



INTERNATIONAL CIVIL AVIATION ORGANIZATION

**TWENTY FIFTH MEETING OF THE
ASIA/PACIFIC AIR NAVIGATION PLANNING AND
IMPLEMENTATION REGIONAL GROUP (APANPIRG/25)**

Kuala Lumpur, Malaysia, 8 – 11 September 2014

**Agenda Item 3: Performance Framework for Regional Air Navigation Planning and
Implementation**
3.2: ATM
**REPORT OF THE FIRST MEETING OF
BANGLADESH, INDIA, MYANMAR, THAILAND ATM COORDINATION GROUP
(BIMT/1)**

(Jointly presented by Bangladesh, India, Myanmar and Thailand)

SUMMARY

BIMT ATM Coordination Group Meeting is held among States in the Northern Bay of Bengal, namely Bangladesh, India, Myanmar, and Thailand. The meeting is a platform for collaboration towards sub-regional harmonized ATM. This paper presents the report of the First meeting of BIMT ATM Coordination Group in August 2014, where ANSPs agreed to several conclusions and action items on data and implementation plan sharing and capacity enhancement efforts in the sub-region.

Strategic Objectives:

- A: **Safety** – Enhance global civil aviation safety
 B: **Air Navigation Capacity and Efficiency** – Increase the capacity and improve the efficiency of the global aviation system

1. INTRODUCTION

1.1 The Bangladesh, India, Myanmar, Thailand (BIMT) ATM Coordination Group was established to discuss and collaborate on Air Traffic Management (ATM) coordination issues focusing on the Northern Bay of Bengal region with agreed annual meetings and in-between teleconferences. The first meeting, BIMT/1, was held on 18-19 August 2014 in Bangkok, Thailand.

1.2 Delegates from India, Myanmar, Thailand, IATA, and ICAO Asia-Pacific Regional Office (ICAO APAC RO) and Regional Sub-office (ICAO RSO) participated in the meeting. Regrettably Bangladesh was unable to attend. Delegates from Malaysia and Indonesia also attended the meeting as observers.

2. DISCUSSION

2.1 The BIMT/1 meeting convened for the first time to discuss issues related to ATM coordination surrounding the Northern Bay of Bengal Region with the latest report provided in **Attachment 1**.

2.2 The work of BIMT coordination group would help drive the region toward a fully harmonized regional air traffic management, including air traffic flow management (ATFM) in Asia-Pacific, supporting Seamless ASEAN Sky initiative - an aviation aspect of ASEAN Economic Community (AEC) planned in 2015.

2.3 Delegates at BIMT/1 worked together to discuss and agreed on several initiatives to address the limited capacity in the face of growing traffic demand. The main conclusions of the meeting focused on data and implementation plan sharing and capacity enhancement for traffic flow in the region. The following paragraphs detail each of the conclusions achieved.

AIDC Implementation Plan Sharing

2.4 Harmonized AIDC implementation is one important tool that would allow for more efficient transfer of control between adjacent FIRs leading to reduced separation possibility. With each State having their own implementation plan, the BIMT States agreed on the sharing of plans and experience from the implementations. More detail on this is described in the BIMT/1 meeting report in **Attachment 1**.

Capacity Enhancement on L301 and Limitations of Current FL Allocation Scheme over Bay of Bengal

2.5 Delegates discussed limitations posed by the current Flight Level Allocation Scheme (FLAS) on L301, one of the major routes from Southeast Asia westbound. The current FLAS assigns only FL260 and FL320 on the route to minimize necessity of coordination at intersecting points with other routes along L301. This allocation proves inadequate for the traffic volume on this route. To alleviate this problem, ICAO RSO was requested and agreed to be the coordinator in considering several complementary solutions, including reduction of longitudinal separation, revision of current FLAS, and feasibility study of parallel routes near L301. As L301 intersects many ATS routes serving flights from Malaysia, Singapore and Indonesia, and the FLAS provides a safety net along this route, a joint implementation of reduced longitudinal using RNP4 30 NM separation as already implemented in Indian FIRs is considered a good initial step to increase capacity on L301. More detail regarding this issue is described in the report in **Attachment 1**.

Enhancement of Traffic Flow in the Northern Bay of Bengal

2.6 The Northern Bay of Bengal region has been seeing improvements in communication and surveillance coverage through different States' infrastructure upgrade plans. The BIMT States recognized the opportunity to leverage the planned benefits and agreed on enhancing several traffic flows in the region through route realignment / development / enhancement, with ICAO RSO as the main coordinator during 2015-2016 timeframe. Points of contact from the countries were assigned and near-term milestone agreed. More detail on this is described in the BIMT/1 meeting report in **Attachment 1**.

ATFM Agenda Revision

2.7 In facilitating the development of BIMT coordination group to become a platform for sub-regional discussion on ATFM over the Bay of Bengal, BIMT States agreed to revise future meeting agenda to include similar work items to the ongoing works of the North-Asia Regional ATFM Harmonization Group (NARAHG). More detail on this is described in the BIMT/1 meeting report in **Attachment 1**.

Capacity Enhancement of L301 and L507 Routes

2.8 BIMT States recognized the potentials from planned improvements in surveillance coverage and data sharing within the Bay of Bengal FIRs and agreed to leverage them by prioritizing the capacity enhancement effort on L301 and L507 through the reduction of longitudinal separation minima. More detail on this initiative is described in the BIMT/1 meeting report in **Attachment 1**.

Communication and Surveillance Data Sharing

2.9 Recognizing the importance of data sharing in enabling more efficient and seamless operations, BIMT States agreed to work toward more open communication and surveillance data sharing. Further details on member countries' communication and surveillance planned coverage can be found in **Attachment 2**. Attachment B of **WP/08** stemming from a Special Coordination Meeting involving Malaysia, India, Myanmar, Indonesia also addresses in detail this coordination.

2.10 In addition to the major conclusions mentioned above, three (3) action items were also agreed in order to facilitate the planned sub-regional harmonization. The action items are also detailed in the BIMT/1 meeting report in **Attachment 1**.

3. ACTION BY THE MEETING

3.1 The Meeting is invited to note the materials presented in this Information Paper.

**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

BIMT/1
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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

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.

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**.

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 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 in-person 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)		
Mr. Chandan Sen	General Manager (Air Traffic Management), Airport Authority of India	chandasen@aai.aero
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Mr. Tike Aung	Director (Air Navigation Service) Department of Civil Aviation, Myanmar	
Mr. Aung Myint Thein	Deputy Director (Air Traffic Management) Department of Civil Aviation, Myanmar	
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Grp.Capt. Sukoun Indeesri	Air Traffic Control Specialist Airport Standards Bureau Department of Civil Aviation Thailand	
Mr. Aphinun Vannangkura	Executive Vice President Aeronautical Radio of Thailand	
Mr. Tinnagorn Choowong	Vice President (Air Traffic Management) Aeronautical Radio of Thailand	

BIMT/1
Appendix A

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Mr. Winyou Sriwong	Chief of Operational Administration, Bangkok Area Control Aeronautical Radio of Thailand	
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Mr. Chumnan Ruechai	Director, Safety Management Department Aeronautical Radio of Thailand	
Mr. Somsak Kongthawornwattana	Director, Air Traffic Services Engineering Research and Development Department Aeronautical Radio of Thailand	somsak.ko@aerothai.co.th
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BIMT/1
Appendix A

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Ms. Pantip Changpradit	Air Traffic Control Manager Bangkok Area Control Centre Aeronautical Radio of Thailand	
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BIMT/1
Appendix A

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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

Country	Name	Title / Organization	E-Mail Address
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Myanmar	Mr. Tike Aung	Director (Air Navigation Service) DCA Myanmar	utikeaung@gmail.com
Thailand	Ms. Chananya Pinkeawprasert	Air Traffic Control Manager Bangkok Area Control Centre AEROTHAI	chananya.pi@aerothai.co.th
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ICAO RSO	Mr. Noppadol Pringvanich	Chief, ICAO APAC Regional Sub-office	npringvanich@icao.int



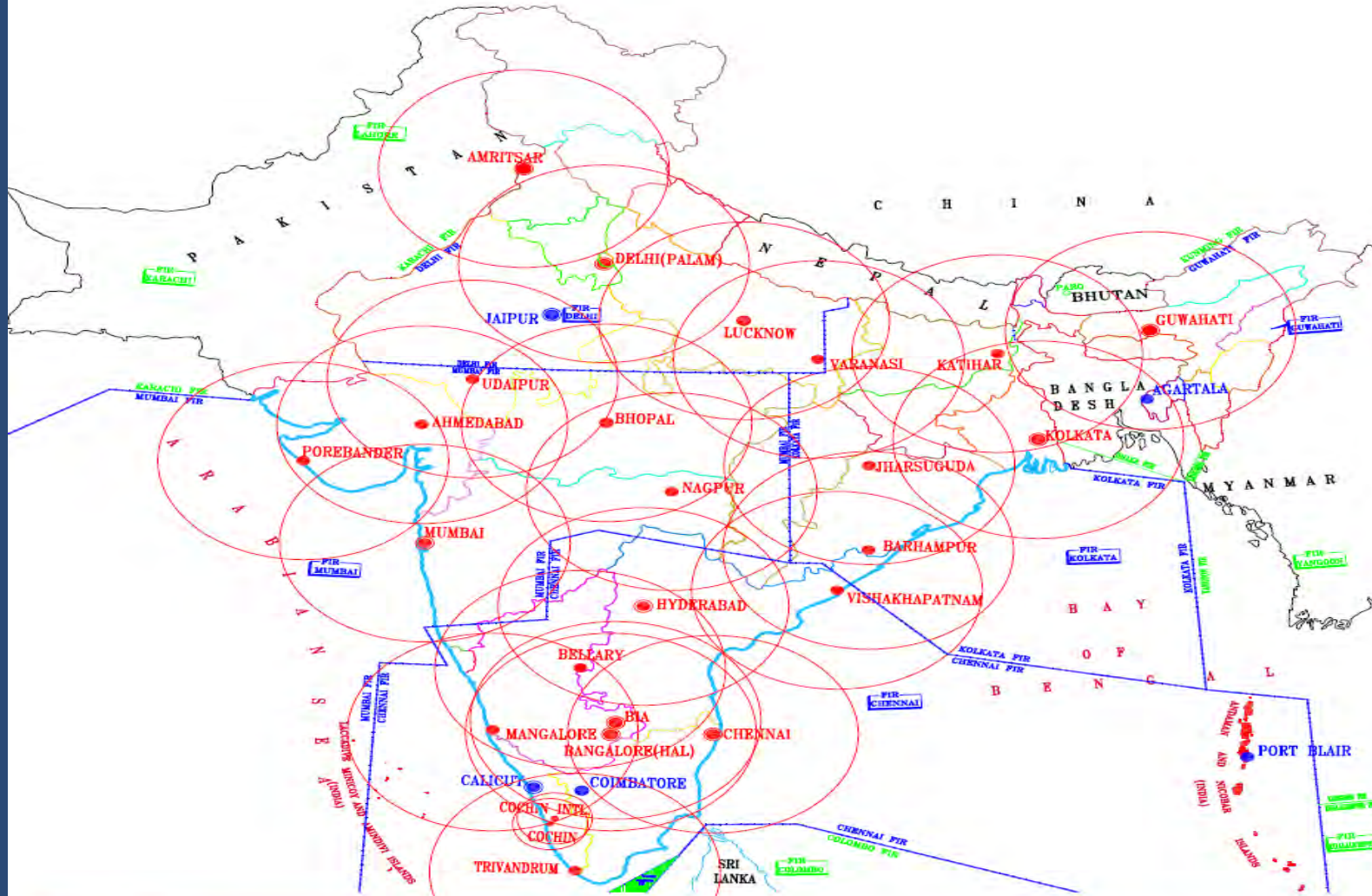
Air Navigation Services- India

ADS-B & RADAR

9

- 23 RADAR and 21 ADS-B GROUND STATIONS
- MAJOR INTERNATIONAL AIRPORTS HAVE REDUNDANT RADARS
- RADARS UNDER INSTALLATION IN THREE MORE LOCATIONS
- REGULATORY APPROVAL OF ADS-B GROUND STATIONS IN PROGRESS
- ADS-B INFORMATION INTEGRATED INTO THE ATS AUTOMATIONS SYSTEMS
- OPERATIONAL USE OF ADS-B ON OPPORTUNITY BASIS
- OPERATIONAL USE OF ADS-B IN TERMINAL AND ENROUTE AIRSPACE UNDER RAD & NRA ENVISAGED

RADAR COVERAGE WITH IN INDIAN FIR



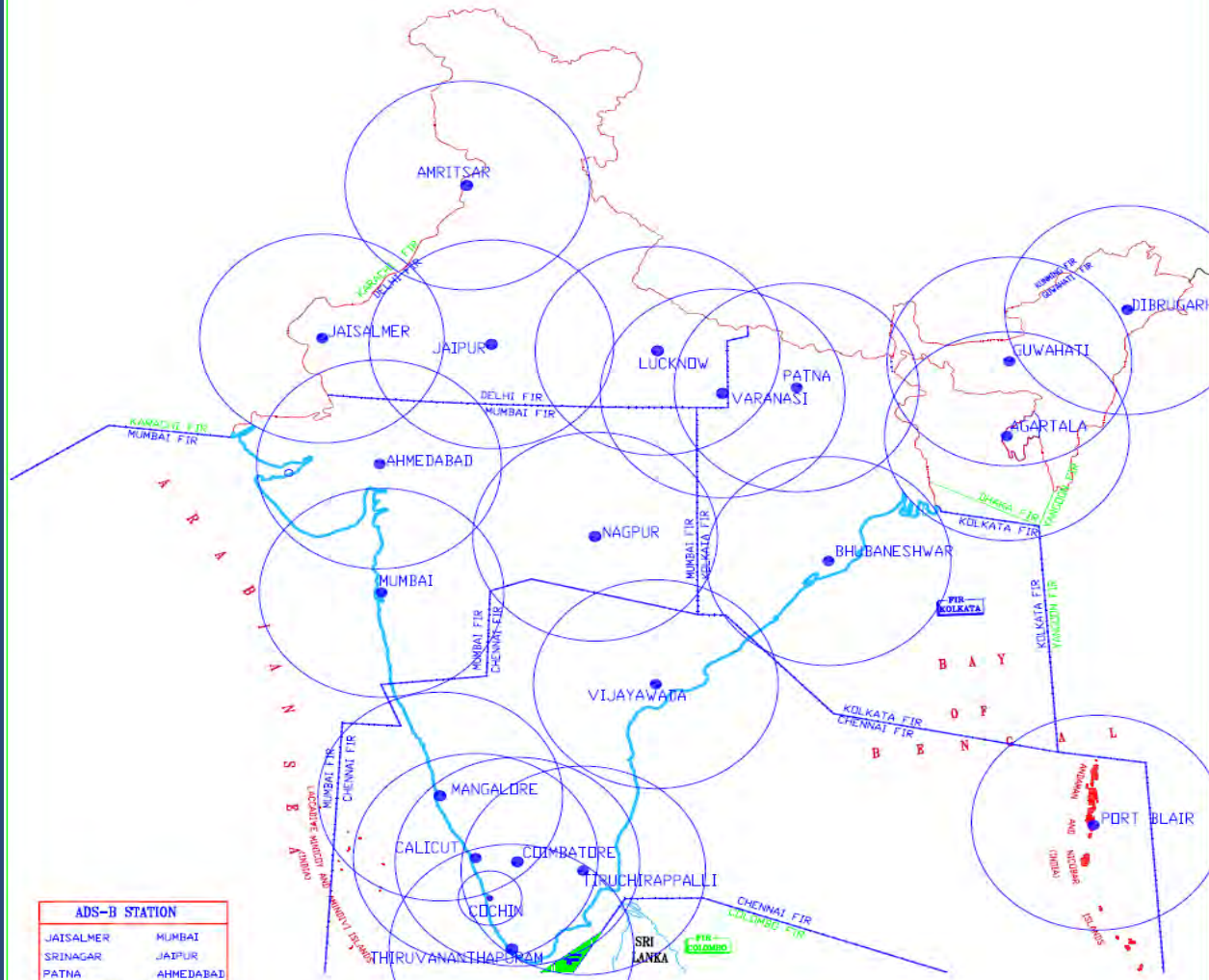
RADAR STATION			
CHEENNAI	HYDERABAD	DELHI	KOLKATA
COCHIN	NAGPUR	AMRITSAR	GUWAHATI
TRIVANDRUM	MUMBAI	VARANASI	KATIHAR
MANGALORE	COCHIN INTL (MS BARUDA)	POREBANDER	
BANGALORE (RAD)	BELLARY	VISHAKHAPATNAM	
BANGALORE INTL AIRPORT (RAD)	BHOPAL	JHARSUGUDA	
	UDAIPUR	BARHAMPUR	
	AHMEDABAD		



27 Jun 2014

REFERENCES
RADAR STATION

ADS-B COVERAGE WITHIN INDIAN FIR



ADS-B STATION	
JAISALMER	MUMBAI
SRINAGAR	JAIPUR
PATNA	AHMEDABAD
VIJAYAWADA	AMRITSAR
BHUBANESHWAR	AGARTALA
TIRUCHIRAPPALLI	LUCKNOW
DIBRUGARH	VARANASI
COCHIN	MANGALORE
PORT BLAIR	GUWAHATI
NAGPUR	COIMBATORE
CALICUT	THIRUVANANTHAPURAM

27 Jun 2014

Agenda Item 6

ADS-B Implementation Plan

ADS-B / VHF Data Sharing

ADS-B Implementation Plan

- Plan to install 5 ADS-B Stations

 - Phase I:

 - Sittwe & Coco Island
(installation completed)

 - Phase II:

 - Yangon, MIA & Myeik
(Installation will be in this year)

- Plan for Data sharing

 - 1 from India ADS-B Station (Port Blair)

- Addition to implement ADS-B Data Sharing with Agartala (India), Thailand and Malaysia.



ADS-B Coverage in YGN FIR



Phase I

Sittwe	2014
Coco Island	2014

Phase II

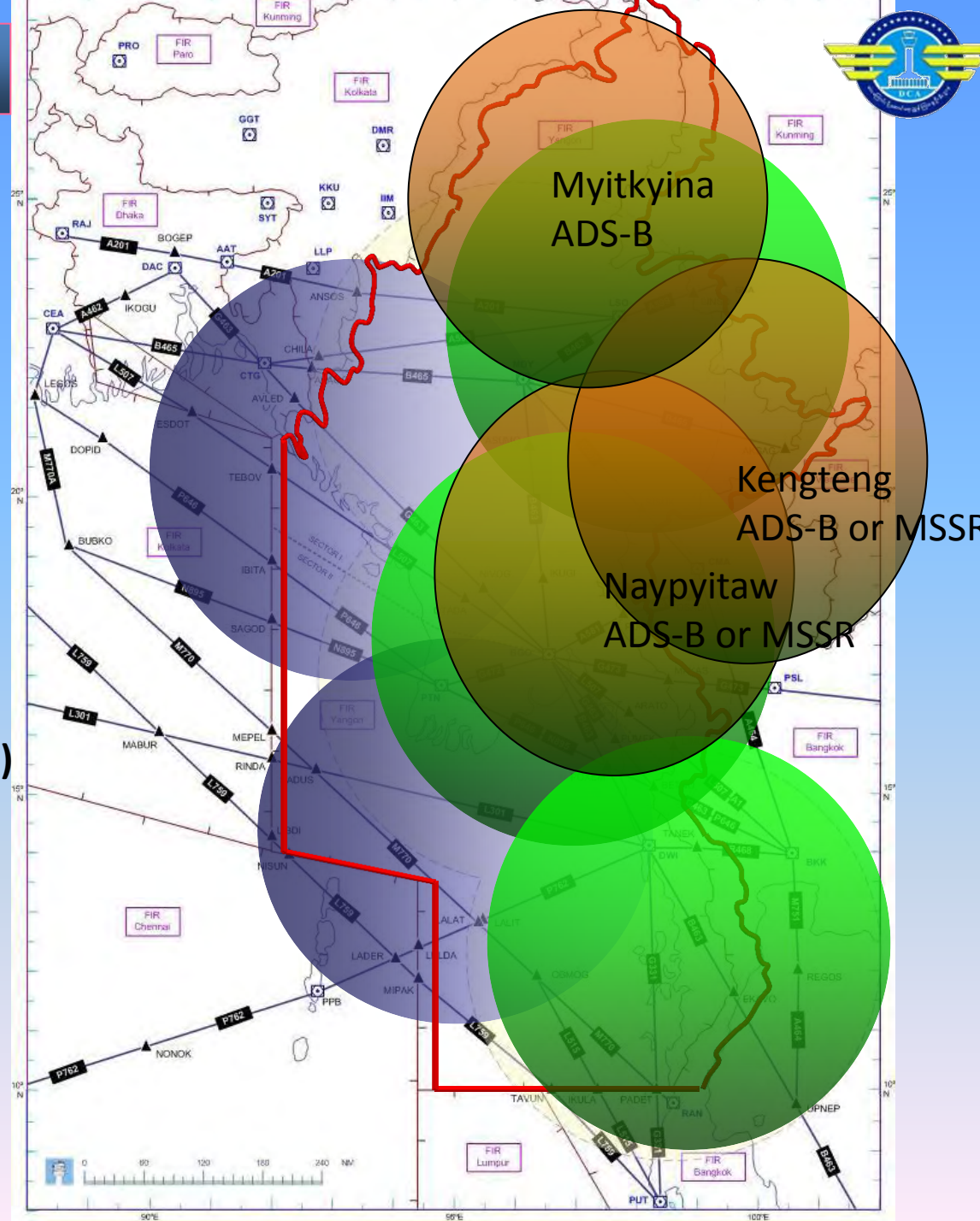
Yangon	2015
Lashio	2015
Myeik	2015

Phase III (Master Plan)

Myitkyina	2016
Kengteng	2016

OR New MSSR

Kengteng	2016
Naypyitaw	2016



Myanmar MSSR Radar Sites

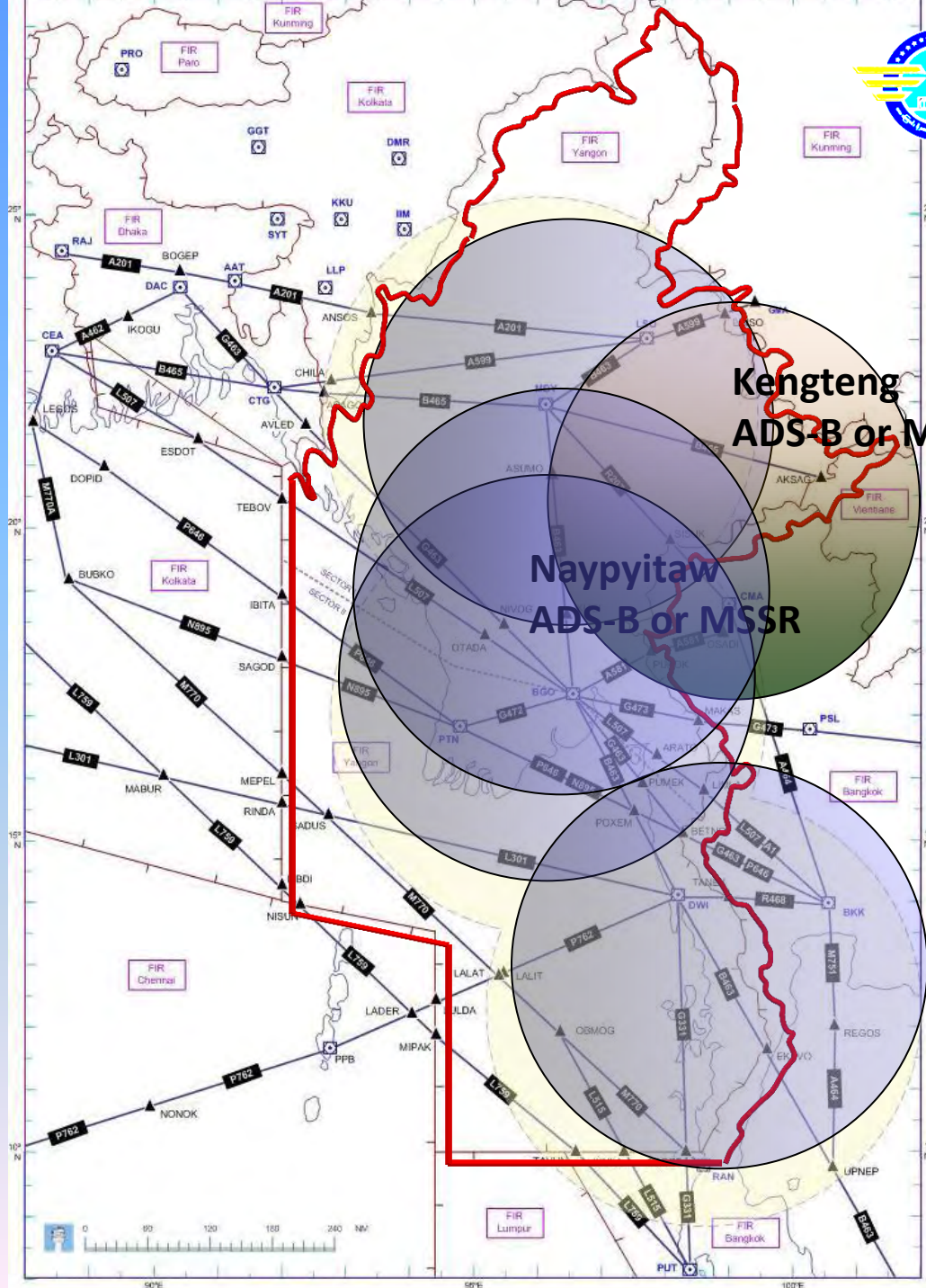


Current radar sites

- Mandalay
- Yangon
- Myeik

Future radar sites

- Kengteng
- Naypyitaw

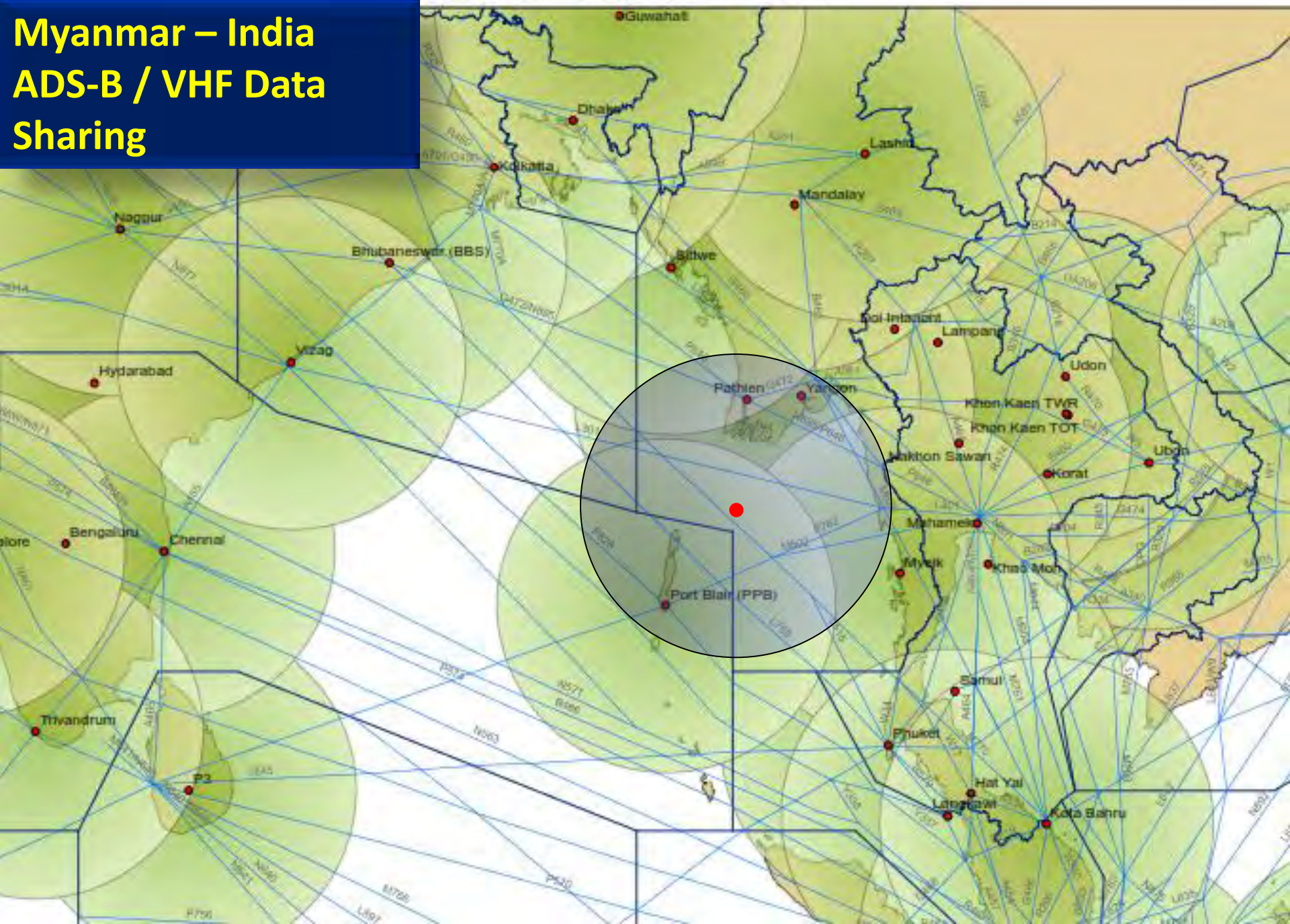


Kengteng
ADS-B or MSSR

Naypyitaw
ADS-B or MSSR

VHF Locations (Bay of Bengal)

Myanmar – India ADS-B / VHF Data Sharing



ADS-B / VHF Data Sharing

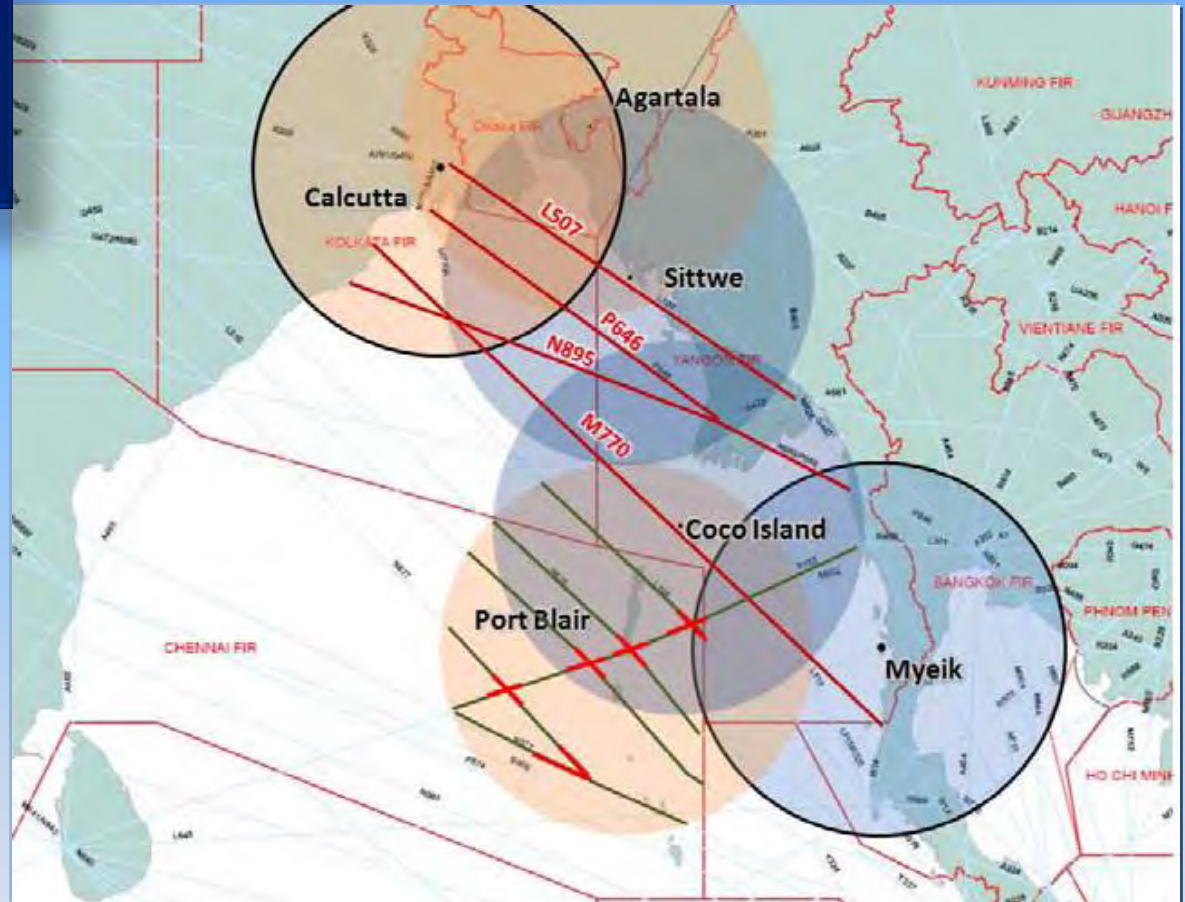
Myanmar – India ADS-B / VHF Data Sharing

□ ADS-B Data sharing

ADS-B (Co Co Island) and
ADS-B Station (Port
blair) on going process

□ Addition to implement
ADS-B Data Sharing
with Agartala (India) or
Kolkatta,

□ VHF Data sharing need
to be implemented in
those station.



ADS-B / MSSR Data Sharing

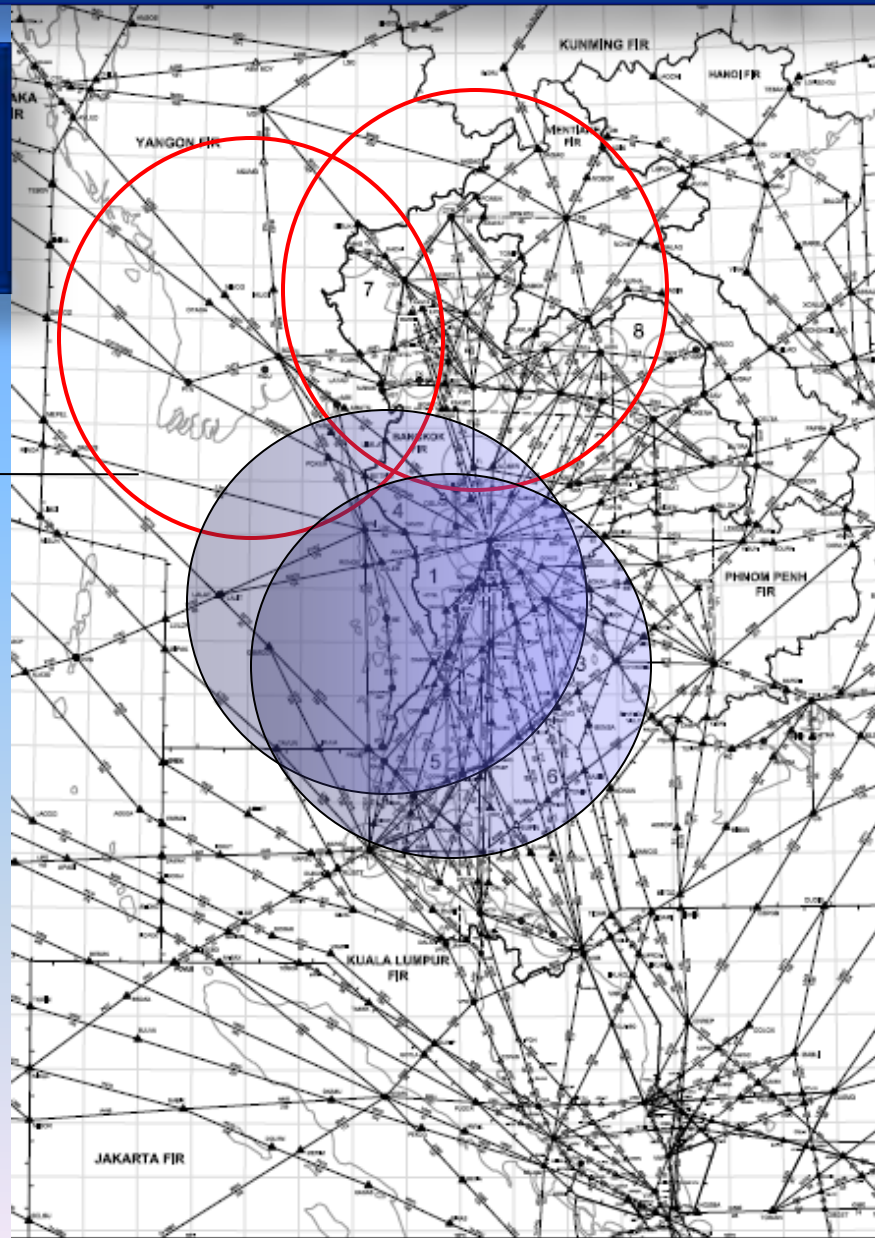
Myanmar – Thai ADS-B / MSSR Data Sharing Plan

Phase I MSSR Data sharing

MSSR (Yangon)and MSSR (Chiang Mai)

Phase II MSSR Data sharing

- Addition to implement Myeik MSSR Data Sharing with Chum Phon (Thailand),
- Phase II ADS-B Data sharing
- Nay Pyi Taw and Changmai
- VHF Data sharing not need to be implemented in those stations.



Thanks

1st Bangladesh – India – Myanmar – Thailand ATM Coordination Meeting (BIMT/1)

18 – 19 August 2014

ICAO Asia-Pacific Regional Office
Bangkok, Thailand



Presentations & Documents :

<http://tinyurl.com/bimt-atm-1>

Agenda Item 4.1a: Surveillance Data Sharing Myanmar – Thailand (Tentative)

Phase	Year	Myanmar	Thailand
Phase 1	2015	Yangon SSR	Chiang Mai SSR
Phase 2	2016	Chum Phon SSR	Myiek SSR
Phase 3	2017?	Napyidaw / Lashio ADS-B	Chiang Mai ADS-B





Agenda Item 4.1a:

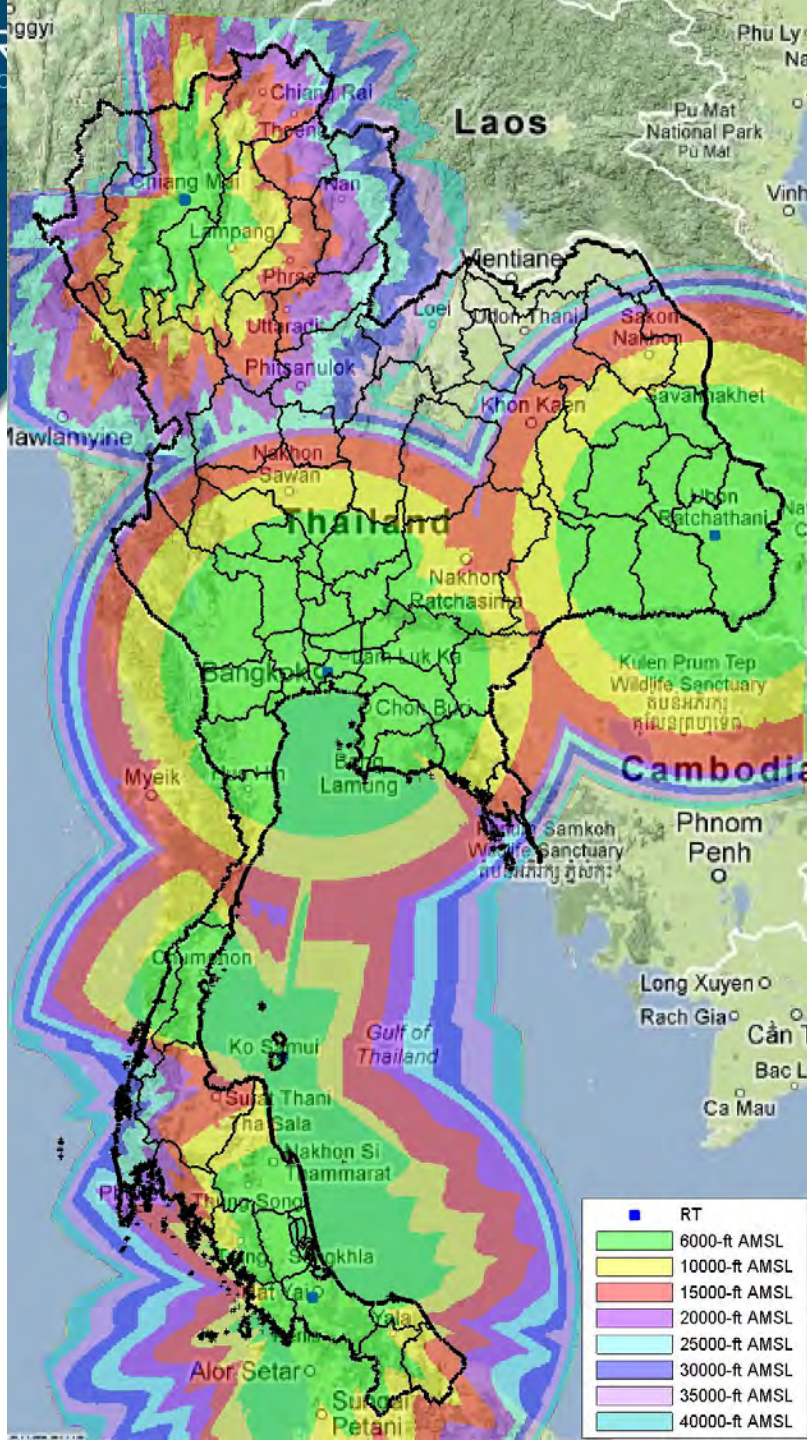
Surveillance Data Sharing: Thailand

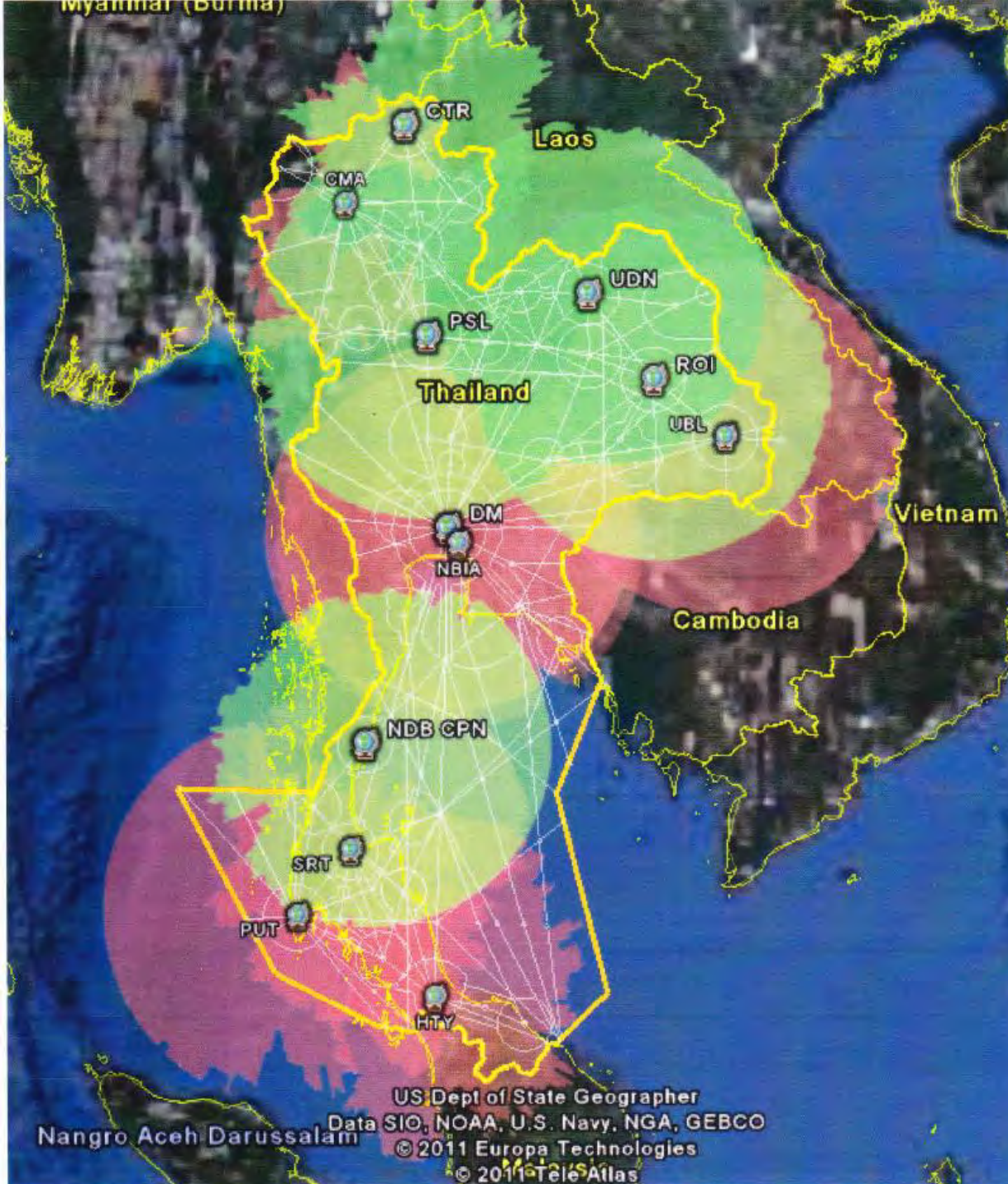
- **Thailand ADS-B implementation plan**
- **5 ADS-B sites already installed**
 - Bangkok
 - Chiang Mai
 - Ubon
 - Hat Yai
 - Samui
- **Expect to operate - September 2015**





Predicted Coverage: Thailand





Coverage Range 20,000 ft.

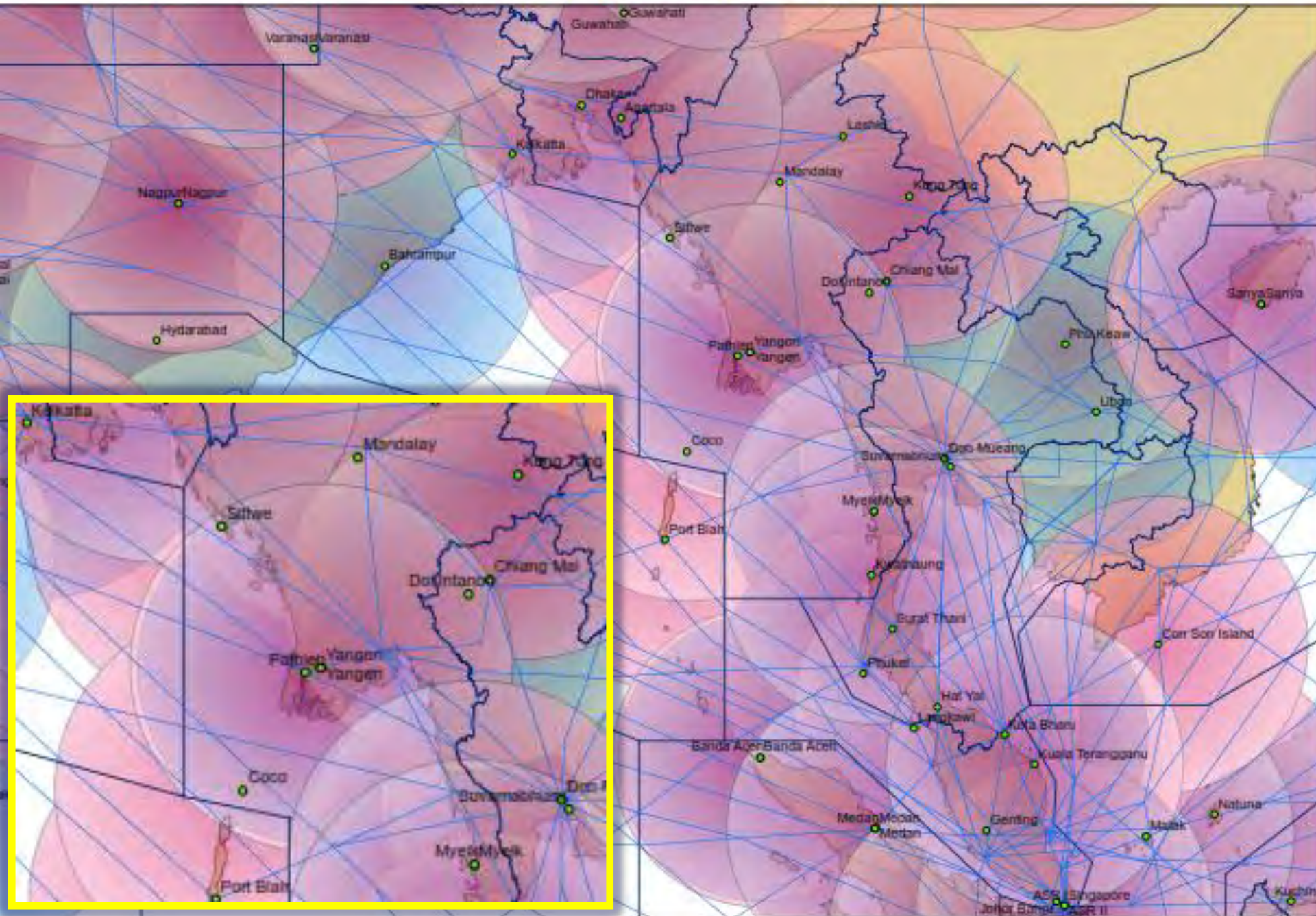
■ **Current SSR sites**

- Chiang Mai
- Ubon
- Don Muang
- Suvarnabumi
- Surat Thani
- Phuket
- Hat Yai

■ **Future SSR sites**

- Chiang Rai
- Udon Thani
- Phitsanulok
- Roi Et
- Chumphon

ADS-B & SSR Locations (Bay of Bengal)



VHF Locations (Bay of Bengal)

