUT is distributed to the control tower in the correct order to assist them in managing aircraft subjected to ATFM.

Coordination Between ACC and Control Tower

5.7 The ACC and Control Tower should arrange internal coordination procedures for distribution of Slot Allocation Result information to the Control Tower.

5.8 The ACC shall forward any updated ATFM information relevant to the concerned aerodrome to the Control Tower as soon as possible.

5.9 ANSPs responsible for departure aerodrome(s) may designate an ATS unit as a point of contact for any relevant ATFMU activities affecting the Control Tower e.g. missed wheel-up time coordination and new AWUT assignment provided by the Bangkok ATFMU. These coordination procedures should be introduced to ensure information is passed effectively to the aircraft involved. (See AIP)

5.10 In the event that, an aircraft departs slightly outside the given slot time, the Control Tower shall notify the ACC, so that assistance may be provided to the aircraft to enable him to make up or lose time to make its designated Kabul Entry time.

En-Route ACCs

5.11 En-Route ACCs should give all possible assistance to flights subjected to ATFM in order to meet their Kabul entry waypoint time and flight level.

5.12 Lahore ACC should arrange flights to be at the Flight Level allocated by BOBCAT at the Kabul entry waypoint. An alternative Flight Level may also be used depending on the traffic situation.

6. AIS Office Involvement in BOBCAT

6.1 The AIS office is responsible for coordinating with Bangkok ATFMU to assist in obtaining a slot allocation for airline operators who do not have access to the BOBCAT website.

6.2 The AIS office shall ensure that an airline operator proposing to submit a flight plan for a flight entering the Kabul FIR during the BOBCAT time period has a slot allocation.

6.3 The AIS office should shall provide a BOBCAT Slot Request form to the airline operators who proposes to enter the Kabul FIR during the hours of BOBCAT operations. Once completed, this form shall be submitted by the AIS office on behalf of the airline operator to the Bangkok ATFMU for processing. The slot request form is shown at **Appendix F** of the ATFM Users Handbook.

6.4 In the case of an AIS office that has access to the BOBCAT website, the aircraft's slot allocation result may be viewed and used by the airline operator to complete his ATS flight plan.

6.5 With regard to an AIS office which is unable to access the BOBCAT website, the Bangkok ATFMU shall transmit the aircraft's slot allocation result to the AIS office by fax or other means. This information shall be relayed to the airline operator by the AIS office to allow an ATS flight plan to be filed.

6.6 The AIS office should shall also ensure that, when the flight plan is finally submitted with reference to the Estimated Elapsed Time (EET) from departure airport to the Kabul FIR entry point as well as the ATS Route and Flight Level entering the Kabul FIR before transmission by AFTN.

6.7 In the circumstances that the airline operator submits slot request prior to the cutoff time, the following steps should be undertaken by the airline operators:

a) The airline operator shall contact the AIS office to obtain the result of his slot allocation request. If satisfied, submit a flight plan using the slot allocation result; or,

b) Otherwise, request a new slot allocation through the AIS office.

6.8 The Bangkok ATFMU (AFTN Address: VTBBZDZX) shall be included in the list of AFTN addressees for ATS messages (e.g. FPL, DLA, DEP, CHG, CNL) related to affected flights.

7. Contingency Procedures

Airspace Contingencies Affecting Sovereign Airspace

7.1 In the event of closure of ATS routes, flight levels or other airspace within a State's sovereign airspace that occurs prior to the cut off time for BOBCAT slot allocation and which may affect BOBCAT operations, Bangkok ATFMU should be notified as soon as possible. In turn, Bangkok ATFMU will pass on this information to airline dispatchers to re-file slot request on routes or flight levels which are not affected. Other ANSPs will also be advised by Bangkok ATFMU of this situation.

7.2 In the circumstance where closure of ATS routes or airspace as mentioned in Para 6.1 above occur after the slot allocation cutoff time, the following procedures are applicable:

a) If aircraft are already airborne, ANSPs will tactically manage these aircraft based on spare slot allocations en route as well as obtaining slots for them through the Kabul FIR in coordination with PIC to avoid diversions; or,

b) If aircraft have not yet departed, new slot allocations will be coordinated between Bangkok ATFMU and dispatchers/ANSPs for aircraft that would be affected by the closure.

Airspace Contingencies Affecting International Airspace

7.3 Extreme weather conditions, e.g. cyclonic conditions, affecting international airspace may cause:

a) Diversion on routes; or,

b) Aircraft electing not to plan on routes affected by the extreme weather condition.

7.4 Under condition mentioned in Para 6.3 a), ANSPs may elect to increase longitudinal spacing between aircraft being affected. If this situation occurs prior to cutoff time, Bangkok ATFMU should be notified so that they can increase the appropriate spacing within the BOBCAT system. If this situation occurs after the cutoff time, the following procedures are applicable:

a) For aircraft already airborne, ANSPs would need to tactically manage these aircraft. In doing so, coordination with Bangkok ATFMU should be considered if it will affect aircraft which are not yet airborne.

b) For aircraft who have not departed, there are two options:

If it is impractical to re-flight plan, proceed in accordance with a) above; or,

If time is available, coordinate with Bangkok ATFMU to obtain a new slot which will avoid the affected airspace.

7.5 Under conditions mentioned in Para 6.3 b), this will increase the amount of aircraft on routes not affected by the weather condition, which may cause more departure delays. Airline dispatchers should consider using alternative routing through Kabul FIR so that it will lessen the delay in slot allocation through Kabul FIR. In this case, it is suggested that judicious use of all available routes and flight levels through the Kabul FIR be applied to reduce excessive delays.

Reduction in Airspace Capacity due to Other Reasons

7.6 In circumstances where an ANSP is required to increase the longitudinal spacing between aircraft, e.g. sudden loss of staff, degradation in facilities, etc., the ANSP affected would normally take NOTAM action regarding the event as well as contacting Bangkok ATFMU with details and the resultant effect on BOBCAT operations. Bangkok ATFMU would coordinate with all concerned advising them of any changes which would affect BOBCAT operation.

7.7 ANSP responsible for areas affected by any contingency for an area or areas which may affect normal BOBCAT operations shall notify Bangkok ATFMU of the contingency and possible consequences to aircraft as soon as possible, so appropriate action and coordination can be taken.

Communication Issues

7.8 In the event that an ANSP is unable to access the BOBCAT website, the following means of communication with Bangkok ATFMU shall be used;

a) Telephone: +66-2-287-8024, +66-2-287-8025

b) Fax : +66-2-287-8027

c) Tel/Fax: +66-2-287-8026

d) AFTN : VTBBZDZX

7.9 In the event that an ACC is unable to log onto the BOBCAT website, the Bangkok ATFMU, on being advised, will send a copy of the slot allocation results to the affected ACC ensuring that:

a) For departure airports, AWUTs are sorted the correct order;

b) For en-route ACCs, appropriate Kabul entry waypoint(s) are selected and aircraft allocations are sorted in the correct order of ETO with Flight Level;

Complete Failure of BOBCAT System

7.10 In the event of a complete failure of the BOBCAT system, the Bangkok ATFMU shall notify all parties concerned and advise that ATFM slot allocation procedures are suspended until further notice. Procedures will be applied by States concerned in accordance with existing bi-lateral agreements.

Non-Completion of Flight

7.11 In circumstances where an aircraft aborts his flight en route and either diverts or returns for various reasons, this information should be transmitted to Bangkok ATFMU so that his original slot allocation for entry into the Kabul FIR can be cancelled and made available for use by other aircraft.

8. System Fault and Event Report

8.1 An ATFM system fault is defined as a significant occurrence affecting an ATS unit, an aircraft operator or ATFMU resulting from the application of ATFM procedures.

8.2 Aircraft operators and ATC units experiencing an ATFM system fault should complete an ATFM System Fault and Event Report Form from the ATFM Users Handbook as **Appendix E** and forward it to the ATFMU at the address indicated on the form. The ATFMU will analyze all reports, make recommendations/suggestions as appropriate and provide feedback to the parties concerned to enable remedial action.

DRAFT

REPORT OF THE SPECIAL COORDINATION MEETING BETWEEN KUALA LUMPUR/SINGAPORE/BANGKOK ACCS ON BAY OF BENGAL ATS ROUTES UTILIZATION

CHIANGMAI, THAILAND

27 - 28 March 2006

PART 1 HISTORY OF THE MEETING

1. *Introduction*

1.1 A Special Coordination Meeting between Kuala Lumpur Singapore and Bangkok ACCs on Bay of Bengal ATS routes utilization was held at the Chiang Mai Air Traffic Control Centre, Chiang Mai, Thailand from 27 to 28 March 2006.

2. *Attendance*

2.1 The Meeting was attended by 12 participants from Malaysia, Singapore and Thailand. A complete list of participants is at Appendix A to this report.

3. *Proposal for Chairman of the meeting*

3.1 After a short discussion, it was unanimously agreed that Mr. Tinnagorn Choowong, Air Traffic Control Manager, En-route Air Traffic Management Department, act as Chairman of the meeting.

4. *Opening of the meeting*

4.1 The Chairman extended a warm welcome to all participants and thanked everyone for taking the time to discuss the important issue of flight level allocation in the Bay of Bengal area. He pointed out that the purpose of this meeting was to concentrate on alternative proposals in flight level allocation to aircraft operating on the parallel route structure during the busy westbound nighttime period compared to aircraft on the crossing routes. If a satisfactory agreement could be reached between the three ACCs concerned, the outcomes from the meeting would be brought forward to IATA, on behalf of the international airlines and other Bay of Bengal States concerned for agreement.

4.2 The Chairman further reminded the meeting that this topic had been raised at the recently held BBACG/17 Meeting as well as the ICAO Special Coordination Meeting (SCM) of the ATFM Task Force Core Team. Both meetings urged States involved to discuss and find a workable solution on this subject.

4.3 The Chairman mentioned that this meeting would give the opportunity for the three ACCs namely Kuala Lumpur, Singapore and Bangkok to A Special Coordination Meeting between Kuala Lumpur Singapore and Bangkok ACCs on Bay of Bengal ATS routes utilization was held at the Chiang Mai Air Traffic Control Centre, Chiang Mai, Thailand from 27 to 28 March 2006 If an agreed solution could be obtained, the next step would be to advise ICAO of progress made and seek consultations with other partners concerned, namely other Bay of Bengal States and IATA.

4.4 It was emphasized that the meeting should focus on the Europe bound traffic and crossing traffic during the busy westbound nighttime period in the first instance, due to the enhanced flight characteristics of most aircraft operating on the crossing routes compared to other periods during the day.

5. *Documentation and Working Language*

5.1 The working language of the meeting as well as all documentation was in English.

PART 2 REPORT ON AGENDA ITEMS

Agenda Item 1: Adoption of Agenda

1.1 The meeting reviewed the provisional agenda and after discussion, agreed to adopt the Agenda mentioned below:

Agenda Item 1: Adoption of Agenda

Agenda Item 2: Overview of traffic situation in Bay of Bengal

Agenda Item 3: ATM for ATS routes and Flight Level utilization

Agenda Item 4: Summary of discussion and future work

Agenda Item 5: Other business

Agenda Item 2: Overview of traffic situation in Bay of Bengal

Review of the Current Situation Presented by Aerothai

2.1 The meeting reviewed the present Flight Level Allocation Scheme (FLAS) and the No-PDC arrangement within the Bay of Bengal which was implemented after the EMARSSH and RVSM programmes came into force as shown in the table below.

ATS routes	Flight Level Allocation (FLA)
N877, P628, L759, M770, P570, M300, N563, N571, P574	FL280, 320, 340, 360 (FL360 subject to coordination) 380, 400
P646 and L507	All Westbound levels available
P762, L301, N895, L645, A327	FL300, 360 (FL360 subject to coordination)

2.2 This FLA is still in operation however, during the busy westbound night time traffic period, there appears to be unacceptable delays to aircraft on the parallel route system operating through the Kabul FIR. A major factor in these delays relate to the amount of large heavily laden aircraft departing out of Singapore and sometimes from Kuala Lumpur, proceeding to destinations in excess of 14 hours flight time who cannot reach FL320 in their initial stages of flight.

2.3 It was suggested by Kuala Lumpur and supported by Singapore that consideration should be given to changing the FLA by allocating FL300 to the parallel routes and FL320 to the crossing routes. This would allow a smoother flow of traffic departing from Kuala Lumpur and Singapore airports that plan on the parallel route system. In turn, all aircraft that use the crossing routes should have no difficulty in using FL320 as their initial flight level.

2.4 Bangkok welcomed the proposal by Kuala Lumpur and stated that it had considerable merit. They further advised that both Kuala Lumpur and Singapore may wish to consider an alternative proposal in that the parallel routes be given FL280, FL300 and FL320, with the crossing routes to be allocated FL340 and FL260.

Agenda Item 3: Analyze Flight Level Utilization in the Bay of Bengal

3.1 The meeting was also presented with the traffic movement data being collected on ATS routes concerned base on 24 hours and during Europe bound rush period as follows;

3.2 H24 westbound traffic data

Parallel Routes		**Crossing Routes**	
M770	3	N895	2
L759	29	L301	44
P628	9++	P762	5
N571	12++	L645	3
P574	7++	A327	2
Total	60++	Total	56

3.3 Westbound traffic data between 1330-1830 UTC

Parallel Routes		**Crossing Routes**	
M770	2	N895	2
L759	10	L301	12
P628	9	P762	2
N571	12	L645	1
P574	7	A327	2
Total	21	Total	19

3.4 The meeting recognized that, although the comparison between figures given on parallel routes versus crossing routes shows little difference, the nature of the aircraft equipment and operating time to destination is dissimilar in that crossing route aircraft are normally operating to a closer destination. In addition, information gained indicates that the vast majority of these crossing aircraft have the ability to climb rapidly to a higher level. In cases where this is not possible, these crossing aircraft should be effectively managed through coordination between the departing ACCs concerned.

Agenda Item 4: Proposed solutions for more efficient flight level usage by aircraft

4.1 The meeting discussed various options submitted and finally agreed on the scenario offered by Bangkok ACC as a preferred scenario for further discussion as shown in the Table below:

ATS Routes	**Flight Level Allocation Scheme (FLAS)**
N877, P628, L759, M770, N571, P574, N563, M300	FL280, 300, 320
P646 and L507	All Westbound levels available
P762, L301, N895, L645, A327	FL260, 340

- *Flight levels mentioned above should be used for flight-planning purposes for flights departing (aerodrome of departure) or overflying (FIR) from xxxxUTC to xxxxUTC and operating on the routes mentioned in the table above.*

- *Availability of flight levels specified above are subject to ATC requirements.*

- *Other flight levels may also be available subject to traffic after departure.*

- *FL360 and above may be flight planned on all routes and will be available subject to ATC requirements.*

4.2 The meeting looked at the possibility of using the preferred FLA system on a 24 hour basis. It was mentioned by Bangkok that an important parameter which was considered in putting forward their proposal mentioned in 2.4 was the large number of high performance aircraft which operated on crossing routes during the period of 1330 to 1830UTC should be able to meet the requirement to be at FL340 before entering the area of conflict with the parallel route system. Statistics were not taken on a 24 hour basis as the problem between parallel and crossing routes was not as critical outside these hours. Nevertheless, it was known that several low-cost carriers and inter-regional operations planned outside these busy hours with aircraft of less performance, which may have difficulty in making the FL340 requirement.

4.3 The meeting also discussed and agreed that a trial period for the proposed new FLA should be arranged. A date for this trial would need to be coordinated between all ACCs involved as well as IATA and airlines concerned.

4.4 The meeting identified time period effected to the traffic from the following departure points;

a) Singapore departure between 1430-1830 UTC
b) Kuala Lumpur departure between 1500-1900 UTC
c) Bangkok departure (crossing route) between 1430-1930 UTC

However, further analysis should be undertaken by the three ACCs to ensure that these time intervals cover all situations before introducing any change to the present arrangements.

4.5 The meeting agreed that the new FLA arrangement was a positive step forward to alleviate traffic flow congestion prior to the second phase of ATFM in the Bay of Bengal and in addition would assist to ease present traffic congestion and reduce delays in the lead-up to BOBCAT operations.

4.6 There were several suggestions put forward to the meeting that may assist in the management of airspace capacity:

a) MNT application for the faster in front
b) Coordination for Non-standard FL during the night rush
c) Dynamic rerouting procedures
d) Missed wheels-up time procedure in the event that flights exceeded the route capacity.

4.7 Finally the meeting agreed to work together and study traffic data regarding flight profile and associated matters to be used in further discussions and finalization of the proposed FLA at subsequent related meetings.

Agenda Item 5: Other Business

5.1 There were no other business related to the meeting

6. Closing remarks

6.1 Mr. Tinnagorn Choowong expressed his sincere thanks to all participants for their constructive contribution in dealing with this important item. It was obvious that there is unity on this subject and he considered that, by working together, a positive outcome is possible.

6.2 On behalf of the other ACCs present at the meeting, Mr. Harizan b. Mohd Yatim extended his genuine appreciation to AEROTHAI for hosting this meeting on behalf of all participants.

ATTACHMENT A

List of participants

The Special Coordination Meeting between Kuala Lumpur/Singapore/Bangkok ACCs
On Bay of Bengal ATS Routes Utilization

Name	Organization
.1Mr. Tinnagorn Choowong	Air Traffic Control Manager En-route Air Traffic Management AEROTHAI Chairman of the meeting
.2Miss Pongchawee Jinreung	Air Traffic Control Manager En-route Air Traffic Management AEROTHAI
.3Mr. Watee Attagamol	Air Traffic Control Manager Bangkok Area Control Centre AEROTHAI
.4Mr. Winyou Sriwong	Air Traffic Control Manager Bangkok Area Control Centre AEROTHAI
.5Mr. John E Richardson	Air Traffic Management Consultant AEROTHAI
.6Mr. Kuah Kong Beng	Chief Air Traffic Control Officer, CAA Singapore
7. Mr. Edmund Heng	Project Officer (Airspace) CAA Singapore
8. Mr. Harizan Bin Mohd Yatim	Director Air Traffic Services DCA Malaysia
9. Mr. Lim Kim Seang	Director, Kuala Lumpur Air Traffic Control Centre DCA Malaysia
10. Mr. Ghazali Said	Deputy Director, Kuala Lumpur Air Traffic Control Centre DCA Malaysia
.11Mr. Omran Zakaria	Deputy Director, Kuala Lumpur Air Traffic Control Centre DCA Malaysia
12. Mr. Syed Syahrill Syed Salim	Air Traffic Control Officer Kuala Lumpur Air Traffic Control Centre DCA Malaysia