

**Bay of Bengal ATS Route Operational Overview (Updated by BOBTFRG/7)**

ATS Routes (Categories)	Horizontal Separation	Horizontal Challenges	Vertical Management	Vertical Challenges	Concerning States (Leading)	Timelines	CNS Infrastructures
L510, P574, P628, <b>N571</b> (RNAV 10 / RNP 10)	Phase 1: 50 NM longitudinal separation; Phase 2/3 planned: 30 NM longitudinal / 23 NM lateral (RNP 4 or RNP 2 with ADS-C/CPDLC, RCP 240, RSP 180)	Lack of harmonized separation minimum across FIR boundaries; limited RNP 2/RNP 4 implementation; varied ANSP readiness; dependency on ADS-C /CPDLC mandates	FLAS includes FL280, FL300, FL340, FL360, FL380, FL400 (westbound)	Need for harmonized vertical separation and allocation; weather deviations (LSWD) require reverting to 10-minute separation	<b>India</b> (lead for L510, N571, P574, P628 implementation with <b>Malaysia</b> ); India (Chennai/Kolkata FIRs)	<p><b>Phase 1:</b> 50 NM (implemented 1 July 2024)</p> <p><b>Phase 2:</b> Trial started on <b>1st September 2025 for a period of one (1) year specifically on N571 (FL280 up to FL410) to explore CRA options and assess operational limitations.</b></p> <p><b>Phase 3:</b> Tentative permanent implementation of 30NM PBCS-based separation by <b>7th August 2026.</b></p>	ADS-C/CPDLC available in some FIRs; varied readiness — some FIRs lack automation; some under upgrade (Indonesia); Malaysia monitoring ADS-C/CPDLC only
N571 (Chennai FIR – Oceanic)	Trial use of PBCS-based 30 NM & 5-minute separation (opportunity basis)	Limited benefits due to restricted segment (AGELA–IGOGU); <b>Limited flight participation from Malaysia due to operational limitation (i.e. large weather deviation)</b> , lack of participation from Oman; some aircraft excluded due to non-PBCS compliance or boundary sector not in trial	RVSM band	Limited vertical optimization until Malaysia, exit boundary constraints	India (lead); Malaysia, (encouraged to join)	Trials commenced 4 Feb 2025, 0300–1300 UTC daily; 3-month trial; possible H24 extension and expansion to other RNAV/RNP 10 routes pending regulatory approval. India implemented trial operation of 30NM/5min PBCS separation on N571 on H24 based with effect from 03 Jun 2020.	ATM automation with PBCS compliance alerts; ADS-C; CPDLC
L301 and L639; N571 (Mumbai FIR,	20 NM longitudinal separation	Limited eligible aircraft pairs (~53% L639, ~52% L301); intermittent drop of	Confirmation required from member States	Confirmation required from member States	India (Airports Authority of India, DGCA) – Lead; Oman	15 Jan 2024: trial start eastbound only; 14 Aug 2024: Oman joined	Space-Based ADS-B (Aireon, 1090ES, 8-sec update), CPDLC,

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international oceanic routes to/from Muscat FIR)	between eligible aircraft	ADS-B targets; need for neighboring FIR participation (Muscat joined Aug 2024)			(Muscat FIR) – participant since Aug 2024	(east/west bound); 1 Jan 2025: 24-hr trial; safety assessment done Dec 2024; permanent implementation since 21 <sup>st</sup> May 2025; 20NM Trials commenced from 20 <sup>th</sup> Aug in Muscat Mumbai-Chennai FIR; phased expansion planned to other Mumbai FIR routes, then Chennai & Kolkata FIRs. Trials commenced on 20 <sup>th</sup> Aug 2025 for route N571 in Oman and India FIRs.	HF/SAT phone backup; terrestrial ADS-B & VHF in U5V sector
P570 (Chennai–Muscat flow)	Confirmation required from member States	Crossing conflicts at KITAL between P570, and P751; decreased availability of optimum levels	Confirmation required from member States	Inefficient use of available flight levels due to crossing points and route convergence	India (Airports Authority of India, Mumbai ACC) – Lead; coordination with Oman (Muscat FIR), Maldives (Male FIR), and possibly Chennai FIR	Jan 2025: Proposal discussed with airlines and IATA; feedback awaited; UPR implementation in southern Mumbai Oceanic airspace under consideration; new route south of BIBGO proposed to decongest KITAL India proposal to create a new route from ESLAV to ASPUX is being discussed. Airlines from AFI region are encouraged to FPL UPRs through ASIO UPR zone for Southeast Asian destinations.	Confirmation required from member States

**IMPLEMENTATION TIMELINES FOR BOBTFRG PRIORITY AREAS V4.0 (Updated by BOBTFRG/7)**

**BOBTFRG Priority Area 1:** Conduct a review of the air traffic flows in Category S airspace through Thailand, Myanmar, Bangladesh, 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	<del>Identify current spacing implemented by States.</del>	<del>BOBTFRG/4 Completed</del>	<del>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.</del>
	2	<del>Identify impediments to implementation of improved spacing (staffing and ATC sectorisation constraints).</del>	<del>Completed at BOBTFRG/3</del>	<del>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.</del>
	3	<del>Identify the ATS surveillance and communication gaps and actions taken to fill the gaps.</del>	<del>Closed at BOBTFRG/3</del>	<del>Ref CNS-SG/23 WP/22. Updated at BOBTFRG/3: ATS Surveillance and DCPC VHF Coverage Charts was included in the Asia/Pacific Seamless ANS Plan V3.0.</del>

		Activity	Completion Date	Remarks
	4	Identify ATS Inter Facility Data Communication (AIDC) and/or direct speech circuits' capabilities.	Closed at BOBTFRG/3	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).	31 January 2022 Completed at BOBTFRG/4	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?

		Activity	Completion Date	Remarks
	6	<p>Review the existing Flight Level Allocation Scheme (FLAS) operating within the concerned airspace, with a view to improve efficiencies.</p> <p>Review and plan improved and efficient FLAS operating within the BOB airspace.</p>	<p>31 January 2022 BOBTFRG/5 BOBTFRG/7 BOBTFRG/8</p>	<p>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). <b>Refer to item 3.15 of the Final Report of BOBTFRG/7: India informed the meeting that it plans to remove FLAS on Bay of Bengal routes in Kolkata FIR after a safety assessment and is also evaluating the removal of FLAS in Chennai FIR, in coordination with Mumbai FIR, due to the linkage with Arabian Sea flows.</b></p>

		Activity	Completion Date	Remarks
	7	<p>States to identify routes along which reliable surveillance and communication are available to look at the possibility of reduced longitudinal spacing.</p> <p>Confirm the coverage of Surveillance and Communication over the BOB airspace (to be tasked to TF to draft the Plan of the BOB Route Network)</p>	<p>31 January 2022</p> <p>States (TF) report to SAIOSEACG/2 SAIOSEACG/5 or BOBTFRG/8</p>	<p>Updated at BOBTFRG/3:</p> <p>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.</p> <p>Indonesia and Malaysia: 20 NM longitudinal spacing implemented at the following TOC points: GOTLA, PUGER and SALAX.</p> <p><b>Malaysia and Thailand: 30 NM 20 NM</b> longitudinal spacing implemented at the TOC points between Bangkok and Kuala Lumpur FIRs.</p> <p>Myanmar and Thailand?</p> <p>India and Myanmar (ATS route A201)?</p> <p><b>India and Sri Lanka: 30 NM; 20 NM is at this stage only a proposal that will be evaluated.</b></p> <p>India and Sri Lanka: 50 NM separation</p> <p>Sri Lanka stated that it is willing to move to 20 NM longitudinal separation with India in the future following the completion of assessments and coordination with India.</p>
Phase 2	8	<p>Complete the agreement between States to implement 20 NM longitudinal spacing (or as close to the separation minima as practicable) in Category S airspace through Thailand, Myanmar, Bangladesh, India, Pakistan and Afghanistan.</p> <p>Bangladesh regularly keeps the meeting updated the progress of CNS-ATM Modernization Project.</p>	<p>2025 2026</p>	<p>Updated at BOBTFRG/3:</p> <p>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.</p> <p>To be reviewed in tandem with the Modernization Project of CNS-ATM System of Bangladesh has been completed. (Bangladesh pointed out at the BOBTFRG/7 meeting)</p>

**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> .	SAIOSEACG/1 States (TF) report to SAIOSEACG/2 BOBTFRG/8	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. No update at the SAIOSEACG/1
	2	Facilitate potential modernization of Bangladesh CNS/ATM system (meeting tentatively planned for 23 October 2019).	Closed	ICAO RO to provide feedback during SAIOACG/10. Updated at BOBTFRG/3: <del>The Modernization Project of CNS-ATM System of Bangladesh expected to be completed in 2024.</del> Updated at BOBTFRG/7: Bangladesh informed the meeting that the new ATM automation system is fully installed. AMHS cutover has been successfully completed. Operational use of ATM automation is planned for Q1 2026. Bangladesh plans to implement <b>automatic handoff</b> to adjacent FIRs by <b>Q3 2026</b> . AIDC is already in place and messages are being exchanged with Kolkata. However, formal testing/operational activation is not yet officially completed. An online meeting with Kolkata ACC

		Activity	Completion Date	Remarks
				<p>is planned within the next two weeks to progress this (no exact date given).</p> <p>Bangladesh indicated they will update ICAO/BOBTFRG at the next meeting about whether AIDC will be “fully operational” by then requires verification.</p> <p>Bangladesh reported that ADS-C and CPDLC have been tested with a few aircraft, and results were “successful.”</p>
	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.	Closed	<p>Subject to the approval from the competent agencies of each State.</p> <p>India and Singapore (ATMRI) would examine the proposal and submit their comments at the BOBTFRG/3.</p> <p>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.</p>

		Activity	Completion Date	Remarks
	4	Implementation of 50 NM longitudinal separation (RNAV 10/RNP 10) with PBCS in the BOB airspace, at or above a level to be determined.	<p><del>To be discussed at SAIOSEACG/1 States (TF) report to SAIOSEACG/2 BOBTFRG/8</del></p>	<p>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.</p> <p>Updated at BOBTFRG/3: <del>States to issue AIC after SAIOACG/10.</del> 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>”.</p> <p>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.</p> <p>Updated at BOBTFRG/7: India and Sri Lanka updated that 30 NM longitudinal separation is currently applied at India–Colombo boundary points in line with the LOA. Sri Lanka is open to reducing to 20 NM in the future, if India agrees and once coordination is completed.</p>

		Activity	Completion Date	Remarks
		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 States (TF) report to SAIOSEACG/2 BOBTFRG/8	BOBTFRG/3 Report re: WP/08. IATA presented its analysis results at the SAIIOSEACG/1 and ATM SG/10.
		b. States requiring PBCS support to implement performance-based separation to develop its PBCS implementation plan, including expected date of implementation.	SAIOSEACG/1 States (TF) report to SAIOSEACG/2 BOBTFRG/8	BOBTFRG/3 Report re: WP/08. No update at the SIOSEACG/1
	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.	To be determined States (TF) report to SAIOSEACG/2 BOBTFRG/8	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.	To be determined States (TF) report to SAIOSEACG/2	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 trial basis.	To be determined 1 March 2024 4Q 2026	Updated at BOBTFRG/3: Subject to the implementation of PBCS.
Phase 2	8	Review the demand and capacity on the affected ATS routes.	To be determined 2025 (SAIOSEACG/4) BOBTFRG/8	Subject to the trial implementation of PBCS.

		<b>Activity</b>	<b>Completion Date</b>	<b>Remarks</b>
	9	Identify solutions to integrate departing traffic from New Delhi with the BOBCAT traffic.	<del>To be determined</del> 2025 (SAIOSEACG/4) <b>BOBTFRG/8</b>	
	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.	<del>To be determined</del> 2025 (SAIOSEACG/4) <b>BOBTFRG/8</b>	
	11	Make recommendations to SAIOACG on the future status of the BOBCAT tool.	<del>To be determined</del> 2025 (SAIOSEACG/4) <b>BOBTFRG/8</b>	