REPORT OF THE FIRST BANGLADESH, INDIA, MYANMAR, THAILAND COORDINATION MEETING (BIMT/1)

Bangkok, Thailand, 18-19 August 2014

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

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BIMT/1 History of the Meeting

1.1 Introduction

- 1.1.1 The First India, Myanmar, Thailand ATM Coordination Meeting (IMT-ATM/CM/1) was held in Bangkok, Thailand from 13th to 14th January, 2011. The meeting was established to discuss and collaborate on ATM coordination issue focusing on the three States involved.
- 1.1.2 The First Bangladesh, India, Myanmar, Thailand ATM Coordination Meeting (BIMT/1) was held at ICAO Regional Office, Bangkok, Thailand from 18th to 19th August, 2014. The meeting was an extension of the previous meeting involving three States to increase the scope of discussion to cover the Northern Bay of Bengal region.

1.2 Officers, Secretariat and Participants

- 1.2.1 The meeting was facilitated by Mr. Tinnagorn Choowong, Vice President (Air Traffic Management), Aeronautical Radio of Thailand Limited (AEROTHAI). The secretariat of the meeting was Mr. Piyawut Tantimekabut, Engineering Manager, Network Operations Air Traffic Management Centre, AEROTHAI, assisted by Mr. Sugoon Fucharoen, Engineer, Network Operations Air Traffic Management Centre, AEROTHAI.
- 1.2.2 Thirty-nine (39) participants from India (Airports Authority of India: AAI), Myanmar (Department of Civil Aviation Myanmar: DCA Myanmar), Thailand (Aeronautical Radio of Thailand: AEROTHAI, and Department of Civil Aviation, Thailand: DCA Thailand), the International Air Transport Association (IATA), ICAO Asia-Pacific Regional Office (ICAO APAC RO), and ICAO Asia-Pacific Regional Sub-office (ICAO RSO) attended the meeting. Four (4) invited observers from Malaysia (Department of Civil Aviation: DCA Malaysia) and Indonesia (Directorate General of Civil Aviation: DGCA, and AirNav Indonesia) also attended the meeting. The list of participants can be found in **Appendix A**.

1.3 Opening of the Meeting

- 1.3.1 Mr. Tinnagorn Choowong welcomed the participants to Thailand and the meeting, and remarked on the importance of collaboration between Bangladesh, India, Malaysia, and Thailand in working toward harmonized air traffic flow within the Bay of Bengal sub-region. Participants were encouraged to have open discussion in a relaxed collaborative atmosphere throughout the meeting.
- 1.3.2 Mr. Noppadol Pringvanich, Chief, ICAO RSO, provided remarks on ICAO RSO's roles and responsibilities in supporting PBN and ATFM/CDM Implementation efforts in Asia-Pacific region. Recently established in June 2013, ICAO RSO has been actively working with Asia-Pacific States in activities including operational approval, procedure design trainings, airspace

BIMT/1 History of the Meeting

design workshops and more. The main goal of the office is to work toward harmonized PBN implementation and air traffic flow management (ATFM) throughout the region.

1.4 Documentation and Working Language

- 1.4.1 The meeting was conducted in English. All meeting documentation was in English.
- 1.4.2 A set of presentation slides was prepared for the meeting and is attached in **Appendix B**.

Summary of Conclusions:

Conclusion 1: AIDC Implementation Plan Sharing

The meeting agreed to the sharing of AIDC implementation plans and experience gained from the implementation process, with India being the leading State in sharing the standardization details and experience.

Conclusion 2: Limitations and Solutions to Current FL Allocation Scheme over Bay of Bengal

The meeting recognized and understood the limitation that the current FL allocation scheme puts on route capacities in the face of growing traffic demand. ICAO RSO has been requested and agreed to be the coordinator and to work with BIMT States in considering several complementary solutions including:

- 1. Reduction of longitudinal separation minima on existing L301 route
- 2. Revision of the current FL allocation scheme
- 3. Feasibility study for parallel routes in the vicinity of L301 route

India expressed that to increase capacity on traffic following L301, the easiest way is to implement 50NM RLS or RNP4 based 30NM RLS already implemented in Indian FIRs. India also brought to the notice of the meeting that L301 is crossing many active ATS routes serving Flights from Malaysia/Singapore/Indonesia and FLAS provide a safety net and revising the same would require traffic analysis and safety assessment. India / Myanmar / Thailand agreed to consider jointly implementing RNP4 based 30NM longitudinal spacing to enhance capacity for traffic on L301 and ICAO RSO agreed to serve as the coordinator in this activity.

Conclusion 3: Enhancement of Traffic Flow in the Northern Bay of Bengal

The meeting agreed on enhancement efforts of traffic flow through route realignment/development/enhancement among several FIRs in the Northern Bay of Bengal region with ICAO RSO as the main coordinator working with points of contact from member States and IATA. The candidate traffic flows to be considered are:

- 1. Bangkok Yangon Kolkata flow in the vicinity of L507
- 2. Bangkok Chittagong Dhaka New Delhi flow in the vicinity of G463
- 3. Southeast Asia Bay of Bengal Middle East flow in the vicinity of P646
- 4. Southeast Asia Bay of Bengal Middle East flow in the vicinity of N895, L301.

The near-term milestone for this project has been accepted and points of contact assigned. The information is detailed in **Appendix C**.

Conclusion 4: ATFM Agenda Revision

Upon the presentation of the draft term of reference of NARAHG by the ICAO RSO, the meeting agreed to enhance the existing ATFM agenda of BIMT meetings to include similar discussion topics. Upon consultation with ICAO RSO and ICAO APAC RO, the meeting agreed that BIMT can serve as the initial platform for sub-regional discussion and harmonization on ATFM over the Bay of Bengal.

Conclusion 5: Capacity Enhancement of L301 and L507 Routes

Myanmar presented information on upcoming CNS/ATM modernization, which includes improved surveillance capability. The meeting recognized the opportunity to leverage the benefits from this planned development and agreed to prioritize the reduction of longitudinal separation minima on L301 and L507 routes. Action Item 3 details the activities to be carried out on this project.

Conclusion 6: Communication and Surveillance Data Sharing

The meeting agreed that communication and surveillance data sharing among States would enable more efficient and seamless operations, as well as possibility for improvement in air traffic handling between bordering FIRs. Currently there are ongoing coordination processes between Thailand – Myanmar and Myanmar – India, and all States were encouraged to look at the sharing of both communication and surveillance data for maximum benefits. Related reports and papers from the meeting will highlight this initiative.

Conclusion 7: BIMT Meeting Frequency

The meeting agreed on annual in-person meeting with more frequent teleconferences in between as appropriate. Currently the preference is on quarterly teleconferences. Several suggestions have been made on coupling BIMT in-person meetings with existing ICAO functions. ICAO RSO and IATA have agreed to assist in coordinating the upcoming teleconference using existing infrastructure.

Summary of Action Items:

Action Item 1: Sharing of AIDC Implementation Plan

To lead the effort in AIDC Implementation Plan sharing among BIMT States, India will provide standardization details of the ongoing implementation process in the country.

Action Item 2: Prioritization of Traffic Flow Enhancement in the Northern Bay of Bengal Referencing Conclusion 3, BIMT States agreed to provide ICAO RSO with prioritizations of the 4 traffic flows presented along with expected operational dates by the end of September 2014.

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Action Item 3: Preparation for Reduced Separation Minima on L301 and L507

Referencing Conclusion 5, to support the preparation for reduced separation minima on L301 and L507, the following action items have been agreed by member States:

Action Item 3.1: ICAO RSO to serve the main coordinator supporting the actions leading to reduced separation minima on L301 and L507

Action Item 3.2: IATA to conduct fleet readiness status and near-term equipage plan among airlines on the use of ADS-B and ADS-C/CPDLC

Agenda Item 1: Adoption of Agenda

1.1 The meeting adopted the following agenda:

Agenda Item 1: Adoption of Agenda

Agenda Item 2: Report of India-Myanmar-Thailand ATM Coordination Meeting

(IMT-ATM/CM/1): 13-14 January 2011

Agenda Item 3: Air Traffic Management (ATM) Matters

3.1 ATM System Implementation

3.2 Air Traffic Service (ATS) Coordination

3.3 Airspace Management

3.4 Air Traffic Flow Management (ATFM)

Agenda Item 4: Future Directions
Agenda Item 5: Any Other Business

Agenda Item 2: Report of IMT-ATM/CM/1

- 2.1 The meeting briefly discussed the previous coordination meeting between India, Myanmar, and Thailand held on 13-14 January 2011, and noted the long time elapsed since then. The necessity for more frequent and regular meetings was voiced and generally agreed upon.
- 2.2 The meeting agreed on developing regular annual in-person meetings with more frequent teleconferences in between as appropriate. The detail of the next meeting will be discussed in Agenda Item 5 of the report.

Agenda Item 3: ATM Matters

Agenda Item 3.1: ATM System Implementation

- 3.1 India presented their Air Traffic Management (ATM) system updates. The presentation is included **Appendix B**. Some notable initiatives include:
 - 3.1.1 Several PBN routes connecting Southeast Asia to Middle East and Europe in progress with reduced longitudinal separation minima
 - 3.1.2 Several PBN approach procedures in the implementation process
 - 3.1.3 21 ADS-B ground stations in the regulatory approval process
 - 3.1.4 Continuous Descent Operations (CDO) and Continuous Climb Operations (CCO) in practice on opportunity basis with RNAV 1 SIDs/STARs enablers
 - 3.1.5 Upper airspace (FL260+) harmonization programs in all of India's FIRs
 - 3.1.6 Initiatives on flexible use of airspace (FUA)
 - 3.1.7 Research and Development Center with Human-in-the-Loop simulation at Hyderabad in collaboration with Mitre Corporation

- 3.1.8 Air Traffic Flow Management (ATFM) contract awarded and initial phase planned
- 3.1.9 GAGAN India's GNSS augmentation system certified for navigation support
- 3.1.10 GBAS pilot project at Chennai Airport
- 3.2 IATA recommended other member States to follow India in implementing CDO and CCO. ICAO RSO encouraged attendance at training workshops organized by the office on this topic.
- 3.3 Myanmar presented their ATM system updates following India. The presentation is included in **Appendix B**. Some notable initiatives include:
 - 3.3.1 EUROCAT-C system to be upgraded in 2014 by Thales
 - 3.3.2 AIDC message exchange to be discussed in detail after the upgrade with Thailand as well as India and Bangladesh
 - 3.3.3 PBN implementation for approach and en-route phases in collaboration with ICAO RSO
 - 3.3.4 Ongoing CNS/ATM Master Plan and ICAO RSO Technical Support Plan in development
- 3.4 ICAO APAC RO stressed the importance of a holistic Seamless ATM Plan that covers not just CNS/ATM but also AIM, MET, and other developments as well.
- 3.5 Thailand presented their ATM system updates in the same manner, with presentation included in **Appendix B**. Some notable initiatives include:
 - 3.5.1 Ongoing nationwide ATS system upgrade along with the new combined Bangkok ACC and Approach Control Center expected to be operational in 2016-2017 timeframe
 - 3.5.2 AIDC Implementation Plan with neighboring FIRs to support ICAO APAC Seamless ATM Plan
- 3.6 Substantial discussion surrounding AIDC implementation plans followed the presentation. To facilitate the effort, the meeting agreed to **Conclusion 1** and **Action Item 1.**

Conclusion 1: AIDC Implementation Plan Sharing

The meeting agreed to the sharing of AIDC implementation plans and experience gained from the implementation process, with India being the leading State in sharing the standardization details and experience.

Action Item 1: Sharing of AIDC Implementation Plan

To lead the effort in AIDC Implementation Plan sharing among BIMT States, India will provide standardization details of the ongoing implementation process in the country.

Agenda Item 3.2: Air Traffic Service Coordination

- 3.7 Monitoring Agency for Asia Region (MAAR) presented information on coordination errors between adjacent ATC units, with total risk trend over Bay of Bengal airspace on the rise. The errors manifest themselves as a leading cause in large height deviation (LHD) incidents, with major sub-cause being the lack of flight level (FL) revisions. Several hotspots along FIR boundaries were pointed out. ICAO APAC RO also reminded the meeting that the rising risk also shows the success in incident reporting mechanism.
- 3.8 Myanmar supplemented MAAR presentation with their LHD (Cat E) incident statistics. Mitigation measures include the use of ATC coordinator's initial upon transfer of message and the marking of flight progress strips.
- 3.9 Several mitigation measures were proposed including the use of ADS-C and CPDLC, as well as AIDC data sharing system. It was noted, however, that AIDC may not necessarily reduce risk if the system still relies on ATC inputting information into the system.
- 3.10 The case of communication difficulties was mentioned in relation to ICAO APAC Seamless ATM Plan, Phase 1 (2015). The meeting agreed to discuss in detail this challenge during the subsequent Special Coordination Meeting (SCM) on ADS-B and VHF Data Sharing.
- 3.11 The meeting also looked at the limitations on current Flight Level Allocation Scheme (FLAS) on route capacity, particularly on congested routes such as L301 in the face of growing traffic demand. To minimize necessity of coordination at crossing points along L301, current FLAS assigns only FL260 and FL320 for the route. As this is one of the major routes from Bangkok westbound with many overflights and departures combined, the scheme proves inadequate. To alleviate this problem, the meeting agreed to **Conclusion 2**.

<u>Conclusion 2: Limitations and Solutions to Current FL Allocation Scheme over Bay of</u> <u>Bengal</u>

The meeting recognized and understood the limitation that the current FL allocation scheme puts on route capacities in the face of growing traffic demand. ICAO RSO has been requested and agreed to be the coordinator and to work with BIMT States in considering several complementary solutions including:

- 1. Reduction of longitudinal separation minima on existing L301 route
- 2. Revision of the current FL allocation scheme
- 3. Feasibility study for parallel routes in the vicinity of L301 route

India expressed that to increase capacity on traffic following L301, the easiest way is to implement 50NM RLS or RNP4 based 30NM RLS already implemented in Indian FIRs. India also brought to the notice of the meeting that L301 is crossing many active ATS routes serving Flights from Malaysia/Singapore/Indonesia and FLAS provide a safety net and revising the same would require traffic analysis and safety assessment. India/Myanmar/Thailand are agreed to consider jointly implementing RNP4 based 30NM longitudinal spacing to enhance capacity for traffic on L301 and ICAO RSO agreed to serve as the coordinator in this activity.

Agenda Item 3.3: Airspace Management

- 3.12 Thailand presented the progress in the development of RAIM Prediction System, which uses the same engine as EUROCONTROL's AUGUR RAIM Prediction Service. The system has been in trial period since October 2013 and is expected to achieve full operational status by October 2014 within Bangkok FIR.
- 3.13 RAIM Prediction presentation led to discussion of communication and surveillance coverage within this region. ICAO RSO remarked that the region should leverage the benefits from planned infrastructure improvements particularly in the northern Bay of Bengal. As a follow-up, ICAO RSO then presented a proposal for the enhancement of traffic flow in said region for discussion. The meeting agreed in the principle and developed **Conclusion 3** and **Action Item 2** to facilitate this development. Related details are included in **Appendix C**.

Conclusion 3: Enhancement of Traffic Flow in the Northern Bay of Bengal

The meeting agreed on enhancement efforts of traffic flow through route realignment/development/enhancement among several FIRs in the Northern Bay of Bengal region with ICAO RSO as the main coordinator working with points of contact from member States and IATA. The candidate traffic flows to be considered are:

- 1. Bangkok Yangon Kolkata flow in the vicinity of L507
- 2. Bangkok Chittagong Dhaka New Delhi flow in the vicinity of G463
- 3. Southeast Asia Bay of Bengal Middle East flow in the vicinity of P646
- 4. Southeast Asia Bay of Bengal Middle East flow in the vicinity of N895, L301.

The near-term milestone for this project has been accepted and points of contact assigned. The information is detailed in **Appendix C**.

Action Item 2: Prioritization of Traffic Flow Enhancement in the Northern Bay of Bengal Referencing Conclusion 3, BIMT States agreed to provide ICAO RSO with prioritizations of the 4 traffic flows presented along with expected operational dates by the end of September 2014.

Agenda Item 3.4: Air Traffic Flow Management

- 3.14 Thailand presented their ATFM Implementation updates, which include:
 - 3.14.1 Semi-manual ATFM operations for Southern sector in trial phase during the last quarter of 2014
 - 3.14.2 Multi-Nodal CDM/ATFM Network through Ground Delay Program and the use of Calculated Take-Off Time (CTOT) planned for June 2015
 - 3.14.3 New CDM/ATFM System procurement in progress with operational trial planned for September 2015
 - 3.14.4 Construction of ATM Network Management Centre in progress
- 3.15 India briefly discussed their ATFM system contract, which was awarded to ATEC-Brazil. Phase 1 of the development is to be implemented by November 2015
- 3.16 ICAO RSO presented the draft term of reference for the North-Asia Regional ATFM Harmonization Group (NARAHG) as an example to be considered by BIMT States. In working toward realizing regional ATFM harmonization, the meeting agreed to consider revising future meeting agenda as per **Conclusion 4.**

Conclusion 4: ATFM Agenda Revision

Upon the presentation of the draft term of reference of NARAHG by the ICAO RSO, the meeting agreed to enhance the existing ATFM agenda of BIMT meetings to include similar discussion topics. Upon consultation with ICAO RSO and ICAO APAC RO, the meeting agreed that BIMT can serve as the initial platform for sub-regional discussion and harmonization on ATFM over the Bay of Bengal.

Agenda Item 4: Future Directions

- 4.1 Myanmar presented updates on their CNS/ATM Systems Modernization. The substantial growth in traffic over and within Yangon FIR in the past decade presents several challenges in safety, capacity, and cost of operations. Their CNS/ATM master plan aims to address these challenges through, in the near- / mid-term, airspace sectorization, PBN implementation, and improvements of communications and surveillance capabilities. Special emphasis was placed on the 5 upcoming installations of ADS-B stations to cover current surveillance gaps that are limiting capacity for Bay of Bengal traffic flow in the 2014-2015 timeframe.
- 4.2 The meeting had extensive discussion on leveraging the planned benefits of improved surveillance coverage and data sharing within the Bay of Bengal FIRs, and agreed on **Conclusion 5** and **Action Item 3** to facilitate this enhancement.

Conclusion 5: Capacity Enhancement of L301 and L507 Routes

Myanmar presented information on upcoming CNS/ATM modernization, which includes improved surveillance capability. The meeting recognized the opportunity to leverage the benefits from this planned development and agreed to prioritize the reduction of longitudinal separation minima on L301 and L507 routes. Action Item 3 details the activities to be carried out on this project.

Action Item 3: Preparation for Reduced Separation Minima on L301 and L507

Referencing Conclusion 5, to support the preparation for reduced separation minima on L301 and L507, the following action items have been agreed by member States:

Action Item 3.1: ICAO RSO to serve as the main coordinator supporting the actions leading to reduced separation minima on L301 and L507

Action Item 3.2: IATA to conduct fleet readiness status and near-term equipage plan among airlines on the use of ADS-B and ADS-C/CPDLC

- 4.3 Thailand also presented their ADS-B implementation plan, noting that 5 ADS-B sites have already been installed and are expected to be operational by September 2015. Additionally the tentative plan on surveillance data sharing between Myanmar and Thailand over 2015-2017 timeframe was also discussed.
- 4.4 Following Thailand's presentation, the meeting discussed the possibilities of wider sharing of communications and surveillance data. The meeting recognized the importance of such initiative and agreed to **Conclusion 6**.

Conclusion 6: Communication and Surveillance Data Sharing

The meeting agreed that communication and surveillance data sharing among States would enable more efficient and seamless operations, as well as possibility for improvement in air traffic handling between bordering FIRs. Currently there are ongoing coordination processes between Thailand / Myanmar and Myanmar / India, and all States were encouraged to look at the sharing of both communication and surveillance data for maximum benefits. Related reports and papers from the meeting will highlight this initiative.

Agenda Item 5: Any Other Business

- 5.1 Upon the request by the meeting, ICAO RSO presented a presentation on Global progress and implementation status of PBN. PBN is considered the top three priorities of the Global Air Navigation Plan, along with CDO/CCO and ATFM.
- 5.2 ICAO RSO also presented an overall picture of PBN Planning and Implementation progress within APAC, noting that the ultimate goal is to have instrument approach procedures with vertical guidance for all instrument runway ends by 2016. Noting the percentage of runways with available PBN approach(es) as the key performance index agreed by ICAO Assembly Resolution, Asia-Pacific region is moving toward its 2014 target; however, there is still much work to be done.
- 5.3 The meeting was reminded of the SCM on ADS-B / VHF Data Sharing to be subsequently facilitated by ICAO APAC RO for involved parties.
- 5.4 The meeting report and joint information paper (IP) will be drafted and circulated to members within 1-2 weeks for comments, with the goal of submitting the joint IP to the upcoming ICAO Asia-Pacific Air Navigation Planning and Implementation Regional Group (APANPIRG/25) in September 2014. The IP will highlight ADS-B implementation plans and communication and surveillance data sharing initiatives within the region.

5.5 The frequency of BIMT meetings was revisited and members agreed on an annual inperson meeting with more frequent teleconferences in-between as appropriate. Suggestion was brought up to couple the annual meetings with existing ICAO functions, with the leading potential being SAIOACG meetings. **Conclusion 7** summarized the outcome of this discussion.

Conclusion 7: BIMT Meeting Frequency

The meeting agreed on annual in-person meeting with more frequent teleconferences in between as appropriate. Currently the preference is on quarterly teleconferences. Several suggestions have been made on coupling BIMT in-person meetings with existing ICAO functions. ICAO RSO and IATA have agreed to assist in coordinating the upcoming teleconference using existing infrastructure.

Closing of the Meeting

6.1 In closing, Mr. Tinnagorn, as facilitator of the meeting, thanked all delegates for attendance and active participation in the meeting's discussions as well as ICAO APAC RO for providing the support and venue for the meeting.

Appendix A: List of Participants

Name	Title / Organization	E-Mail Address		
India (2)				
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Appendix C: Enhancement of Traffic Flow in the Northern Bay of Bengal

C.1 Near-Term Milestone

End of August 2014: BIMT States to confirm relevant existing communication and

surveillance service volume and extension plan for 2015 and 2016 BIMT States to confirm information regarding relevant special use of

airspace

Early September 2014: In coordination with ICAO RSO, BIMT States to submit an information

paper to APANPIRG/25 on this activity as part of BIMT meeting

outcome

End of September 2014: ICAO RSO to submit draft detailed design and work plan for BIMT

states for review and finalization

15 October 2014: BIMT States to provide input on draft detailed design and work plan

November 2014: BIMT States to submit a joint Discussion Paper to DGCA Conference on

progress of the project and commitment to work plan

C.2 Points of Contact

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