

INTERNATIONAL CIVIL AVIATION ORGANIZATION



**REPORT OF THE THIRD MEETING OF THE BAY OF BENGAL TRAFFIC FLOW
REVIEW GROUP (BOBTFRG/3)**

VIDEO TELECONFERENCE, 14 – 15 DECEMBER 2021

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

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INTRODUCTION

Meeting

1.1 The Third Meeting of the Bay of Bengal Traffic Flow Review Group (BOBTFRG/3) was held as a Video Teleconference (VTC), from 14 to 15 December 2021.

Attendance

2.1 The meeting was attended by 61 participants from Bangladesh, India, Indonesia, Malaysia, Myanmar, Pakistan, Singapore, Sri Lanka, Thailand, IATA, IFALPA, IFATCA and ICAO.

2.2 A list of participants is appended at **Appendix A** to this report.

Officers and Regional Office

3.1 Mr. K. Vasudevan, General Manager – ATM, Directorate of Air Space Management, Airports Authority of India presided over the meeting throughout its duration as Chair of BOBTFRG.

3.2 Mr. Mior Adli Bin Mior Sallehuddin, Regional Officer, Air Traffic Management (ATM) and Ms. Sunok Lee, Regional Officer, ATM, ICAO Asia and Pacific Regional Sub-Office were the Secretaries for the meeting.

Opening of the Meeting

4.1 Mr. K. Vasudevan welcomed the participants to the meeting.

4.2 On behalf of Mr. Tao Ma, Regional Director of ICAO Asia and Pacific Office, Mr. Mior Adli Bin Mior Sallehuddin also welcomed participants to the meeting.

Documentation and Working Language

5.1 The working language of the meeting and all documentation was English. There were eight Working Papers (WP), three Information Papers (IP) and one Flimsy considered by the meeting.

5.2 A list of papers is included at **Appendix B** to this report.

REPORT ON AGENDA ITEMS

Agenda Item 1: Adoption of Agenda

Adoption of Agenda

1.1 The Agenda (WP/01) was adopted by the meeting, which noted the Provisional Order of Discussion (OOD), and the Provisional List of Working and Information Papers (IP/01).

Agenda Item 2: Updates from States and IATA on ADS-C/CPDLC and PBCS Implementation Status

Upgradation of CNS-ATM System within Dhaka FIR (IP/02)

2.1 IP/02 provided information on the initiatives undertaken by the Civil Aviation Authority of Bangladesh to upgrade the Communications, Navigation and Surveillance (CNS) and Air Traffic Management (ATM) systems in Bangladesh.

2.2 The Modernization Project of CNS-ATM System of Bangladesh would enhance the ATM capability, capacity and safety in line with the global and regional expectations, including the *Asia/Pacific Seamless ANS Plan* elements. The Project was expected to be completed in 2024, and included the delivery of:

- a new Air Traffic Management Control Centre (ATMCC) and control tower at the Hazrat Shahjalal International Airport in Dhaka, Bangladesh;
- voice communications system; and
- multimodal surveillance system to fill the surveillance gaps in Dhaka Flight Information Region (FIR) and extended areas over the Bay of Bengal.

2.3 India and ICAO congratulated Bangladesh for the initiatives to improve the CNS and ATM capabilities.

2.4 ICAO encouraged Bangladesh to begin as soon as practicable a plan review of its existing Air Traffic Control (ATC) procedures to ensure the greatest operational and performance benefits that could be obtained immediately after the commissioning of the new CNS and ATM systems.

2.5 In response to a query, Bangladesh confirmed that with the Modernization Project of CNS-ATM System of Bangladesh, the entire Dhaka FIR and extended areas in the Bay of Bengal would be communications and surveillance covered.

Status Update on PBCS Implementation in Chennai Flight Information Region (IP/03)

2.6 The meeting was provided with a status update on the implementation of Performance-Based Communication and Surveillance (PBCS) in oceanic airspace of Chennai FIR, including the various steps undertaken to upgrade the Chennai Oceanic Control Centre (OCC) ATM automation system, to ensure the PBCS compliance as per ICAO requirements and facilitate the application of performance-based separations.

2.7 IATA congratulated India for their efforts to implement PBCS and performance-based separations in the oceanic airspace of Chennai, Kolkata and Mumbai FIRs.

2.8 In response to a query from IATA, India clarified that the upgradations in the ATM automation system for PBCS in Chennai and Mumbai FIRs were expected to be implemented in six months, however, the implementation in Kolkata FIR had not been fixed.

2.9 ICAO thanked India for submitting this paper, as it opened discussion highlighting the implementation of performance-based separation minima and distance-based separation minima (RNP 10, with procedural position reports not less than 24 minutes apart), specified in Doc 4444 – *Procedures for Air Navigation Services – Air Traffic Services (PANS-ATM)*, in airspace over the high seas requires supporting procedures in ICAO Doc 7030 – *Regional Supplementary Procedures*.

2.10 States that were planning to implement performance-based separation minima and/or distance-based separation minima (RNP 10, with procedural position reports not less than 24 minutes apart) in the high seas airspace within their FIRs, or had already done so without the necessary Doc 7030 – *Regional Supplementary Procedures* support, were requested to notify the ICAO Asia and Pacific Regional Office, through official letter, so that a coordinated Proposal for Amendment (PfA) could be prepared.

2.11 In response to enquiry from India on the implementation timeline of PBCS by Kuala Lumpur ACC, Malaysia commented that their ATM systems was capable for implementation of 50 NM longitudinal separation (RNAV 10/ RNP 10) with PBCS, and supported by Regional Supplementary Procedures. Malaysia also indicated its readiness to discuss the implementation with India.

Agenda Item 3: Updates from States on the Implementation of Improved Horizontal Separation Standards

Indonesia Communications, Navigation and Surveillance (CNS) Capabilities over Banda Aceh (WP/02)

3.1 Indonesia presented information about its current and future communications and surveillance facilities that would further enhance the communications and surveillance capabilities in the Bay of Bengal and south west of Jakarta FIR, to provide more efficient ATC services on Air Traffic Service (ATS) routes L744, L879, L896, M300, M766, N628, P570 and P576.

3.2 The meeting was informed that the communications and surveillance facilities at Banda Aceh had the coverage in the area of Large Height Deviation (LHD) Hot Spot A2 (Chennai – Kuala Lumpur interface) that could support the mitigation of LHDs at this interface.

3.3 **Figure 1** illustrated the extended-range Very High Frequency (VHF) communications coverage from Banda Aceh, Meulaboh and Medan stations.

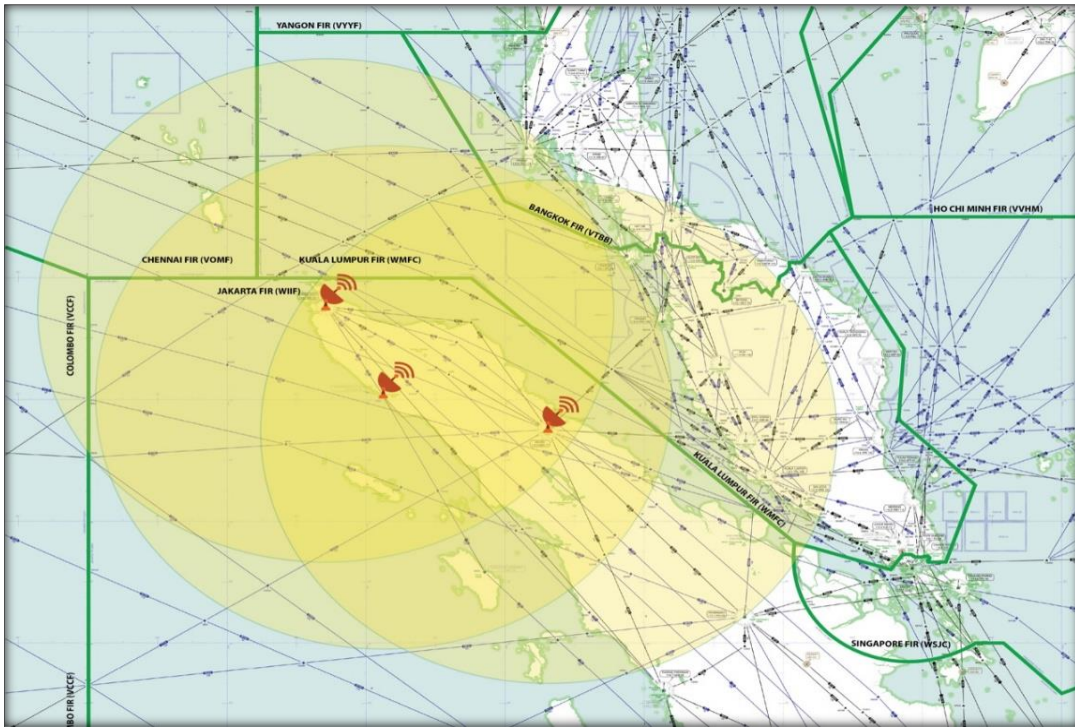


Figure 1: Communications Coverage at Hot Spot A2

3.4 **Figure 2** illustrated the Automatic Dependent Surveillance – Broadcast (ADS-B) coverage from Banda Aceh ground station.

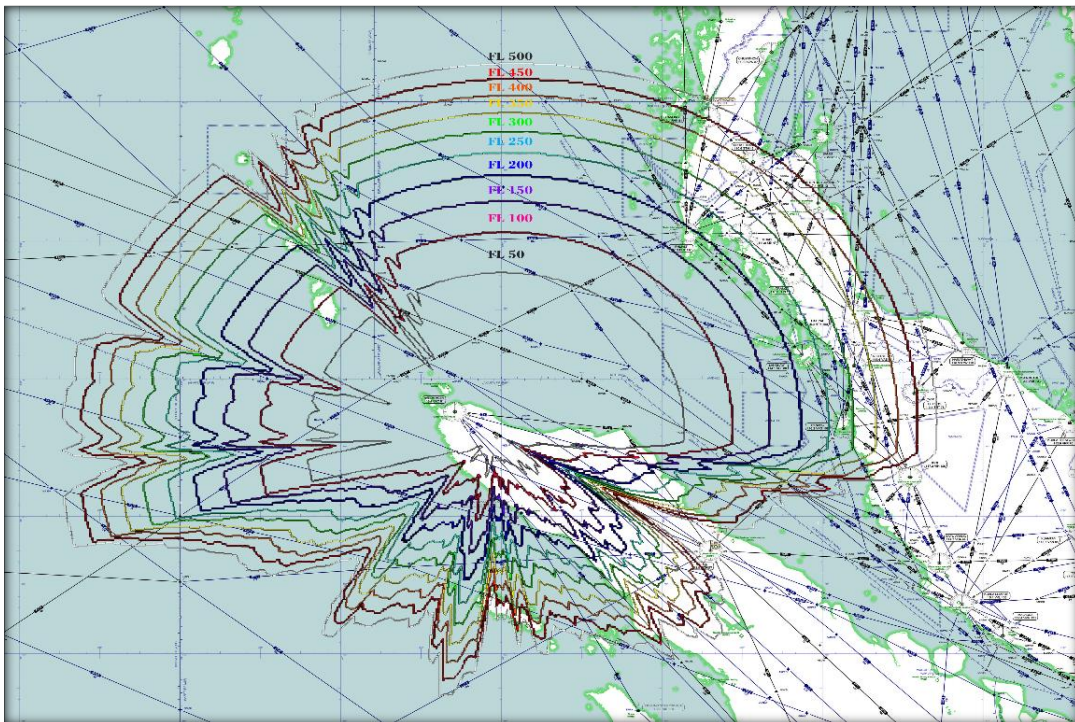


Figure 2: Surveillance Coverage at Hot Spot A2

3.5 As Jakarta Area Control Centre (ACC) had the advantage of communications and surveillance coverage in the area of Hot Spot A2, and as an effort to mitigate the LHD occurrences at this interface, Indonesia proposed the following options, for consideration by India and Malaysia.

- Option 1: tactically delegate the airspace in the area of Hot Spot A2 to Jakarta ACC Banda Aceh Sector for the provision of ATS.
- Option 2: permanently delegate the portion of airspace in the area of Hot Spot A2 in Kuala Lumpur FIR to Jakarta ACC Banda Aceh Sector for the provision of ATS. The delegated airspace would remain as part of Kuala Lumpur FIR.

3.6 India informed the meeting that the surge of LHDs in 2019 was due to the ATS Inter-Facility Data Communication (AIDC) trial that was conducted between Chennai OCC and Kuala Lumpur ACC. The issue had been resolved and AIDC between Chennai OCC and Kuala Lumpur ACC implemented from February 2020.

3.7 India also commented that Space-based ADS-B (SB ADS-B) surveillance coverage extending beyond the FIR boundary had enabled the controllers to check the instances of all LHDs prior to the Transfer of Control (TOC) points, and had reduced the LHD duration near to zero at this interface.

3.8 Malaysia endorsed the view of India with respect to the LHDs. Malaysia also stated that they would review the options as proposed by Indonesia, and would consult their higher authority on this matter.

3.9 As this subject was also an action item under the South Asia, Indian Ocean and Southeast Asia ATM Coordination Group (SAIOSEACG) Task List, ICAO recommended that Indonesia, India and Malaysia to further discuss this offline, and provide update at the First Meeting of the South Asia, Indian Ocean and Southeast Asia ATM Coordination Group (SAIOSEACG/1), planned in March 2022.

Agenda Item 4: Discussion on PBN Routes Development

Review of Selected ATS Route Proposals from the Asia/Pacific Region ATS Route Catalogue (WP/03)

4.1 ICAO presented selected ATS route proposals from the most recent Version 21 of the *Asia/Pacific Region ATS Route Catalogue*.

4.2 The meeting was asked to review and classify each ATS route proposal as:

- Priority A – short term i.e. it could be implemented within 12 months;
- Priority B – medium term i.e. it could be implemented within 13 to 36 months;
- Priority C – long term i.e. more than 36 months; or
- Priority D – cannot be implemented (reasons to be provided).

4.3 Feedback from the States and IATA was as follows:

- HIMALAYA 02
 - India commented that the information in the “Remarks” column was misleading and suggested to strikeout the following sentence “*The route has been implemented except for Imphal to Kunming which China had undertaken to review (as per current remarks)*”.

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- India also expressed its concern in getting a favourable response from its military authorities for the route between Guwahati (GGT) – Dimapur (DMR) – Kunming (KMG). According to India, implementing the route from Imphal (IIM) to Kunming (KMG) was more feasible. Given the fact that China had revised the priority as “D” (cannot be implemented) in the ATM/SG, IATA was requested to consider the position of China before pursuing the proposal.
- Myanmar supported the proposal by IATA.
- Bangladesh proposed IATA to consider: Kathmandu (KTM) – Saidpur (SDP) – Silchar (KKU) – Imphal (IIM) – Kunming (KMG).
- IND 07 (N877 Extension)
 - Pakistan re-affirmed that the designated established military areas in Karachi FIR and route structure (crossing routes near the boundary with Delhi and Kabul FIRs) would not permit the establishment of this route.
- AFG 01
 - Pakistan commented that this route proposal was still under the approval process of Pakistan Federal Government.
- MID 02 (a)
 - Pakistan re-affirmed that the proposed route was not feasible.

4.4 The ATS route proposals BOB 01 and BOB 02 were discussed under **BOBTFRG/3 WP/04**.

4.5 IATA proposed that ICAO consider how to better streamline the process of updating the route catalogue, potentially through more direct contact between airlines and States.

New Route Proposals in the Bay of Bengal (WP/04)

4.6 Noting the improvements in the CNS and ATM systems capabilities as well as coordination between neighbouring Air Navigation Service Providers (ANSPs), IATA requested all States concerned to consider implementing a more efficient connection of traffic from the south west Bay of Bengal to Mandalay (MDY).

4.7 Based on inputs from airlines, IATA developed ATS route proposals BOB 01 and BOB 02, which had a potential to save approximately 12 minutes of flight time between south west Bay of Bengal and Far East destinations (**Figure 3**).

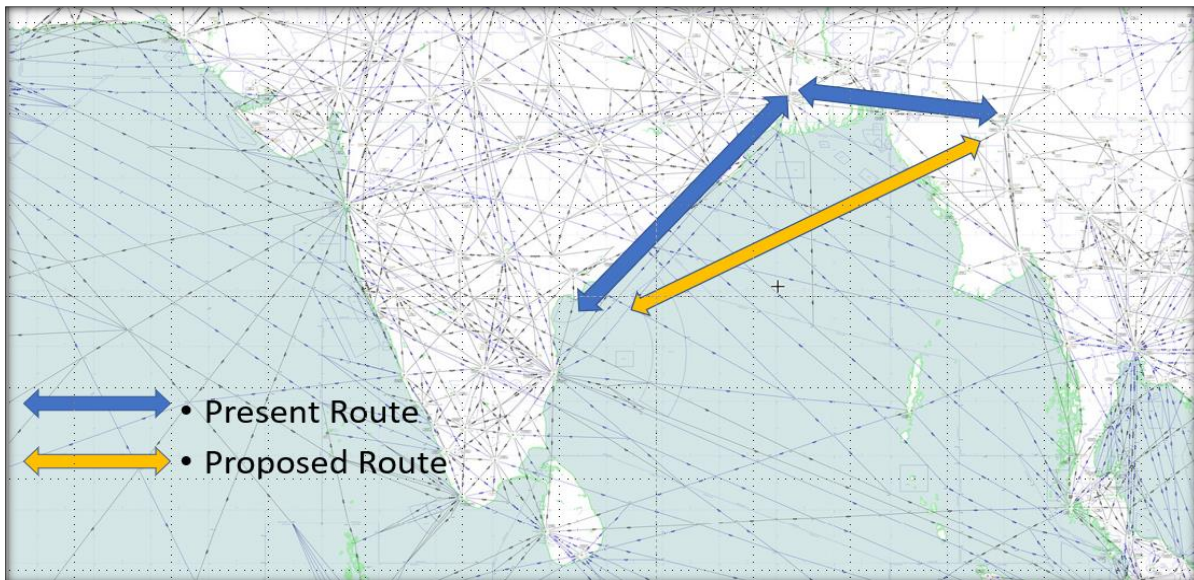


Figure 3: Comparison between Present and Proposed Route

4.8 India commented that they were examining the route proposal. In order to conduct better assessment, India requested IATA to provide the analysis of the fleet equipage in ADS-C/CPDLC and PBCS.

4.9 Myanmar commented that they would consider this proposal and provide feedback to IATA in due time.

4.10 IATA thanked India and Myanmar for their positive considerations, and would coordinate with its member airlines with regards to the fleet equipage.

Agenda Item 5: Review of BOBTFRG Task List

BOBTFRG Terms of Reference and Task List (WP/05)

5.1 ICAO presented WP/05, which contained the BOBTFRG Terms of Reference for review and the BOBTFRG Task List for updating.

5.2 Noting the *Decision APANPIRG/32-5: Combining SAIOACG and SEACG Groups to form the South Asia, Indian Ocean and Southeast Asia ATM Coordination Group (SAIOSEACG)* and the renaming of the *Asia/Pacific Seamless ANS Plan* (formerly the Asia/Pacific Seamless ATS Plan) in 2019, the meeting had agreed to update and reflect the changes in the BOBTFRG Terms of Reference (**Appendix C**), for consideration by the SAIOSEACG.

5.3 The BOBTFRG Task List, as updated by the meeting is appended at **Appendix D** to this report.

Agenda Item 6: Any Other Business

Withdrawal of ATS Route B466 Segment in Chennai FIR (WP/06)

6.1 India presented the proposal to withdraw a segment of ATS route B466 in Chennai FIR between Chennai (MMV) and ANOKO (TOC point between Chennai and Kuala Lumpur FIRs).

6.2 The meeting noted that since the introduction of Asia to Middle East/Europe, South of the Himalayas (EMARSSH) routes in 2002, the utilisation of ATS route B466 had been minimal (on average less than 40 flights per year) due to the lower vertical limits (FL120 – FL270).

6.3 Furthermore, the majority of the fleet operating in the Bay of Bengal airspace was RNP 10/RNAV 10-capable, and therefore opted to operate on ATS routes N571 and P574 which provided optimum flight levels.

6.4 As per the electronic Aeronautical Information Publication (e-AIP) India Section 2.4, “*An aircraft that is unable to meet the minimum navigational requirements for RNP 10 must file flight plan at or below minimum flight level of the route.*” This implies that non-RNP 10/RNAV 10-capable aircraft was permitted to operate on RNP 10 routes subject to filing flight plan at or below FL280, which was the minimum flight level for ATS routes N571 and P574. Considering the upper limits of ATS route B466 in Kuala Lumpur FIR between GUNIP and ANOKO was FL275 and in Chennai FIR between ANOKO and Chennai (MMV) was FL270, there was no impact on flights that were using ATS route B466.

6.5 Malaysia commented that they had no objection to the proposal, however, further clarification from ICAO was needed regarding the operation of non-PBN equipped aircraft below the lower limits of ATS routes N571 and P574 (RNP 10 routes).

6.6 In response, ICAO commented that they would look into this matter, and provide feedback to the BOBTFRG members in due course.

Bay of Bengal Flight Level Allocation Scheme Chart (WP/07)

6.7 ICAO presented the Bay of Bengal Flight Level Allocation Scheme (FLAS) Chart (**Figure 4**), which was formulated based on the data submitted by Bangladesh, India, Indonesia, Malaysia, Myanmar, Pakistan and Thailand.

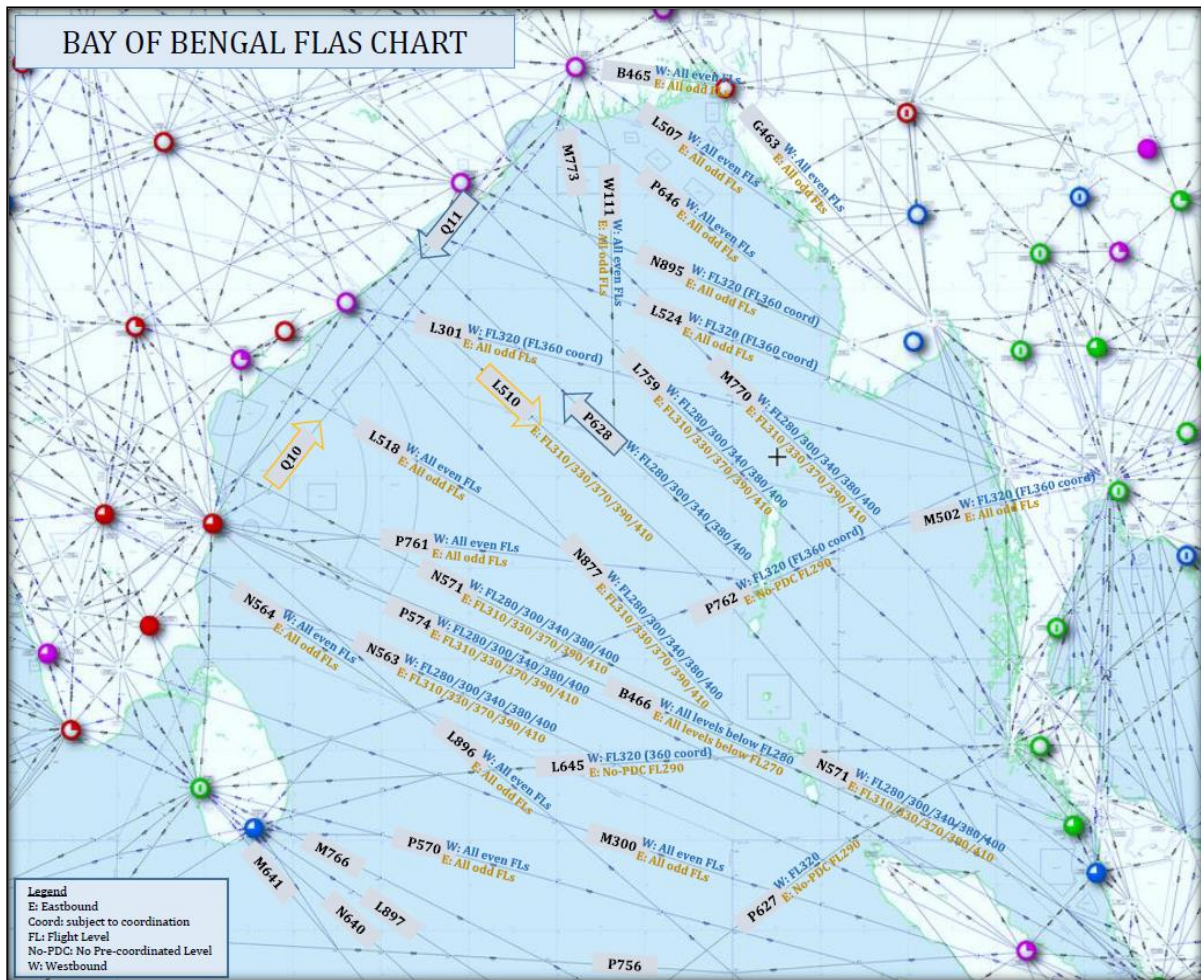


Figure 4: Bay of Bengal FLAS Chart

6.8 The Bay of Bengal FLAS Chart was to provide the overview of the position of ATS routes in the Bay of Bengal, including the FLAS allocated to each ATS route. The BOBTFRG could consider using the chart when conducting the review of FLAS, to enhance the efficiency of air traffic in the Bay of Bengal airspace (BOBTFRG Terms of Reference referred).

6.9 As there was no response from the States on the accuracy of the information in the Bay of Bengal FLAS Chart, the Chair urged all States concerned to provide feedback to ICAO Secretariat, via email to msallehuddin@icao.int and Slee@icao.int, latest by 31 January 2022. ICAO would present the Bay of Bengal FLAS Chart at the SAIOSEACG/1, planned in March 2022.

Review of BOBTFRG Priority Areas Implementation Timelines (WP/08)

6.10 ICAO informed the meeting that based on the data submitted by Bangladesh, India, Indonesia, Malaysia, Myanmar, Pakistan and Thailand; ICAO had updated the *Implementation Timelines for BOBTFRG Priority Areas (BOBTFRG/3 WP/08 Attachment B)*, which was developed and agreed at the Second Meeting of the Bay of Bengal Traffic Flow Review Group (BOBTFRG/2, Bangkok, Thailand, 08 – 10 October 2019).

6.11 ICAO recalled that the BOBTFRG/2 had agreed to recommend to the South Asia/Indian Ocean ATM Coordination Group (SAIOACG) for ADS-C/CPDLC non-exclusive mandate in the Bay of Bengal, tentatively planned by 1 January 2023.

6.12 However, due to the COVID-19 pandemic, which had caused severe impact on airlines and ANSPs resources and revenues, the discussion on this matter had been postponed. In addition, the Tenth Meeting of the South Asia/Indian Ocean ATM Coordination Group (SAIOACG/10) that was planned for March 2020 was also cancelled as a result of the COVID-19 pandemic.

6.13 The meeting noted that for better clarity and in line with *Asia/Pacific Seamless ANS Plan*, the ADS-C/CPDLC non-exclusive mandate should be referred to as “*designation as non-exclusive PBN and PBCS airspace to allow operational priority for PBN and PBCS approved aircraft*”.

6.14 Considering that the COVID-19 pandemic could have caused changes to the aircraft capability in the Bay of Bengal, and in order for the BOBTFRG to progress with the designation as non-exclusive PBN and PBCS airspace to allow operational priority for PBN and PBCS approved aircraft in the Bay of Bengal, the following actions were expected:

- BOBTFRG States should work with local airlines to conduct the analysis on the fleet equipage in ADS-C/CPDLC, RNP 10, RNP 4 and RNP 2;
- States requiring PBCS support to implement performance-based separations should develop its PBCS implementation plan, including the expected timeline; and
- IATA to support States and work with its member airlines to conduct the analysis of fleet equipage.

6.15 IATA explained that there was a mix of member airlines with PBCS capability in the Bay of Bengal. Thus, a balanced approach need to be considered while implementing a non-exclusive mandate that follows the concept of ‘most capable, best served’, but with non-capable aircraft not severely punished for an agreed transition period.

6.16 Of significant concern was that non-capable flights would be severely punished if made to flight plan at lower levels even if they were permitted to request higher levels, if available in-flight. This also brings a significant environmental impact as even at 2000 feet below preferred level the aircraft burn significantly more fuel and generate large amounts of CO₂. IATA member airlines had agreed to being net-zero carbon emissions by 2050, so any discussion on the mandate should consider the environmental impact and we should all be working as an industry towards best outcome.

6.17 IATA also explained how the past two years of COVID-19 had been financially crippling for airlines and so costs for retrofit were difficult at this time.

6.18 IATA emphasised that the realistic timeline for fleet equipage and adequate flight level allocation for non-equipped aircraft during the transition period of the mandate would be the crucial considerations for effective planning of PBCS implementation in the Bay of Bengal. IATA also commented that a balanced approach need to be taken regarding the harmonised preparedness of fleet equipage and ANSP’s ATM systems capability when planning for the non-exclusive mandate.

6.19 The recent introduction of a non-exclusive mandate in the North Pacific (NOPAC) Route Systems included a transition period where non-capable aircraft could still plan up to a (intermediate) higher level, but capable aircraft would be accorded a priority in a specified level band. Thus, IATA suggested the NOPAC implementation be used as a precedent for designing the non-exclusive mandate for the Bay of Bengal and as a benchmark for deciding on the length of a transition period.

6.20 IATA also suggested that discussions should expand to a whole airspace management plan as introducing other efficiencies, such as user preferred routes (UPRs), to capable aircraft above a specified level could also incentivise airlines to equip earlier.

6.21 India highlighted the importance of definite non-exclusive mandate timeline to ensure the preparedness of airspace users to expedite the implementation of performance-based separations in the Bay of Bengal. The delay to protect the non-equipped aircraft was indirectly penalising the equipped and any further enhancement in airspace efficiency was dependent on the mandate.

6.22 IATA agreed with India on the need for a definitive date, however, any proposed date require clarity around the 'intent' of the mandate so that airlines could understand what they need to plan for.

6.23 With regards to the States' and IATA's concerns on setting the definitive timeline for the non-exclusive mandate, ICAO emphasised the importance of States and IATA to conduct the analysis on the fleet equipage in ADS-C/CPDLC, RNP 10, RNP 4 and RNP 2. All States concerned were also urged to develop its PBCS implementation plan.

6.24 The meeting agreed that all States concerned should present the outcome from the analysis of the fleet equipage and the expected date of PBCS implementation at the SAIOSEACG/1 planned in March 2022.

6.25 IATA agreed that they would survey member airlines on their PBCS readiness for possible non-exclusive mandate of January 2024 and agreed to ICAO's summary of next steps for forming papers and proposing dates for the non-exclusive mandate for consideration at next SAIOSEACG/1.

6.26 The *Implementation Timelines for BOBTFRG Priority Areas V2.0*, as updated by the meeting is appended at **Appendix E** to this report.

Initiatives by India Supporting Airline Recovery (Flimsy 01)

6.27 Flimsy 01 provided information on the initiatives taken by India to improve efficiency and support airline recovery post-COVID-19.

6.28 IATA and ICAO thanked India for its efforts, especially for the coordination with military services in optimising the use of airspace, which had accommodated track shortening and great fuel savings to the airlines.

Agenda Item 7: Date and Venue of the Next Meeting

7.1 The BOBTFRG/4 was tentatively planned in October 2022 at a location to be determined. States/Administration considering hosting the BOBTFRG/4 were invited to contact the Secretariat.

Closing of the Meeting

The Chair thanked the meeting participants for their significant work during a busy meeting program.

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LIST OF PARTICIPANTS

| | STATE/NAME | | TITLE/ORGANIZATION |
|-----------|-----------------------|----------------------------|--|
| 1. | BANGLADESH (3) | | |
| | 1. | Ms. Sabera Rahman | Assistant Director (ATS) Civil Aviation Authority of Bangladesh <u>BANGLADESH</u> |
| | 2. | Mr. Md. Shamsudduha | Assistant Director (Investigation) Civil Aviation Authority of Bangladesh <u>BANGLADESH</u> |
| | 3. | Mr. Sultanul Arafin | Assistant Director(AIM) Civil Aviation Authority of Bangladesh <u>BANGLADESH</u> |
| 2. | INDIA (4) | | |
| | 4. | Mr K. Vasudevan | General Manager (ATM-ASM) Airports Authority of India <u>INDIA</u> |
| | 5. | Mr. Sambath Kumar Govindan | Joint General Manager - ATM Airports Authority of India <u>INDIA</u> |
| | 6. | Mr. Paramesh Bandyopadhyay | Joint General Manager - ATM Airports Authority of India <u>INDIA</u> |

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| | STATE/NAME | | TITLE/ORGANIZATION |
|-----------|----------------------|--------------------------|---|
| | 7. | Mr. Sudhir Menon | Deputy General Manager (ATM) Airports Authority of India <u>INDIA</u> |
| 3. | INDONESIA (9) | | |
| | 8. | Mr. Tian Kusdinar | Chief of Air Traffic Management DGCA Indonesia, Directorate of Air Navigation <u>INDONESIA</u> |
| | 9. | Mr. Nur Said Eko Nugroho | Air Navigation Inspector(ATS) DGCA Indonesia <u>INDONESIA</u> |
| | 10. | Mr. Susiswo Susiswo | Jakarta ACC Supervisor AirNav Indonesia <u>INDONESIA</u> |
| | 11. | Mr. Imam Nurdin | Jr. Manager Planning & Evaluation ACC AirNav Indonesia <u>INDONESIA</u> |
| | 12. | Mr. Yusuf Hidayat | Junior Manager ACC JATSC AirNav Indonesia <u>INDONESIA</u> |
| | 13. | Mr. Adri Bela | Air Traffic Controller AirNav Indonesia <u>INDONESIA</u> |

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| | STATE/NAME | | TITLE/ORGANIZATION |
|-----------|---------------------|------------------------------|--|
| | 14. | Mr. Hafidz Kuncoro Jati | Air Traffic Controller AirNav Indonesia <u>INDONESIA</u> |
| | 15. | Ms. Kholifatul Azizah | Air Traffic Controller AirNav Indonesia <u>INDONESIA</u> |
| | 16. | Mr. Ryan Asyari Yulianto | Air Traffic Controller AirNav Indonesia <u>INDONESIA</u> |
| 4. | MALAYSIA (4) | | |
| | 17. | Mr. Abdul Rali Kassim | Principal Assistant Director Civil Aviation Authority of Malaysia <u>MALAYSIA</u> |
| | 18. | Mr. Muhammad Hafidz Ibrahim | Senior Assistant Director Civil Aviation Authority of Malaysia <u>MALAYSIA</u> |
| | 19. | Ms. Nur A'fifah Mansor | Senior Assistant Director Civil Aviation Authority of Malaysia <u>MALAYSIA</u> |
| | 20. | Mr. Mohd Adelin Bin Md Yusop | Senior Assistant Director Civil Aviation Authority of Malaysia <u>MALAYSIA</u> |
| 5. | MYANMAR (5) | | |

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| | STATE/NAME | | TITLE/ORGANIZATION |
|-----------|---------------------|--------------------|--|
| | 21. | Mr. Kyaw Aye Maung | Assistant General Manager (ATM), Chief of FPDO Department of Civil Aviation, Myanmar <u>MYANMAR</u> |
| | 22. | Mr. Aung Zaw Thein | Assistant General Manager(Enroute ATM) Department of Civil Aviation, Myanmar <u>MYANMAR</u> |
| | 23. | Mr. Thein Naing | Director of Air Navigation Safety Division Department of Civil Aviation, Myanmar <u>MYANMAR</u> |
| | 24. | Mr. Nyunt Shwe | Air Navigation Safety Division DCA MYANMAR <u>MYANMAR</u> |
| | 25. | Mr. Tint Wai | Assistant General Manager DCA MYANMAR <u>MYANMAR</u> |
| 6. | PAKISTAN (6) | | |
| | 26. | Mr. Abdul Manan | Deputy Director ATS Pakistan Civil Aviation Authority <u>PAKISTAN</u> |
| | 27. | Mr. Salman Nazar | Joint Director ATS Pakistan Civil Aviation Authority <u>PAKISTAN</u> |

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| | STATE/NAME | | TITLE/ORGANIZATION |
|-----------|----------------------|----------------------------|---|
| | 28. | Mr. Zulfiqar Alam | Deputy Director ATS Pakistan Civil Aviation Authority <u>PAKISTAN</u> |
| | 29. | Mr. Muhammmad Ehtasham | Senior Assistant Director CNS Pakistan Civil Aviation Authority <u>PAKISTAN</u> |
| | 30. | Mr. Muhammad Uzair Bilal | Senior Assistant Director Pakistan Civil Aviation Authority <u>PAKISTAN</u> |
| | 31. | Mr. Muhammad Saqib Shaheen | Assistant Director Pakistan Civil Aviation Authority <u>PAKISTAN</u> |
| 7. | SINGAPORE (3) | | |
| | 32. | Mr. Sivapirakasam R | Deputy Chief (Ops. Area) Civil Aviation Authority of Singapore <u>SINGAPORE</u> |
| | 33. | Mr. Chee Han Tan | Senior Air Traffic Control Manager (ATM-SEA2) Civil Aviation Authority of Singapore <u>SINGAPORE</u> |
| | 34. | Mr. Kok Wee Ang | Principal ATC Manager Civil Aviation Authority of Singapore <u>SINGAPORE</u> |
| 8. | SRI LANKA (1) | | |

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| | STATE/NAME | | TITLE/ORGANIZATION |
|-----------|---------------------|------------------------------|--|
| | 35. | Mr. Indika Bandupriya | Senior Manager ATS Airport & Aviation Services (Sri Lanka) Ltd <u>SRI LANKA</u> |
| 9. | THAILAND (8) | | |
| | 36. | Mr. Suvichan Sathitkitpichet | ATM/NMC Manager Aeronautical Radio of Thailand Ltd. (AEROTHAI) <u>THAILAND</u> |
| | 37. | Mr. Aram Lertlum | ATC Manager Aeronautical Radio of Thailand Ltd. (AEROTHAI) <u>THAILAND</u> |
| | 38. | Mr. Piyawut Tantimekabut | Air Traffic Management Network Manager Aeronautical Radio of Thailand Ltd. (AEROTHAI) <u>THAILAND</u> |
| | 39. | Ms. Chananya Pinkaewprasert | ATM Network Manager Aeronautical Radio of Thailand Ltd. (AEROTHAI) <u>THAILAND</u> |
| | 40. | Ms. Chayanan Sanorjit | Air Traffic Controller Aeronautical Radio of Thailand Ltd. (AEROTHAI) <u>THAILAND</u> |
| | 41. | Mr. Dolsarit Somseang | Senior Systems Engineer (Safety Management System) Aeronautical Radio of Thailand Ltd. (AEROTHAI) <u>THAILAND</u> |

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| | STATE/NAME | | TITLE/ORGANIZATION |
|------------|-------------------|------------------------|--|
| | 42. | Mr. Ponkrit Sawedsud | Safety Management Engineer Aeronautical Radio of Thailand Ltd. (AEROTHAI) <u>THAILAND</u> |
| | 43. | Ms. Jullada Chullapant | Flight Operation Officer Thai Airways <u>THAILAND</u> |
| 10. | IATA (11) | | |
| | 44. | Mr. John Moore | Assistant Director, Safety & Flight Operations, ASPAC IATA <u>INDIA</u> |
| | 45. | Mr. Prashant Sanglikar | Assistant Director Safety IATA <u>INDIA</u> |
| | 46. | Mr. Sunil Prasad | AVP-Flight Operations IATA/SpiceJet Ltd <u>INDIA</u> |
| | 47. | Mr. Toru Namba | Manager IATA/Japan Air Lines <u>JAPAN</u> |
| | 48. | Mr. Manami Kumagai | Assistant Manager IATA/Japan Air Lines <u>JAPAN</u> |

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| | STATE/NAME | | TITLE/ORGANIZATION |
|------------|-------------------|--------------------------|---|
| | 49. | Mr. Clim van der Weijden | ATM Regional Manager Asia IATA/KLM Royal Dutch Airlines <u>NETHERLANDS</u> |
| | 50. | Mr. Chee Seng Seow | SM Technical & Flight Services IATA/Singapore Airlines <u>SINGAPORE</u> |
| | 51. | Mr. Leonard Wee | Head of Operations IATA/Singapore Airlines <u>SINGAPORE</u> |
| | 52. | Mr. Michael Fahmer | Program Manager - Flight Planning and Weather Support IATA/American Airlines <u>UNITED STATES</u> |
| | 53. | Mr. Paul Amen | Air Traffic Management (ATM) and Airfield Operations Manager IATA/American Airlines <u>UNITED STATES</u> |
| | 54. | Mr. Stephen Smith | International Flight Dispatch Instructor IATA/American Airlines <u>UNITED STATES</u> |
| 11. | ICAO (4) | | |
| | 55. | Ms. Sunok LEE | Regional Officer, Air Traffic Management ICAO Asia and Pacific Regional Sub-Office <u>CHINA</u> |

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| | STATE/NAME | | TITLE/ORGANIZATION |
|------------|-------------------|------------------------------------|--|
| | 56. | Mr. Mior Adli Bin Mior Sallehuddin | Regional Officer, Air Traffic Management ICAO Asia and Pacific Regional Sub-Office <u>CHINA</u> |
| | 57. | Mr. Manjunath Nelli | Regional Officer, Air Traffic Management ICAO Asia and Pacific Regional Sub-Office <u>CHINA</u> |
| | 58. | Ms. Siqu Yang | Program Assistant ICAO Asia and Pacific Regional Sub-Office <u>CHINA</u> |
| 12. | IFALPA (2) | | |
| | 59. | Captain Ishtiaque Hossain | Executive Vice President APAC IFALPA <u>CANADA</u> |
| | 60. | Captain Shavantha Pedris | RVP Asia/West IFALPA |
| 13. | IFATCA (1) | | |
| | 61. | Mr. Saif Ullah | Air Traffic Controller IFATCA <u>INDIA</u> |

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LIST OF WORKING AND INFORMATION PAPERS

WORKING PAPERS

| Number | Agenda | WORKING PAPERS | Presented By |
|---------------|---------------|--|---------------------|
| WP/01 | 1 | BOBTFRG/3 Provisional Agenda | Secretariat |
| WP/02 | 3 | Indonesia Communications, Navigation and Surveillance (CNS) Capabilities over Banda Aceh | Indonesia |
| WP/03 | 4 | Review of Selected ATS Route Proposals from the Asia/Pacific Region ATS Route Catalogue | Secretariat |
| WP/04 | 4 | New Route Proposals in the Bay of Bengal | IATA |
| WP/05 | 5 | BOBTFRG Terms of Reference and Task List | Secretariat |
| WP/06 | 6 | Withdrawal of ATS Route B466 Segment in Chennai FIR | India |
| WP/07 | 6 | Bay of Bengal Flight Level Allocation Scheme Chart | Secretariat |
| WP/08 | 6 | Review of BOBTFRG Priority Areas Implementation Timelines | Secretariat |

INFORMATION PAPERS

| Number | Agenda | INFORMATION PAPERS | Presented By |
|---------------|---------------|---|---------------------|
| IP/01 | - | Provisional List of Working and Information Papers | Secretariat |
| IP/02 | 2 | Upgradation of CNS-ATM System within Dhaka FIR | Bangladesh |
| IP/03 | 2 | Status Update on PBCS Implementation in Chennai Flight Information Region | India |

FLIMSIES

| Number | Agenda | FLIMSIES | Presented By |
|---------------|---------------|--|---------------------|
| Flimsy 01 | 6 | Initiatives by India Supporting Airline Recovery | India |

PRESENTATIONS

| Number | Agenda | FLIMSIES | Presented By |
|---------------|---------------|-----------------|---------------------|
| - | - | - | - |

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TERMS OF REFERENCE

BAY OF BENGAL TRAFFIC FLOW REVIEW GROUP (BOBTFRG)

1. Objective

1.1. The objectives of the BOBTFRG are to:

- a) identify requirements and improvements for optimising airspace capacity and maintaining an efficient route network across the Bay of Bengal airspace and routes leading towards Afghanistan's airspace;
- b) monitor the status of implementation of the agreed ATS routes and airspace improvement projects; and
- c) report outcomes of the review and recommendations to SAIOACG the South Asia, Indian Ocean and Southeast Asia ATM Coordination Group (SAIOSEACG).

2. Tasks

2.1. To meet this objectives, with reference to the *Asia/Pacific Region Seamless ATM ANS Plan* and expected traffic growth, the BOBTFRG shall:

- a) Review the existing route structures and airspace improvement projects in the concerned airspaces (Bangkok, Chennai, Colombo, Dhaka, Jakarta, Kabul, Karachi, Kuala Lumpur, Kolkata, Lahore and Yangon Flight Information Regions);
- b) Identify current CNS/ATM capabilities and determine the CNS/ATM requirements which would be needed in order to optimise the airspace to support the implementation of more efficient route network that accommodated enroute traffic (and also departures from India and Pakistan that would join this traffic flow);
- c) Identify the most efficient horizontal separations to be utilised, based on the current and planned CNS/ATM capabilities, taking into account aircraft approval status of the traffic operating on the relevant routes as well as the new CNS capabilities available;
- d) Review the existing Flight Level Allocation Scheme (FLAS) operating within the Bay of Bengal airspace with a view to enhancing efficiencies;
- e) Establish appropriate timelines/milestones/dependencies for activities planned under this Review Group;
- f) Make recommendations to SAIOACG SAIOSEACG on implementation plans for route structures, airspace, FLAS and separation solutions to meet the expectations of the *Asia/Pacific Seamless ATM ANS Plan*; and
- g) Make recommendations to SAIOACG SAIOSEACG on the future status of the Bay of Bengal Cooperative ATFM System (BOBCAT) tool.

3. Participation

- 3.1. Participation of the BOBTFRG includes Afghanistan, Bangladesh, India, Indonesia, Malaysia, Myanmar, Pakistan, Singapore, Sri Lanka, Thailand and IATA, and any other body that the BOBTFRG deems appropriate.

Approved by ~~SAIOACG/9, 29 March 2019~~ SAIOSEACG/1, (date TBC)

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BOBTFRG TASK LIST

(Last updated BOBTFRG/3)

| ACTION ITEM | DESCRIPTION | TIME FRAME | RESPONSIBLE PARTY | STATUS | REMARKS |
|-------------|--|---|--------------------|---------------------------|--|
| 1/3 | India to review Bay of Bengal conflicts and remove FLAS with Port Blair ADS-B operational if possible | SAIOACG/10 BOBTFRG/4 | India | Open | Action Item 4/2 of SAIOACG Task List. India to update ATM/SG/4. Needs to be consulted with Myanmar (Yangon FIR). Port Blair ADS-B still on test (SAIOACG/8 2018). India commented that FLAS should be retained, as there was still limitation on surveillance and communication capabilities. A new ATS route L524 had been implemented to increase the capacity to offset the FLAS. Task updated at BOBTFRG/3. No report received. |
| 1/6 | MAAR to produce annual visualisation and summary statistics of air traffic flows in the Bay of Bengal area using States' TSD | Based on BOBTFRG request | MAAR | Open Closed | MAAR agreed to accept more request for studies by the Group. MAAR to conduct analysis upon request by the BOBTFRG. |
| 2/1 | Identify current spacing implemented by States | 31 October 2019 BOBTFRG/4 | All BOBTFRG States | Open | States to fill and submit the Attachment D to BOBTFRG/2 State Letter by 31 October 2019. Bangladesh, India, Indonesia, Malaysia, Myanmar, Pakistan and Thailand had submitted data to ICAO. Re: ATM/SG/9 WP/7, ICAO APAC Regional Office would circulate a new survey form, requesting APAC Administrations to provide information about the authorised ATC separation minimums and separation minimums at each FIR TOC point. |

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| ACTION ITEM | DESCRIPTION | TIME FRAME | RESPONSIBLE PARTY | STATUS | REMARKS |
|-------------|---|---|--------------------|------------------------------|--|
| 2/2 | Identify impediments to implementation of improved spacing (staffing and ATC sectorisation constraints) | 31 October 2019 | All BOBTFRG States | Open Completed | States to fill and submit the Attachment D to BOBTFRG/2 State Letter by 31 October 2019. Reasons provided by States: communications and surveillance coverage limitations; ATM system capability related to PBCS; and low level of ADS-C/CPDLC equipage. |
| 2/3 | Review the existing Flight Level Allocation Scheme (FLAS) operating within the concerned airspace, with a view to improve efficiencies | 31 October 2019 31 January 2022 | All BOBTFRG States | Open | States to fill and submit the Attachment D to BOBTFRG/2 State Letter by 31 October 2019. Reason for FLAS: multiple crossing of higher density routes over Category R airspace. States to verify the accuracy of the information in the Bay of Bengal FLAS Chart (BOBTFRG/3 Report re: WP/07). |
| 2/4 | Identify ATS Inter-Facility Data Communication (AIDC) and/or direct speech circuits' capabilities | 30 November 2019 | All BOBTFRG States | Open Closed | States to provide update to the Secretariat latest by 30 November 2019. Updated AIDC implementation status in the APAC Region was provided in Appendix B to the APA TF/7 Report. |
| 2/5 | Investigate whether appropriate handoff procedures are implemented between controllers providing ATS surveillance in adjacent airspace – review ATS Letter of Agreement (LoA) | 31 October 2019 31 January 2022 | All BOBTFRG States | Open | Bangkok – Kuala Lumpur ACCs: Yes Bangkok – Yangon ACCs: Yes Jakarta – Kuala Lumpur ACCs: Yes Dhaka – Kolkata ACCs: expected in 2025. Dhaka – Yangon ACCs: expected in 2025. Yangon – Kolkata ACCs (ATS route A201)? Delhi – Lahore ACCs? Delhi – Karachi ACCs? Mumbai – Karachi ACCs? Lahore – Kabul ACCs? Karachi – Kabul ACCs? Colombo ACC – Chennai OCC? |

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| ACTION ITEM | DESCRIPTION | TIME FRAME | RESPONSIBLE PARTY | STATUS | REMARKS |
|-------------|---|---------------------------------|---|--------|--|
| 2/6 | States to identify routes along which reliable surveillance and communication are available to look at the possibility of reduced longitudinal spacing | January 2020 31 January 2022 | India, Myanmar, Thailand, Pakistan All States | Open | India and Pakistan: 50 NM longitudinal spacing implemented at the TOC points of following FIR boundaries: Delhi – Karachi FIRs; Delhi – Lahore FIRs; and Mumbai – Karachi FIRs. Indonesia and Malaysia: 20 NM longitudinal spacing implemented at the following TOC points: GOTLA, PUGER and SALAX. Malaysia and Thailand: 30 NM longitudinal spacing implemented at the TOC points between Bangkok and Kuala Lumpur FIRs. Myanmar and Thailand? India and Myanmar (ATS route A201)? India and Sri Lanka? |
| 2/7 | Agreement between States to implement 20 NM longitudinal spacing (or as close to the separation minima as practicable) in Category S airspace through Thailand, and Myanmar to the Bay of Bengal Bangladesh, India, Pakistan and Afghanistan (or as close to the separation minima as practicable) on affected ATS routes | December 2020 2025 | Afghanistan, Bangladesh, India, Myanmar, Pakistan, Thailand | Open | Traffic operating north of Bay of Bengal airspace will traverse through Dhaka FIR, and currently no en-route ATS surveillance service provided in Dhaka FIR. To be reviewed in tandem with the Modernization Project of CNS-ATM System of Bangladesh. |
| 2/8 | Agreement between States to implement 50 NM longitudinal spacing between applicable aircraft within Category R airspace of BOB, on opportunity basis. The application of performance-based separation minima and distance-based separation minima (RNP 10, with procedural position reports not less than 24 minutes apart) in airspace over the high seas requires supporting procedures in ICAO Doc 7030 – <i>Regional Supplementary Procedures</i> . | 31 January 2020 SAIOSEACG/1 | India, Indonesia, Malaysia, Myanmar, Sri Lanka | Open | Chennai and Kuala Lumpur ACCs to signed revised LoA by 31 January 2020. Jakarta and Colombo had implemented 50 NM longitudinal spacing. Yangon and Kolkata, and Chennai had implemented 50 NM longitudinal spacing. Chennai OCC and Kuala Lumpur ACC had signed a new LoA, effected on 01 June 2021. 50 NM longitudinal spacing implemented. BOBTFRG/3 Report re: IP/03. |

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| ACTION ITEM | DESCRIPTION | TIME FRAME | RESPONSIBLE PARTY | STATUS | REMARKS |
|-------------|---|---|--|---------------------------|--|
| 2/8 | Facilitate potential modernization of Bangladesh CNS/ATM system (meeting tentatively planned for 23 October 2019) | SAIOACG/10 | ICAO RO | Open Closed | ICAO RO to provide feedback during SAIOACG/10. BOBTFRG/3 Report re: IP/02. The Modernization Project of CNS-ATM System of Bangladesh expected to be completed in 2024. |
| 2/9 | Research and development project conducted by India, Singapore and any other interested States to look at technology capability and benefits, including the business case for enhanced surveillance and communication | To be determined | India, Singapore (ATMRI) | Open Closed | Subject to the approval from the competent agencies of each State. India and Singapore (ATMRI) would examine the proposal and submit their comments at the BOBTFRG/3. Task updated at the BOBTFRG/3. On 25 November 2019, Airport Authority of India had an informal meeting with ATMRI Singapore on the ICAO request in BOBTFRG/2 for a joint research and development. In the meeting, ATMRI informed that communications and surveillance was not in their domain of research, and they would not be able to participate. |
| 2/10 | Implementation of 50 NM longitudinal separation (RNAV 10/ RNP 10) with PBCS spacing to aircraft operating in the BOB airspace, at or above a level to be determined | 1 January 2023 To be discussed at SAIOSEACG/1 | India, Indonesia, Malaysia, Sri Lanka States, IATA | Open | To recommend to SAIOACG (during SAIOACG/10) for ADS-C/CPDLC non-exclusive mandate. States were expected to issue AIC after SAIOACG/10, subject to the decision of the meeting. BOBTFRG/3 Report re: WP/08. |

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| ACTION ITEM | DESCRIPTION | TIME FRAME | RESPONSIBLE PARTY | STATUS | REMARKS |
|-------------|--|--------------------------|--|--------|--|
| 2/11 | Develop PBCS implementation plan to support 30 NM longitudinal spacing on RNP 4 (or RNP 2) routes within Category R airspace of BOB | 2023 To be determined | India, Indonesia, Malaysia, Myanmar, Sri Lanka | Open | States that require PBCS to support 30 NM longitudinal spacing: Bangladesh: To be determined. Sri Lanka: No information. India: Expected to be implemented in Chennai FIR in 2020; Mumbai FIR in 2023; and Kolkata FIR to be determined. Indonesia: Expected in 2023 as part of the new Jakarta ACC ATM system project. Malaysia: Expected in second quarter of 2022. Myanmar: To be determined. |
| 2/12 | Implementation of RNP 4 (or RNP 2) routes within BOB airspace | 2023 To be determined | India, Indonesia, Malaysia, Myanmar, Sri Lanka | Open | Subject to the implementation of PBCS. |
| 2/13 | Agreement between States to implement 30 NM longitudinal spacing on affected ATS routes within Category R airspace of BOB | 2024 To be determined | India, Indonesia, Malaysia, Myanmar, Sri Lanka | Open | |
| 2/14 | Review the demand and capacity on the affected ATS routes | 2024 To be determined | All BOBTFRG States | Open | Three months after the implementation of 30 NM longitudinal spacing on affected ATS routes within Category R airspace of BOB. |
| 2/15 | Identify solutions to integrate departing traffic from New Delhi with the BOBCAT traffic | 2024 To be determined | | Open | |
| 2/16 | Review the requirement to retain BOBCAT tool based on the increase in capacity utilising improved longitudinal spacing, taking into account forecast growth in air traffic | 2024 To be determined | | Open | |
| 2/17 | Make recommendations to SAIOACG on the future status of the BOBCAT tool | 2024 To be determined | | Open | |

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| ACTION ITEM | DESCRIPTION | TIME FRAME | RESPONSIBLE PARTY | STATUS | REMARKS |
|-------------|--|-------------------------------|--|--------|--|
| 2/18 | Malaysia to consider India's proposal to realign ATS route N877 from AMVUR to AGEGA and join ATS route L510. ATS route L510 will be eastbound only up to AGEGA within Chennai FIR and Kuala Lumpur ACC may facilitate both east bound and west bound between LEKIR and EMRAN within the Kuala Lumpur FIR | BOBTFRG/3 November 2022 | India, Malaysia | Open | BOBTFRG/2 Report WP/05. Task updated at BOBTFRG/3. Malaysia positive, and would conduct meeting with India. |
| 3/1 | Engage in three party discussion between India, Indonesia and Malaysia to support the mitigating of LHDs at Chennai – Kuala Lumpur interface (Hot Spot A2) | SAIOSEACG/1 | India, Indonesia, Malaysia | Open | BOBTFRG/3 Report re: WP/02. |
| 3/2 | Amendment to the BOBTFRG Terms of Reference | SAIOSEACG/1 | ICAO | Open | BOBTFRG/3 Report re: WP/05. |
| 3/3 | Withdrawal of ATS Route B466 Segment in Chennai FIR | SAIOSEACG/1 | India, Indonesia, Malaysia, ICAO | Open | BOBTFRG/3 Report re: WP/06. |
| 3/4 | Analysis on fleet equipage in ADS-C/CPDLC, RNP 10, RNP 4 and RNP 2 (continental and oceanic) | SAIOSEACG/1 | States, IATA | Open | BOBTFRG/3 Report re: WP/08. |
| 3/5 | States requiring PBCS support to implement performance-based separation to develop its PBCS implementation plan, including expected date of implementation. | SAIOSEACG/1 | India, Indonesia, Malaysia, Myanmar, Sri Lanka | Open | BOBTFRG/3 Report re: WP/08. |

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IMPLEMENTATION TIMELINES FOR BOBTFRG PRIORITY AREAS V2.0

BOBTFRG Priority Area 1: Conduct a review of the air traffic flows in Category S airspace through Thailand, and Myanmar, Bangladesh to the Bay of Bengal, India, Pakistan and Afghanistan. The objective is to develop a plan to implement improved and harmonised longitudinal spacing on affected ATS route(s) (targeting 20 NM longitudinal spacing, or as close to the separation minima as practicable).

| | | Activity | Completion Date | Remarks |
|---------|---|--|--------------------------------------|---|
| Phase 1 | 1 | Identify current spacing implemented by States. | October 2019 BOBTFRG/4 | States to fill and submit the Attachment D to BOBTFRG/2 State Letter by 31 October 2019. Updated at BOBTFRG/3: Bangladesh, India, Indonesia, Malaysia, Myanmar, Pakistan and Thailand had submitted data to ICAO. Re: ATM/SG/9 WP/7, ICAO APAC Regional Office would circulate a new survey form, requesting APAC Administrations to provide information about the authorised ATC separation minimums and separation minimums at each FIR TOC point. |
| | 2 | Identify impediments to implementation of improved spacing (staffing and ATC sectorisation constraints). | October 2019 Completed | States to fill and submit the Attachment D to BOBTFRG/2 State Letter by 31 October 2019. Updated at BOBTFRG/3: Reasons provided by States: communication and surveillance coverage limitations; ATM system capability related to PBCS; and low level of ADS-C/CPDLC equipage. |
| | 3 | Identify the ATS surveillance and communication gaps and actions taken to fill the gaps. | October 2019 Closed | Ref CNS SG/23 WP/22. Updated at BOBTFRG/3: ATS Surveillance and DCPC VHF Coverage Charts was included in the <i>Asia/Pacific Seamless ANS Plan V3.0</i> . |

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| | | Activity | Completion Date | Remarks |
|--|---|--|--|--|
| | 4 | Identify ATS Inter-Facility Data Communication (AIDC) and/or direct speech circuits' capabilities. | 30 November 2019 Closed | States to provide update to the Secretariat latest by 30 November 2019. Updated at BOBTFRG/3: Updated AIDC implementation status in the APAC Region was provided in Appendix B to the APA TF/7 Report. |
| | 5 | Investigate whether appropriate handoff procedures are implemented between controllers providing ATS surveillance in adjacent airspace – review ATS Letter of Agreement (LOA). | 30 November 2019 31 January 2022 | Updated at BOBTFRG/3: Bangkok – Kuala Lumpur ACCs: Yes Bangkok – Yangon ACCs: Yes Jakarta – Kuala Lumpur ACCs: Yes Dhaka – Kolkata ACCs: expected in 2025. Dhaka – Yangon ACCs: expected in 2025. Yangon – Kolkata ACCs (ATS route A201)? Delhi – Lahore ACCs? Delhi – Karachi ACCs? Mumbai – Karachi ACCs? Lahore – Kabul ACCs? Karachi – Kabul ACCs? Colombo ACC – Chennai OCC? |
| | 6 | Review the existing Flight Level Allocation Scheme (FLAS) operating within the concerned airspace, with a view to improve efficiencies. | 31 October 2019 31 January 2022 | States to fill and submit the Attachment D to BOBTFRG/2 State Letter by 31 October 2019. Updated at BOBTFRG/3: Reason for FLAS: multiple crossing of higher density routes over Category R airspace. States to confirm the accuracy of the information in the Bay of Bengal FLAS Chart (BOBTFRG/3 Report re: WP/07). |

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| | | Activity | Completion Date | Remarks |
|---------|---|---|--|--|
| | 7 | States to identify routes along which reliable surveillance and communication are available to look at the possibility of reduced longitudinal spacing. | January 2020 31 January 2022 | <p>India, Myanmar, Thailand, Pakistan. Updated at BOBTFRG/3: India and Pakistan: 50 NM longitudinal spacing implemented at the TOC points of following FIR boundaries: Delhi – Karachi FIRs; Delhi – Lahore FIRs; and Mumbai – Karachi FIRs. Indonesia and Malaysia: 20 NM longitudinal spacing implemented at the following TOC points: GOTLA, PUGER and SALAX. Malaysia and Thailand: 30 NM longitudinal spacing implemented at the TOC points between Bangkok and Kuala Lumpur FIRs.</p> <p style="color: red;">Myanmar and Thailand? India and Myanmar (ATS route A201)? India and Sri Lanka?</p> |
| Phase 2 | 8 | Agreement between States to implement 20 NM longitudinal spacing (or as close to the separation minima as practicable) on affected ATS routes in Category S airspace through Thailand, Myanmar, Bangladesh, India, Pakistan and Afghanistan. | December 2020 2025 | <p>Updated at BOBTFRG/3: Traffic operating north of Bay of Bengal airspace will traverse through Dhaka FIR, and currently no en-route ATS surveillance service provided in Dhaka FIR. To be reviewed in tandem with the Modernization Project of CNS-ATM System of Bangladesh.</p> |

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BOBTFRG Priority Area 2: Conduct a review of the air traffic flows in Category R airspace within Bay of Bengal. The objective is to develop a plan to implement improved and harmonised 30 NM longitudinal spacing on affected ATS routes.

| | | Activity | Completion Date | Remarks |
|---------|---|--|---|---|
| Phase 1 | 1 | Agreement between States to implement 50 NM longitudinal spacing between applicable aircraft on affected ATS routes. The application of performance-based separation minima and distance-based separation minima (RNP 10, with procedural position reports not less than 24 minutes apart) in airspace over the high seas requires supporting procedures in ICAO Doc 7030 – <i>Regional Supplementary Procedures</i> . | 31 January 2020 SAIOSEACG/1 | Chennai and Kuala Lumpur ACC to signed revised LoA by 31 January 2020. Jakarta and Colombo had implemented 50 NM longitudinal spacing. Yangon and Kolkata, and Chennai had implemented 50 NM longitudinal spacing. Updated at BOBTFRG/3: Chennai OCC and Kuala Lumpur ACC had signed a new LoA, effected on 01 June 2021. 50 NM longitudinal spacing implemented. |
| | 2 | Facilitate potential modernization of Bangladesh CNS/ATM system (meeting tentatively planned for 23 October 2019). | March 2020 Closed | ICAO RO to provide feedback during SAIOACG/10. Updated at BOBTFRG/3: The Modernization Project of CNS-ATM System of Bangladesh expected to be completed in 2024. |
| | 3 | Research and development project conducted by India, Singapore and any other interested States to look at technology capability and benefits, including the business case for enhanced surveillance and communication. | To be determined Closed | Subject to the approval from the competent agencies of each State. India and Singapore (ATMRI) would examine the proposal and submit their comments at the BOBTFRG/3. Updated at BOBTFRG/3: On 25 November 2019, Airport Authority of India had an informal meeting with ATMRI Singapore on the ICAO request in BOBTFRG/2 for a joint research and development. In the meeting, ATMRI informed that communications and surveillance was not in their domain of research, and they would not be able to participate. |

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Appendix E to the Report

| | | Activity | Completion Date | Remarks |
|--|---|---|--|--|
| | 4 | Implementation of 50 NM longitudinal separation (RNAV 10/RNP 10) with PBCS spacing to aircraft operating in the BOB airspace, at or above a level to be determined. | 1 January 2023 To be discussed at SAIOSEACG/1 | ADS-C/CPDLC non-exclusive mandate? PfA to ICAO Doc 7030 – <i>Regional Supplementary Procedures</i> . Current fleet equipage is less than 70%. Most of the non-equip aircraft are narrow-body aircraft and low cost airlines. Updated at BOBTFRG/3: States to issue AIC after SAIOACG/10. For better clarity, the ADS-C/CPDLC non-exclusive mandate should be referred to as “ <i>designation as non-exclusive PBN and PBCS airspace to allow operational priority for PBN and PBCS approved aircraft</i> ”. Due to the COVID-19 pandemic, which has caused severe impact on airlines and ANSPs resources and revenue, the discussion on the plan designation as non-exclusive PBN and PBCS airspace to allow operational priority for PBN and PBCS approved aircraft has been postponed. |
| | | a. States and IATA to conduct analysis on fleet equipage in ADS-C/CPDLC, RNP 10, RNP 4 and RNP 2 (continental and oceanic). | SAIOSEACG/1 | BOBTFRG/3 Report re: WP/08. |
| | | b. States requiring PBCS support to implement performance-based separation to develop its PBCS implementation plan, including expected date of implementation. | SAIOSEACG/1 | BOBTFRG/3 Report re: WP/08. |

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| | | Activity | Completion Date | Remarks |
|---------|----|--|--------------------------|--|
| | 5 | Develop Performance-based Communication and Surveillance (PBCS) Implementation Plan to support 30 NM longitudinal spacing on RNP 4 (or RNP 2) routes within Category R airspace. | 2023 To be determined | States that require PBCS to support 30 NM longitudinal spacing: Bangladesh: To be determined. Sri Lanka: No information. India: Expected to be implemented in Chennai FIR in 2020; Mumbai FIR in 2023; and Kolkata FIR to be determined. Indonesia: Expected in 2023 as part of the new Jakarta ACC ATM system project. Malaysia: Expected in second quarter of 2022. Myanmar: To be determined. |
| | 6 | Implementation of RNP 4 (or RNP 2) routes within BOB airspace. | 2023 To be determined | Subject to the implementation of PBCS. |
| | 7 | Agreement between States to implement 30 NM longitudinal spacing (or as close to the separation minima as practicable) on affected ATS routes. | 2024 To be determined | Updated at BOBTFRG/3: Subject to the implementation of PBCS. |
| Phase 2 | 8 | Review the demand and capacity on the affected ATS routes. | 2024 To be determined | |
| | 9 | Identify solutions to integrate departing traffic from New Delhi with the BOBCAT traffic. | 2024 To be determined | |
| | 10 | Review the requirement to retain BOBCAT tool based on the increase in capacity utilising improved longitudinal spacing, taking into account forecast growth in air traffic. | 2024 To be determined | |
| | 11 | Make recommendations to SAIOACG on the future status of the BOBCAT tool. | 2024 To be determined | |