ICAO

INTERNATIONAL CIVIL AVIATION ORGANIZATION

A UN SPECIALIZED AGENCY

AGENDA ITEM 6|WP27

ATM Coordination (Meetings, Route Development, Contingency Planning)

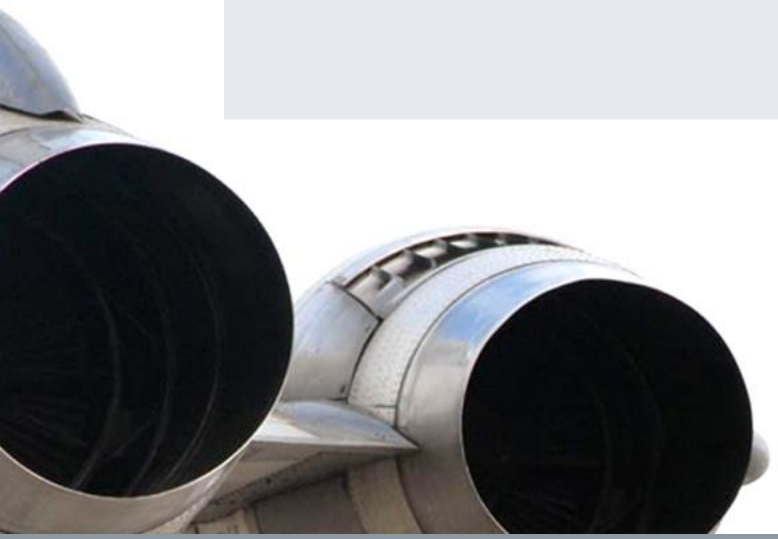
SAIOSEACG MEETING OUTCOMES

Secretariat

ICAO Asia &Pacific Regional Sub-office

SUMMARY

This paper presents the key outcomes of the Second Meeting of the South Asia, Indian Ocean and Southeast Asia ATM Coordination Group (SAIOSEACG/2):

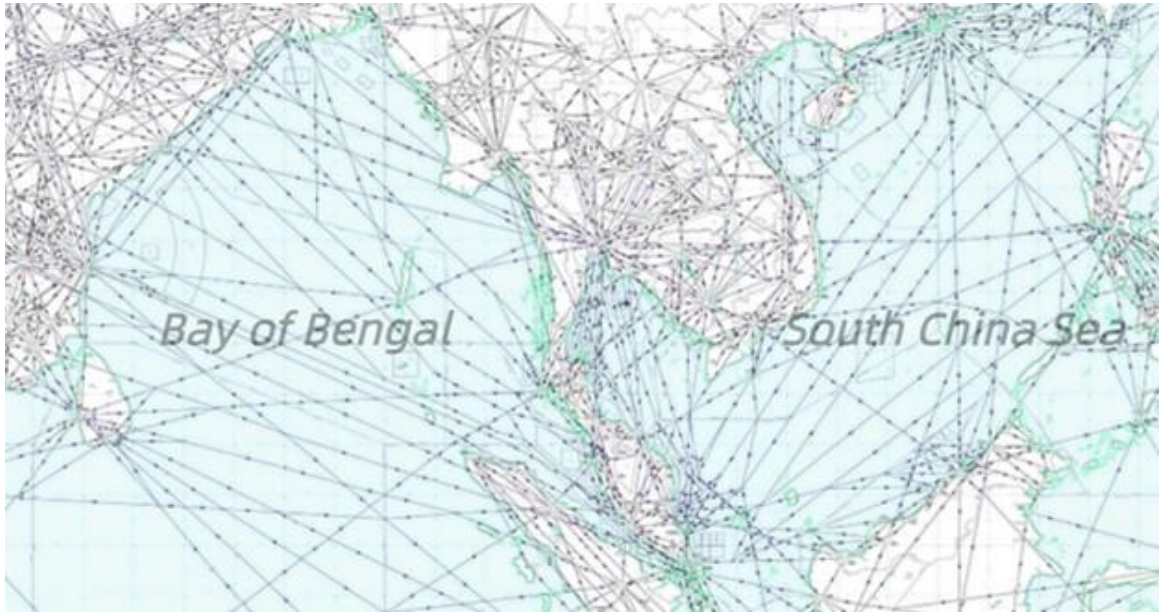


INTRODUCTION

1.3 The meeting is invited to note that the SAIOSEACG has always been the **first formal meeting of the year** in the ICAO APAC ATM calendar. At the meeting, ICAO introduced ATM information that would be later assessed by other relevant technical groups and finally by ATM/SG. The consideration and input of the broader ATM community at SAIOSEACG help to inform and support the discussion at later groups.

INTRODUCTION

1.4 The key outcomes of the two ad hoc Small Working Groups subordinated to the SAIOSEACG, namely the **South China Sea Traffic Flow Review Group (SCSTFRG)** and the **Bay of Bengal Traffic Flow Review Group (BOBTFRG),** are also reflected in this Working Paper.



Key information update on ATM

2.1 ICAO presented key updated ATM information relevant to the SAIOSEACG meeting on:

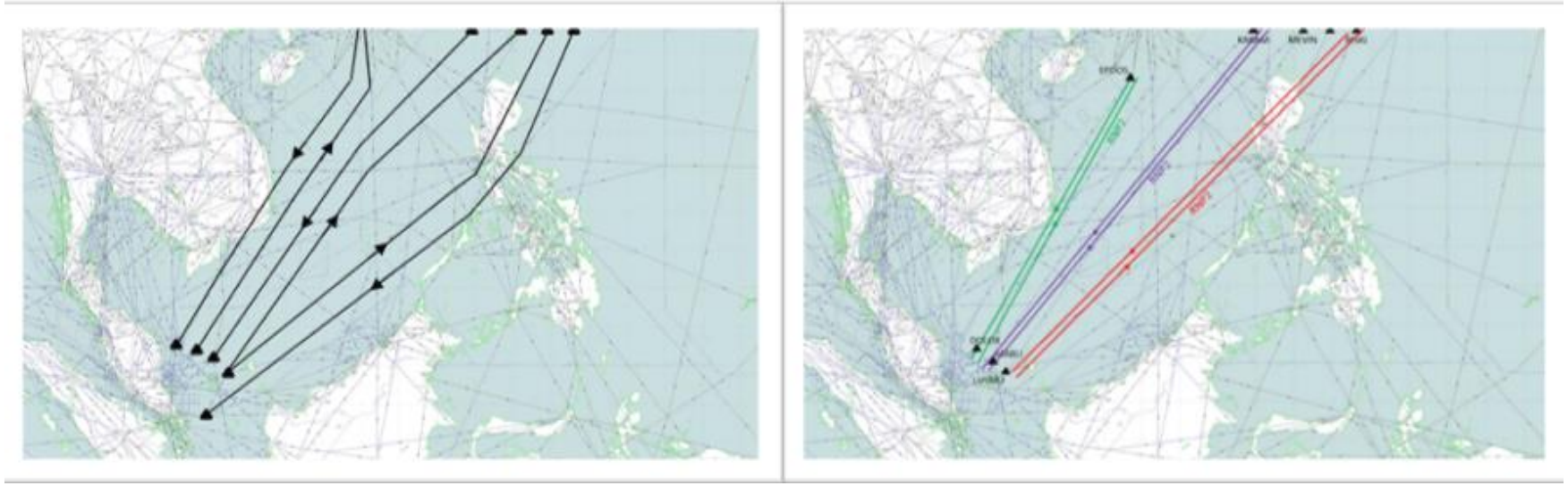
- Air Navigation Service Deficiencies List
- Airspace Safety Monitoring
- Air Navigation Service USOAP
- Application of ATC Separation Minima
- Missing Departure (DEP) Messages
- Regional Air Navigation Plan
- Seamless ANS Plan
- Air Traffic Flow Management
- AIS-AIM Implementation
- Regional ATM Contingency Planning
- Asia/Pacific Search and Rescue

Review of Current Operation and Problem Areas

2.3 IATA presented a summary of economic and traffic data illustrating the impacts of COVID-19 on the airline industry and the progress of recovery since States have re-opened international borders. Based on the assessment, notwithstanding a relapse of pandemic conditions, and relying on geopolitical events to be resolved, air traffic globally is expected to be **fully recovered by 2025 with Asia Pacific being in the later stage**.

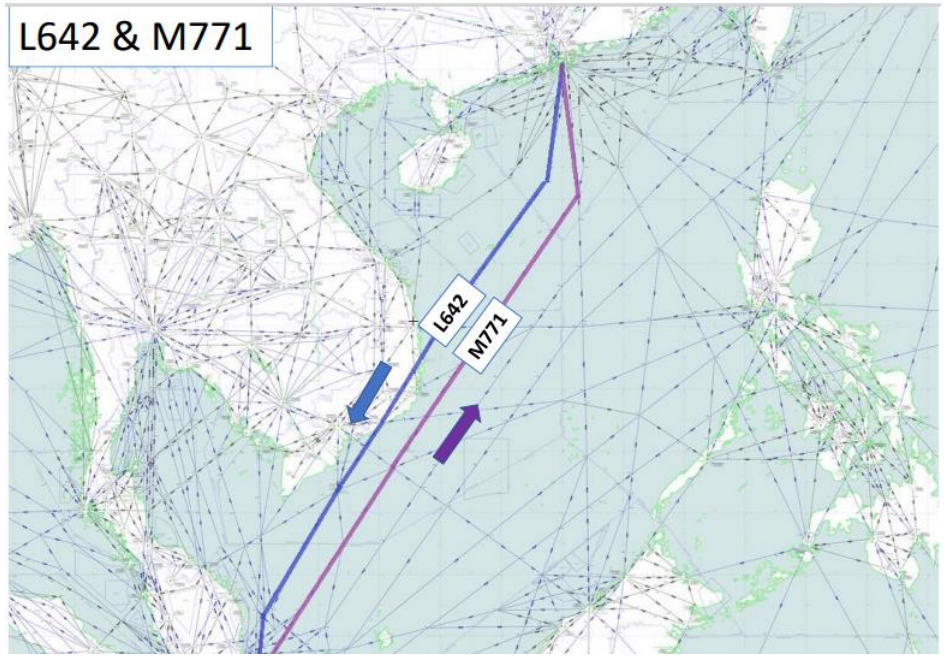
Review of Current Operation and Problem Areas

2.4 IFATCA presented a phased upgrade concept to the South China Sea airspace, involving the implementation of ICAO Standards and Recommended Practices (SARPs) and procedures. The meeting recalled that the current South China Sea airspace structure was introduced in 2002 based on an **RNAV10 parallel route network**. The upgrade concept was based on the **RNP 2 parallel routes** network which complied with the APAC Seamless ANS Plan.



Review of Current Operation and Problem Areas

2.5 Hong Kong China reported to the meeting on their effort to optimize the airspace capacity of major trunk routes L642 and M771. The optimization plan was to reduce the minimum aircraft separation from 50 NM to 20 NM.

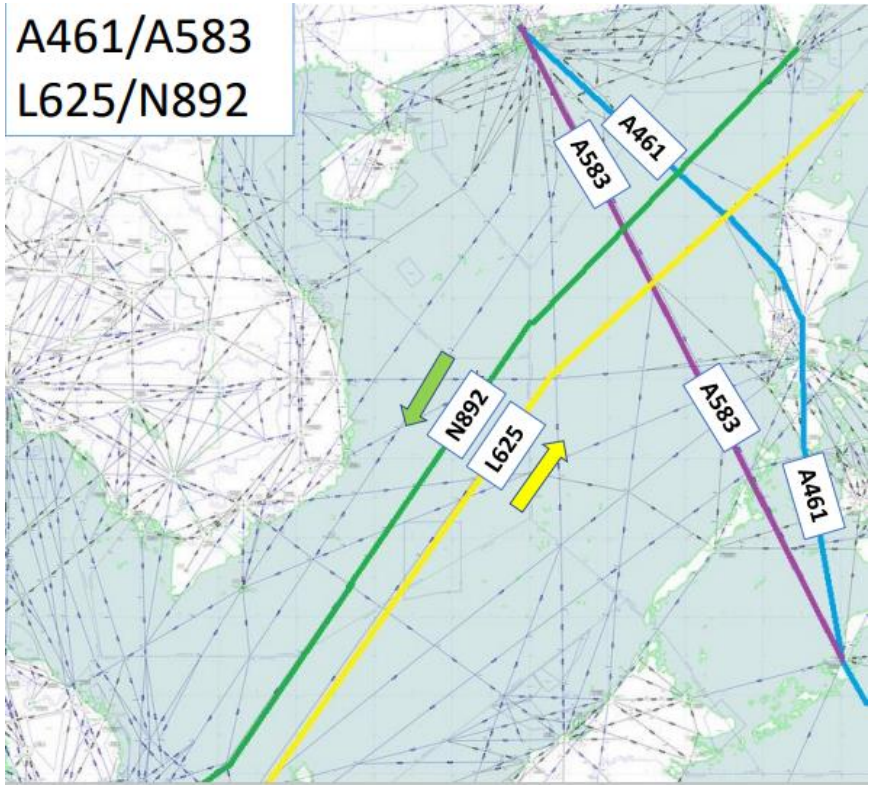


- As per *ATM/SG Task List* Action Item 10/8, a side meeting of SAIOSEACG/2 was conducted to discuss this matter.
- More details have also been discussed in the followed SCSTFRG/11 (Bangkok, Thailand, 4 - 6 July 2023).

Review of Current Operation and Problem Areas

2.6 The meeting was updated on the successful enhancement of the 30 NM longitudinal spacing utilization on air routes A461 and M501 within the Manila FIR and Hong Kong FIR. The Philippines and Hong Kong China were planning to reduce the spacing on ATS route A583 to 30 NM by Q4 2023 in preparation for the anticipated return of pre-COVID-19 traffic levels in 2024.

- Indonesia expressed readiness to cooperate with the Philippines on the optimization of ATS route A461.



Review of Current Operation and Problem Areas

2.7 Based on the positive result from IATA's survey on fleet equipage, combined with the improvement of the surveillance coverage in Ujung Pandang FIR, **Indonesia** reported to the meeting that they were ready **to apply 30 NM separation** and appealed to neighboring FIRs, which have the same airspace category to implement ATC separation standards among their common boundaries.

- At SCSTFRG/11, Indonesia updated that 10NM surveillance spacing g (or Closer to 5 NM Based on Surveillance Spacing) has been implemented between Jakarta FIR and Ujung Pandang FIR.

2.8 **Indonesia** presented their solutions for managing **missing departure messages**, a problem they diagnosed in the first half of 2021. Two main causes were identified: improperly handled departure messages by the system and unpaired radar and Flight Plan (FPL) data. Indonesia has improved their system to minimize missing departure messages through automatic message-sending and alerting of failed departure messaging.

Implementation of CNS-ATM Systems

2.9 India discussed its plan to implement separation minima using **Space-Based ADS-B (SADS-B)** ATS surveillance System in their oceanic airspace where VHF Voice Communications was not available, according to the criteria of a new separation minima in the 9th amendment to PANS ATM (Doc.4444, Chapter-8 para 8.7.4).

Implementation of CNS-ATM Systems

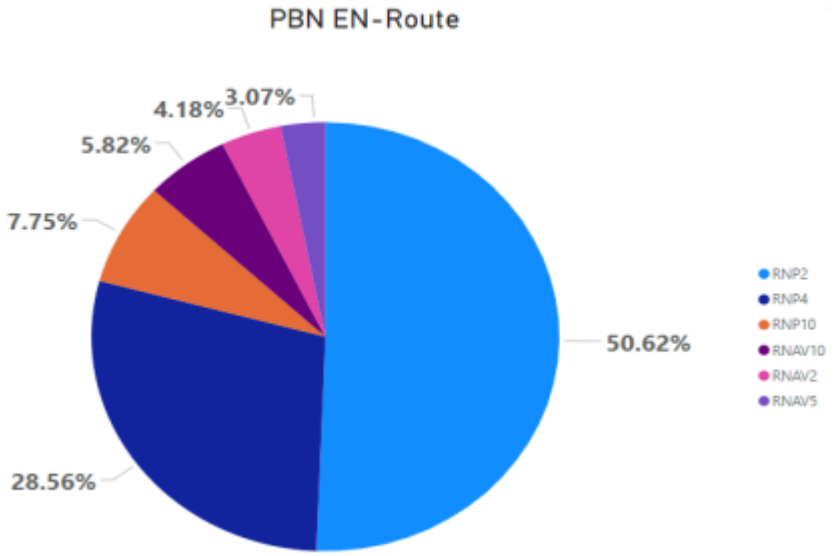
2.10 IATA updated the meeting on its **Aircraft equipage and Capacity Survey** conducted in 2022 for Asia-Pacific and North Asia, and with an update from previous reports after several more airline fleets have been added to the database.

- The survey specifically asked for aircraft fleet capabilities and operating approvals in the domains of PBCS, Performance-Based Navigation (PBN), Global Navigation Satellite System (GNSS) Augmentations, Mode Select Secondary Surveillance Radar (Mode S SSR) and System-Wide Information Management (SWIM)
- Regarding **PBCS**, the percentage of entire fleets in the database that were reported as CPDLC and ADS-C equipped had increased from **56% to almost 68%** which had pushed the total percentage of equipped aircraft up to 61.23%.

Implementation of CNS-ATM Systems

2.10 IATA updated the meeting on its **Aircraft equipage and Capacity Survey** conducted in 2022 for Asia-Pacific and North Asia, and with an update from previous reports after several more airline fleets have been added to the database.

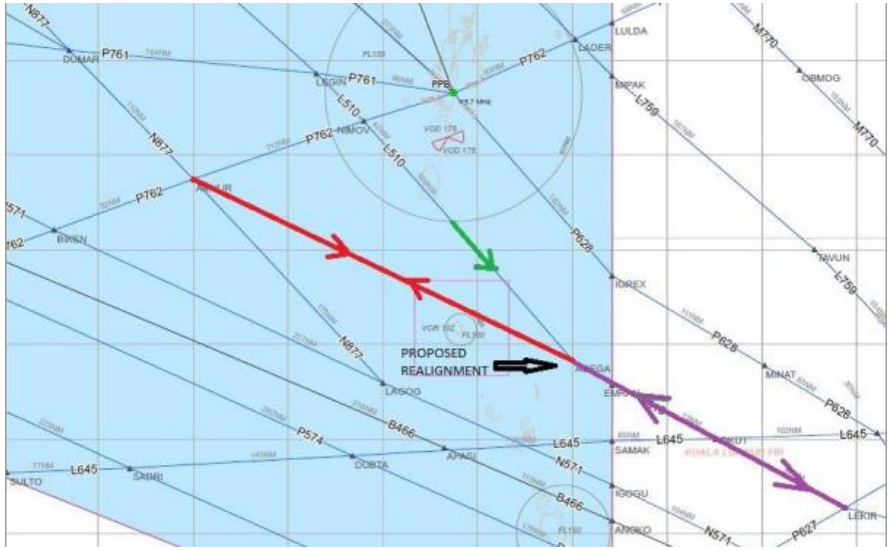
- For PBN, All new aircraft added to the database were equipped with some type of **PBN capability** with regulatory approval. RNP2 capability for en-route increased from approximately 45% to over 50%.



ATS Route Development

2.13 The Asia/Pacific Region ATS Route Catalogue has been reviewed and updated as version 22.1. As six new ATS route proposals were formally submitted by Malaysia and Thailand, the meeting considered those to be incorporated in the Catalogue. This topic will be further discussed in WP28.

2.14 The meeting noted the cooperation between India and Malaysia regarding the realignment of **ATS Route N877**, together with a series of optimization on adjacent routes, which could bring more efficiency in flight operation in the Bay of Bengal route network. Based on the agreement, the realignment and the consequent changes would take effect from **18th May 2023** as per the AIRAC Cycle.

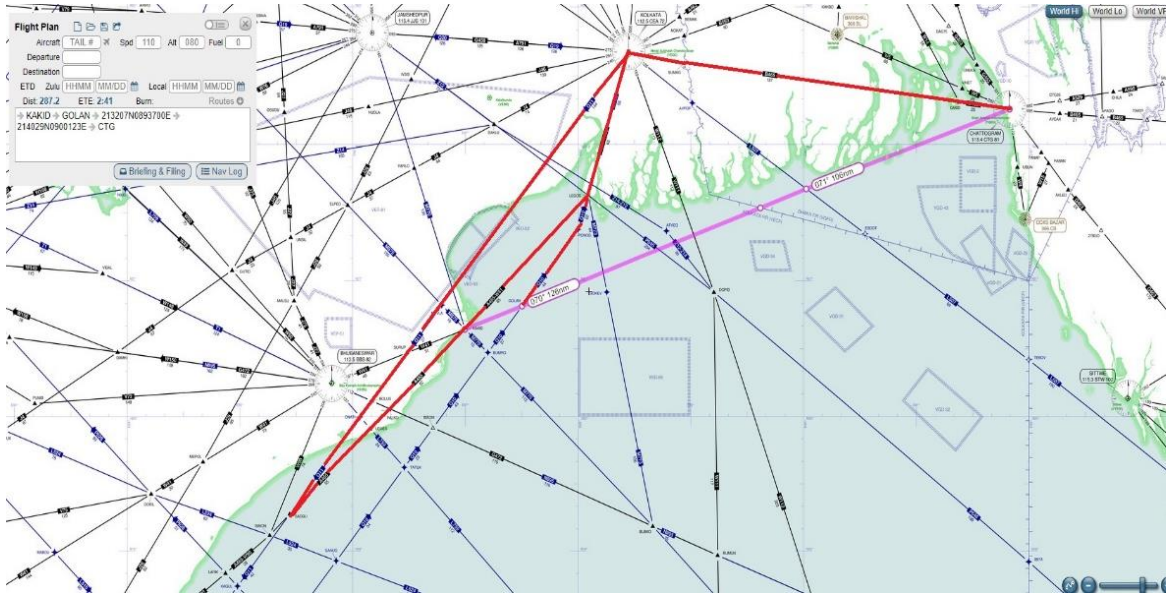


ATS Route Development

2.15 Indonesia presented information regarding the User Preferred Route (UPR) implementation progress within Indonesian airspace and the initial cross-border UPR implementation between Indonesia and the United States. Indonesia also informed the meeting of their experience in implementing UPR and their willingness to further explore cross-border UPR cooperation with adjacent States.

ATS Route Development

2.16 Regarding the *Asia/Pacific Region ATS Route Catalogue* proposal **BOB01** in the Bay of Bengal, the ICAO APAC Regional Sub-Office hosted a special coordination meeting (Video Teleconference, 11 May 2023), between **Bangladesh and India** with support from **IATA**. The Special coordination meeting formally agreed to establish the BOB01 Route proposal connecting **SURUP - KAKID – GOLAN - (WPT1) - (WPT 2) - Chattogram (CTG).** This bi-directional route option saves about 55NM, expected to benefit about 110 weekly flights.



ATM Contingency Plans and Search and Rescue

2.17 India informed the meeting of the discrepancy between the *ICAO APAC Regional Contingency Plan* and the Annex-11 provisions on the contingency route designator.

- ICAO recognized this as an issue and informed the meeting that it would be addressed in the updated version of the Regional ATM Contingency Plan (SAIOSEACG Action Item 2/3).

ANSP Coordination and Civil/Military Cooperation

2.18 Indonesia presented lessons learned from major ATM contingency events in the last three years, including the need for close cooperation and collaboration with military authorities and civil aviation authorities responsible for adjacent FIRs in a harmonized manner.

- Singapore emphasized the importance of implementing new capabilities such as Flight and Flow Information for a Collaborative Environment (FF-ICE) and System Wide Information Management (SWIM) to improve the resilience of the ATM system during contingency scenarios.
- ICAO stressed the importance of having appropriate contingency management in place and conducting contingency exercises.

ANSP Coordination and Civil/Military Cooperation

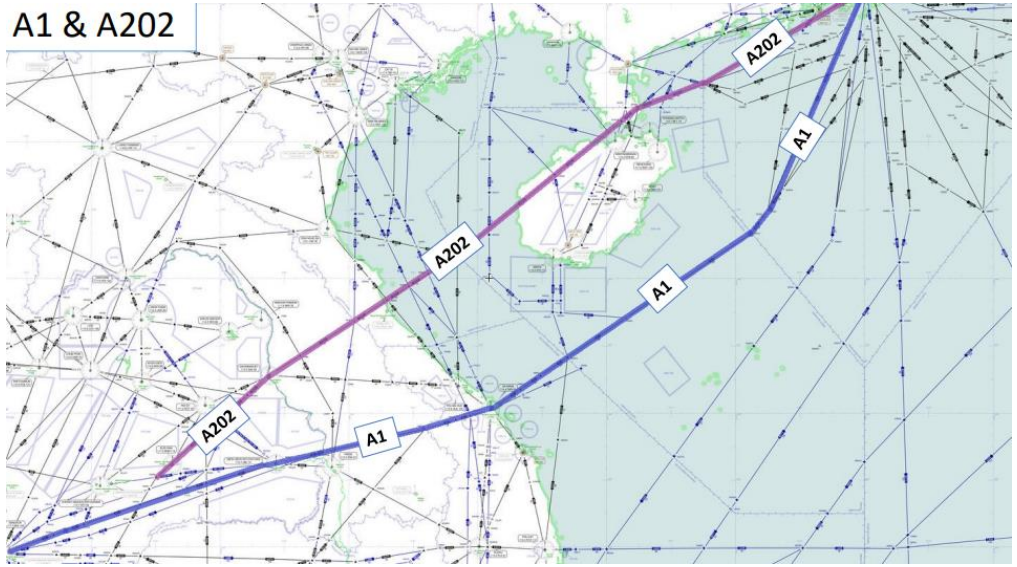
2.19 India informed the meeting that they were actively operating civil-military cooperation units called Regional Airspace Management Cells (RAMC) under the Flexible Use of Airspace concept and achieved significant economic benefits and carbon dioxide reduction effects. They also revealed plans to establish additional operating organizations for civil-military cooperation units in the eastern and western regions.

The Updates on the Priority Areas of the South China Sea Traffic Flow Review Group (SCSTFRG)

Priority Area 1: A1/A202

2.20 Action items under this Priority Area were to enhance the longitudinal spacing on ATS route A1 and A202 to 20 NM and develop a parallel route to A1.

- 20 NM longitudinal spacing **has been implemented** on ATS route A1 since 2020.

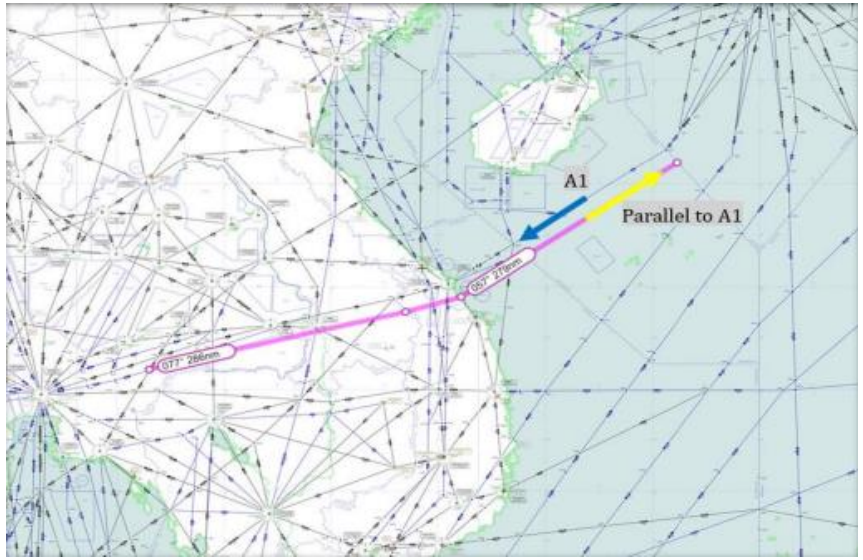


The Updates on the Priority Areas of the South China Sea Traffic Flow Review Group (SCSTFRG)

Priority Area 1: A1/A202

2.20 Action items under this Priority Area were to enhance the longitudinal spacing on ATS route A1 and A202 to 20 NM and develop a parallel route to A1.

- The development of a parallel route to A1 was still under the feasibility study stage. The biggest sticking point is the direction of the parallel routes, on which the States/administration concerned have not yet reached a preliminary consensus.

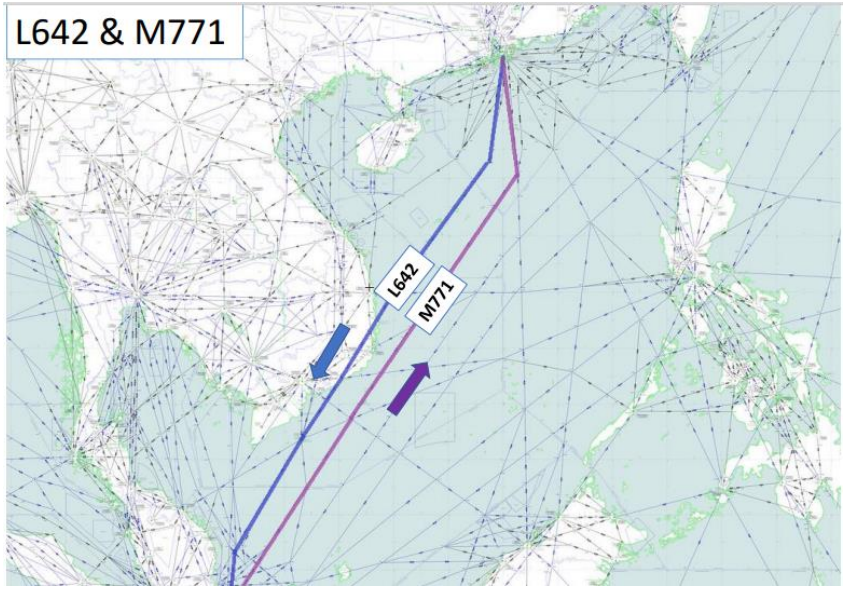


The Updates on the Priority Areas of the South China Sea Traffic Flow Review Group (SCSTFRG)

Priority Area 2: L642/M771

2.21 The goals were to reduce longitudinal spacing to at least 20 NM and to investigate the possibility of implementing parallel routes for L642 and M771.

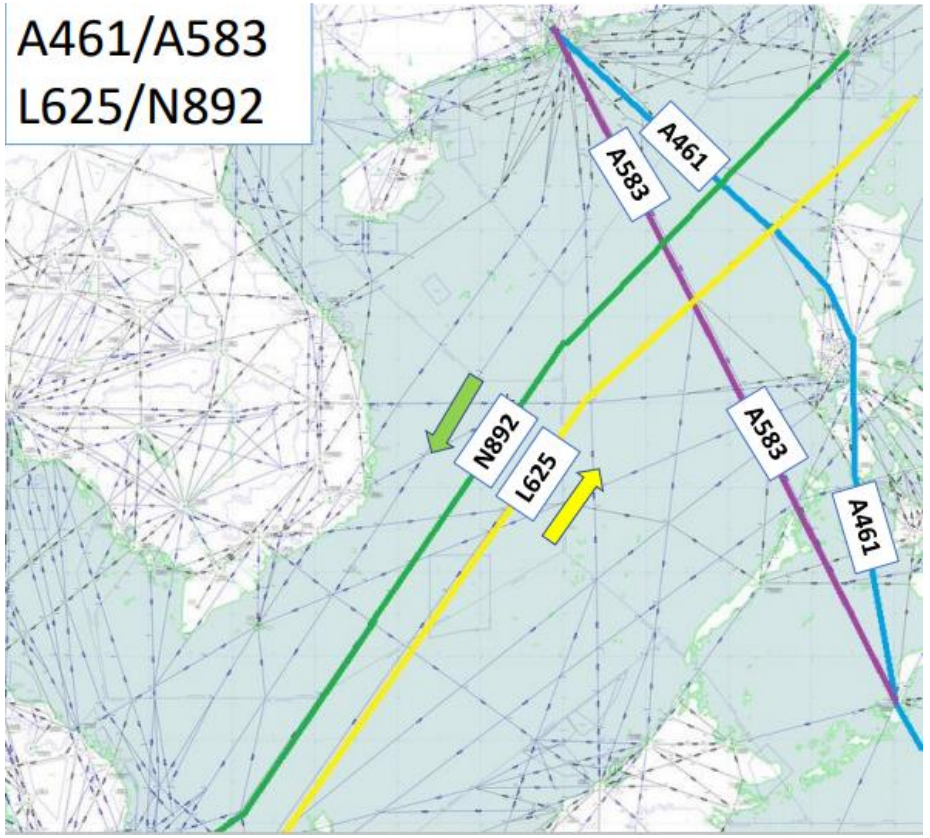
- **20 NM** separation has already been implemented on L642 and M771 between **Singapore** and the **Ho Chi Minh FIR** boundary.
- **Hong Kong China** expressed their **full readiness** to implement the 20NM longitudinal spacing on L642 and M771 and took the leading role to speed up the progress of implementation. Hong Kong China proposed to conduct a trial operation on L642 and M771 in Q3 2023. Although some details still need to be discussed, it was affirmed by **China and Viet Nam** that their best effort would be carried out to reach the common goal.



The Updates on the Priority Areas of the South China Sea Traffic Flow Review Group (SCSTFRG)

Priority Area 3: A461/A583/L625/N892

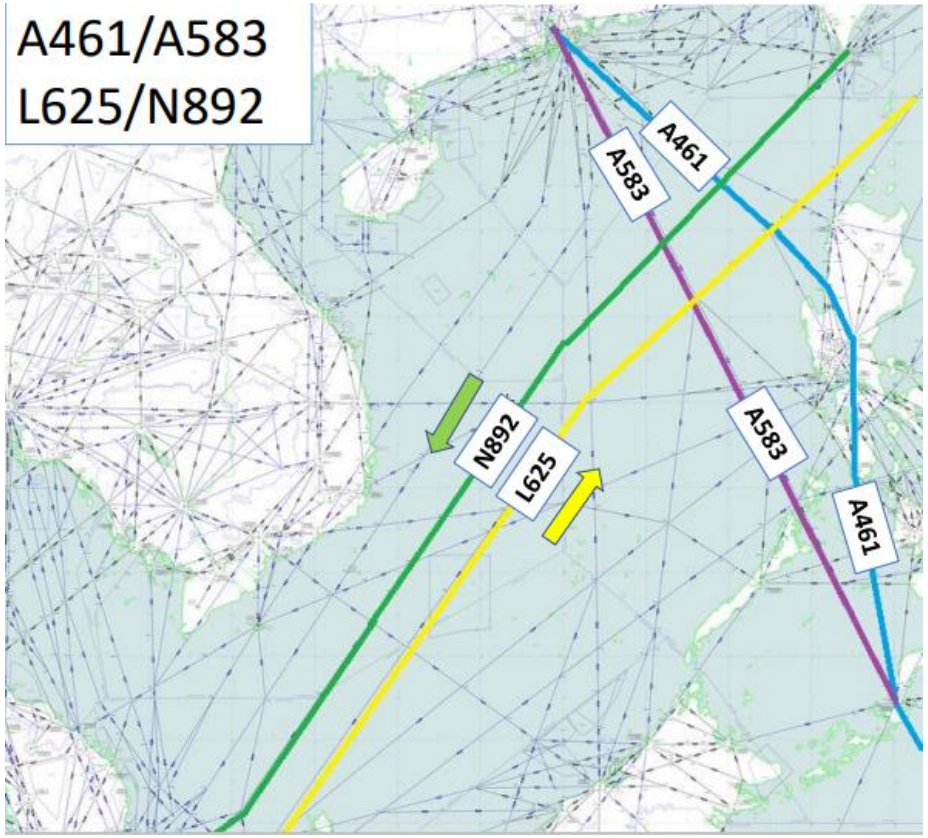
2.22 The action item was to enhance the longitudinal spacing on ATS routes A461, A583, L625, and N892 **to at least 50 NM**, with planning for **30 NM or less.**



The Updates on the Priority Areas of the South China Sea Traffic Flow Review Group (SCSTFRG)

Priority Area 3: A461/A583/L625/N892

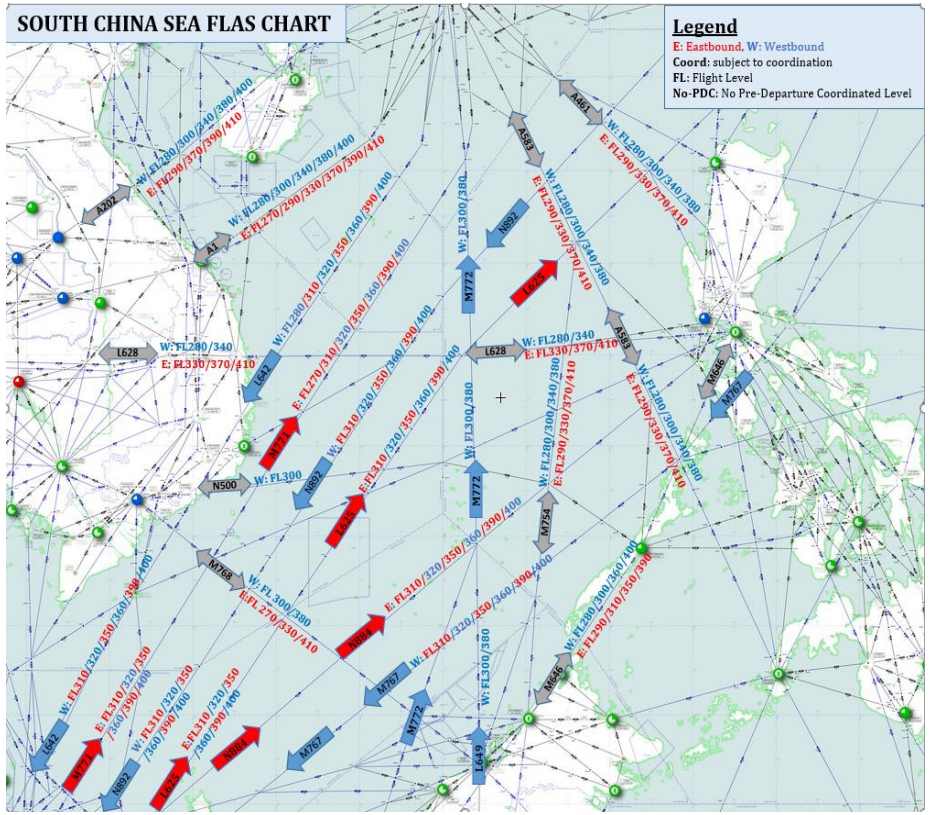
- **A461/M501:** Phase 1 and Phase 2 of **30 NM** longitudinal spacing implementation between Hong Kong China and the Philippines were completed.
- **A583:** The Philippines proposed a side meeting with Hong Kong China to discuss the details of Phase 3 Implementation which was planned to commence in Q4 2023.
- **N892 & L625**: The Philippines confirmed that the implementation of **50NM** longitudinal spacing would be moved to a later date due to internal issues that need to be resolved first.



The Updates on the Priority Areas of the South China Sea Traffic Flow Review Group (SCSTFRG)

Priority Area 4: Review of existing FLAS/FLOS operating within the South China Sea

2.23 Through the updated data submitted by South China Sea States/Administrations prior to the SCSTFRG/11 (Bangkok, Thailand, 4 - 6 July 2023), the ICAO APAC Regional Sub-Office has corrected the data from the previous version of the Chart to provide an overview of the FLAS currently operating in the South China Sea airspace among the major routes.



The Updates on the Priority Areas of the South China Sea Traffic Flow Review Group (SCSTFRG)

Priority Area 4: Review of existing FLAS/FLOS operating within the South China Sea

2.24 Discussion on South China Sea FLAS/FLOS has been going on for several years. ACCs have increasingly relied on the FLAS system and have developed a series of risk response plans, such as the Large-Scale Detour Procedure and flexible coordination mechanism. In fact, the current FLAS system has proven to be reliable, however, the following limitations should be taken into consideration:

- As the most economical level may not be assigned to the flights, the desired gain in fuel efficiency and emissions may be lost.
- Frequent flight-level changes are made to accommodate the FLAS requirements across various route segments, which may result in unsafe situations.
- High demands for extra coordination resulting in an increase in the ATCOs' workload, particularly under adverse weather conditions.

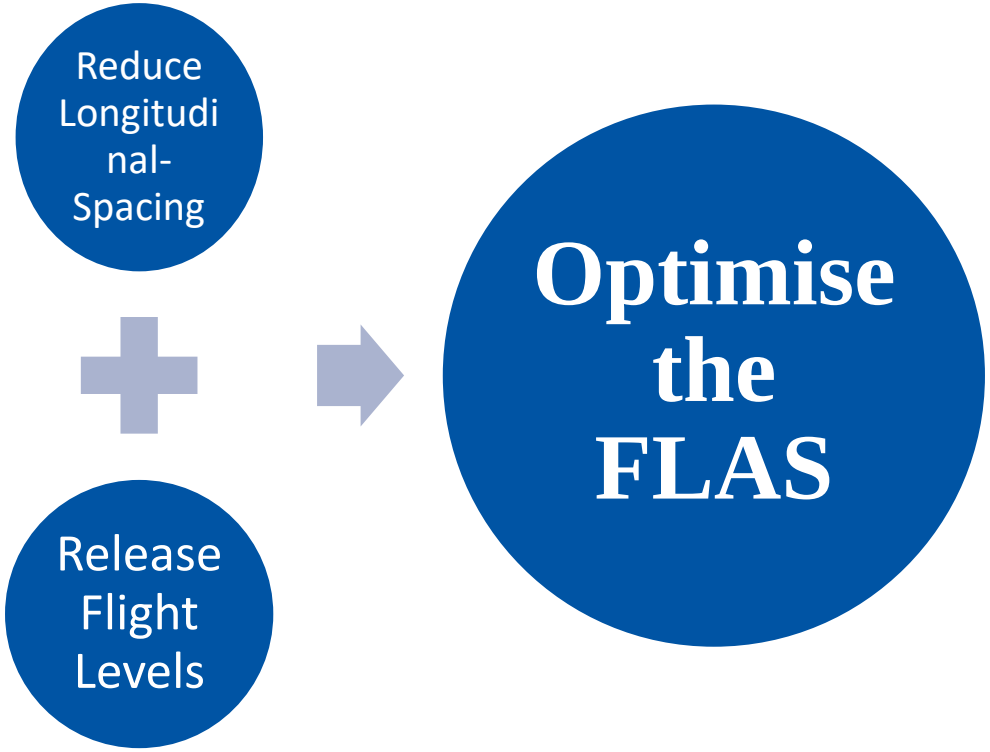
- Lack of flexibility: In comparison to the original concept, some of the secondary crossing routes are now busier than the primary routes and it is necessary to make timely adjustments.
- Systemic risks associated with human errors. The likelihood of coordination errors during the ATC-to-ATC transfer of control may increase when transitioning from FLAS operation to the Large-Scale Detour procedure.
- Safety issues caused by the transition from non-standard FLOS to standard FLOS at the TOC points, particularly at the boundary of the SCS area.
- The capability and efficiency of current FLAS might be insufficient to cope with future traffic growth.

The Updates on the Priority Areas of the South China Sea Traffic Flow Review Group (SCSTFRG)

Priority Area 4: Review of existing FLAS/FLOS operating within the South China Sea

2.25 In view of the above-mentioned facts, the goal for the SCSTFRG should be the removal of FLAS in the SCS area to meet the APAC Seamless ANS Plan's expectations. This cannot be achieved without a systematic and holistic roadmap supported by all stakeholders.

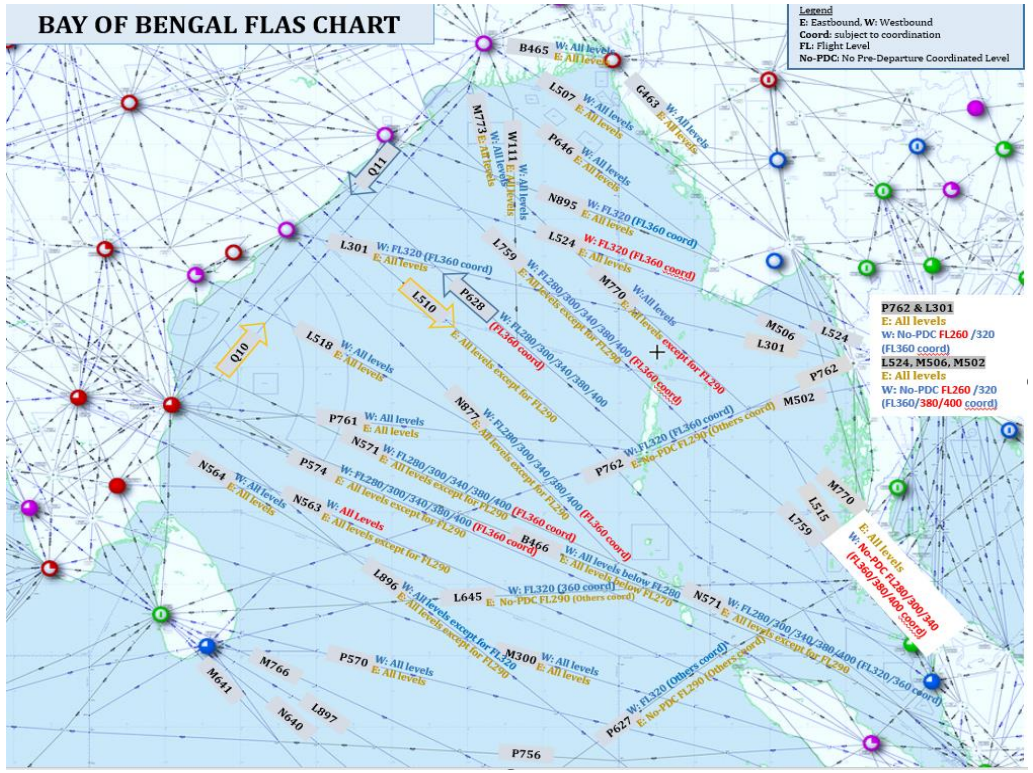
2.26 However, the SCSTFRG Priority 4 (optimization of FLAS/FLOS operation) cannot be considered as an isolated project; it has significant interconnectivity with the SCSTFRG Priority 1, 2 and 3 (reduction of longitudinal separation on primary routes). Reducing the longitudinal separation could enhance route capacity and improve airspace efficiency.



Report on the Main Tasks of the Bay of Bengal Traffic Flow Review Group (BOBTFRG)

Bay of Bengal Flight Level Allocation Scheme (FLAS)

2.28 ICAO presented the Bay of Bengal Flight Level Allocation Scheme (FLAS) Chart (Figure 3), and urged the States concerned to review the current FLAS operations and plan for improved FLAS to enhance airspace efficiency in the BOB airspace. This review would fulfil the tasks specified in the BOBTFRG Terms of Reference relating to the Asia/Pacific Seamless ANS Plan and expected traffic recovery from the COVID-19 pandemic.



Report on the Main Tasks of the Bay of Bengal Traffic Flow Review Group (BOBTFRG)

Discussion on the feasible implementation timelines for the improved horizontal separation standards.

2.29 The group recognised that despite available capabilities, some States still apply conservative separation standards than prescribed, contributing to the growing congestion. Noting the objectives and the tasks under the BOBTFRG, the group have prioritized the implementation timelines for the improved horizontal separation standards according to demonstrated performance capabilities.

- Identify constraints and the CNS/ATM capabilities that are needed to implement the optimal longitudinal separation;
- Define the timelines, milestones and dependencies for actions that should be followed;
- firm up with the mandate date for the ADS-C/CPDLC, which was identified as the key enabler for airspace enhancement;

Report on the Main Tasks of the Bay of Bengal Traffic Flow Review Group (BOBTFRG)

Discussion on the feasible implementation timelines for the improved horizontal separation standards.

- Draft the trial implementation plan for the PBCS over the Bay of Bengal area, including the phased detailed action plans, considering the following:

Phase 1

- 50 NM longitudinal separation to be applied based on the current capability RNAV 10 (RNP 10) available as soon as possible;

Phase 2

- to start transitional period: trial implementation of 30 NM longitudinal / 23 NM lateral separation with harmonized ADS-C/CPDLC equipage mandate for RNP 4 or RNP 2, RCP 240, RSP 180 requirement;

Phase 3

- permanent implementation of 30 NM longitudinal / 23 NM lateral separation with PBCS supports.

Report on the Main Tasks of the Bay of Bengal Traffic Flow Review Group (BOBTFRG)

Discussion on the feasible implementation timelines for the improved horizontal separation standards.

2.30 Several plenary meetings have been conducted to facilitate the discussion and reached the following outcomes:

- IATA provided information on options for reducing separation minima in the Bay of Bengal and supporting PBCS non-exclusive mandate trials based on airline equipage and capability data.
- As requested by India, Myanmar agreed to review the possibility of implementing 50 NM longitudinal separation to be applied based on the current capability RNAV 10 (RNP 10) among the routes L301 (WB: FL320 & FL360; EB all levels) and L507 (All levels) as prescribed in the of LoA.
- India and Malaysia to start the trial on Route N571 between RNP4/RNP2 approved aircraft on an opportunity basis between Kuala Lumpur and Chennai, with a possibility to extend to other routes at a later stage.

2.31 The meeting is invited to note that the upcoming BOBTFRG/5 was planned to be held in Bangkok from **6-8 December 2023**.

Action by the Meeting

The meeting is invited to:

a) note the information contained in this paper;
b) discuss any relevant matters as appropriate.

Thank You!

ICAO