



International Civil Aviation Organization

**The Fourth Meeting of the Bay of Bengal Reduced Horizontal Separation
Implementation Task Force (BOB-RHS/TF/4)**

Bangkok, Thailand, 18 to 22 October 2010

Agenda Item 4: Safety Analysis and Airspace Monitoring Issues

**IMPLEMENTATION OF REDUCED HORIZONTAL SEPARATION IN BAY OF BENGAL,
ARABIAN SEA AND INDIAN OCEAN**

(Presented by India)

SUMMARY

This paper provides the meeting with an overview of steps taken by India in preparation for implementation of Reduced Horizontal Separation and its progress in the establishment of Enroute Monitoring Agency for airspace over the Bay of Bengal, Arabian Sea and Indian Ocean (BOBASMA).

1. INTRODUCTION:

1.1 The first meeting of Reduced Horizontal Separation Task Force had set the agenda for a phased programme to implement Reduced Horizontal Separation in Bay of Bengal and Oceanic routes in Mumbai FIR. In BOB-RHS/TF/2 and TF/3 meeting it was decided to implement reduced longitudinal separation of 50NM on RNAV routes in phased manner. It was proposed that Phase 1 of the project involving N571, P628 and P762 should commence on AIRAC date 13th January, 2011 or 10th February, 2011.

2. DISCUSSION:

2.1 ICAO Annex 11 provisions require that safety assessment based on collision risk modeling be carried out before the implementation of reduced separation minima such as 50 NM longitudinal Separation based on RNP10 operations. This is to ensure that the regionally established target level of safety (TLS) for the airspace in question has been met. Additionally, periodic safety reviews must be performed to permit continued safe operations.

2.2 India is providing Air Traffic Service over the large airspace in Bay of Bengal, Arabian Sea and Indian Ocean. India during the plenary meeting of both BOB-RHS/TF/1 and BOB-RHS/TF/2, had accepted to establish an EMA in accordance with ICAO provisions. Recognizing the importance of Chennai FIR wherein the RHS is to be implemented on three major ATS routes N571, P628 & P762, India EMA is being established at Chennai.

2.3 Airports Authority of India (AAI) is establishing Enroute Monitoring Agency for airspace over Bay of Bengal, Arabian Sea and Indian Ocean with the assistance of Federal Aviation Administration (FAA), USA. AAI has formed a team of experts with Air Traffic Management, Avionics, Safety and mathematical background. The EMA team visited FAA Technical Centre, Atlantic City, USA from 10th to 14th August, 2010 for understanding the functioning and the processes

involved in collection of safety data and safety analysis. FAA will further assist India in providing software solutions and training of officials for the Enroute Monitoring Agency.

2.4 Procedure for assessment of Aircraft Navigation Errors in support of the implementation of Reduced Horizontal Separation in Bay of Bengal, Arabian Sea and Indian Ocean Airspace and the Draft Operation Letter of Agreement between India EMA and other states concerned for collection of gross navigation error data required for safety assessment of the airspace has been prepared by India and the same was presented in BOB-RHS/TF/3 in May, 2010 and RASMAG/13 meeting held in August, 2010. The final copy of LOA has been sent to all states concerned for signing of LOA.

2.5 Collection of gross navigation error data for Indian FIRs on selected ATS routes commenced w.e.f. 1st July, 2010. The safety assessment for these areas will be carried out shortly.

2.6 At the 13th meeting of RASMAG held in August, 2010, RASMAG encouraged India to continue work to develop capabilities that would enable India to be endorsed as an EMA. India will present its credentials to RASMAG in the next RASMAG meeting in relation to establishing capability to undertake the required technical work of Enroute Monitoring Agency.

3. DATA LINK ENVIRONMENT IN INDIAN AIRSPACE:

3.1 Currently 29 airlines are using ADS/CPDLC services in India. The percentage of aircraft using ADS/CPDLC is 48% in Mumbai FIR, 51% in Chennai FIR and 60% in Kolkata FIR. There has been no significant increase in number of FANS/1A using Indian Airspace.

3.2 Data link services are provided on 12 international routes N877, L510, P628, L759, N571, N563, P762, P574, L896, N564, P761 and L645 passing over the Bay of Bengal in Chennai FIR and on 16 international routes M638, P518, L301, N571, P574, N563, M300, P570, R456, G465, A451, A474, A214, B459, G450 and G424 passing over the Arabian Sea and Indian Ocean in Mumbai FIR.

4. ATS INTEROPERABILITY TESTS BY BOEING:

4.1 Boeing continues to AAI by conducting Bench-testing of ADS/CPDLC equipage. ATS interoperability tests were conducted by Boeing Company, Seattle in February, 2010 with Chennai and Mumbai ATS centers to identify problems on ADS/CPDLC ground system. The problems like event report for lateral/vertical deviation and seven letter call sign etc. were identified and are being looked into.

4.2 Similar tests were conducted by Boeing Company on 9th September, 2010 between Chennai and Kolkata ATC centers to ascertain the preparedness of ground systems for implementation of RHS.

4.3 Another test was conducted by Boeing Company on 9th October, 2010 between Kuala Lumpur ATC and Chennai ATC. The problems identified during the tests are i) distance to/from a way point on up linking preformatted message 184 was not shown on the ground system ii) event change report for vertical deviation was not received when aircraft was above/below the threshold of ± 200 ft. iii) the hand off between Chennai and Kuala Lumpur for aircraft with 7 character call sign was not through.

4.4 FANS-1A problem reports are regularly being sent by India.

5. IMPLEMENTATION OF DISTANCE BASED SEPARATION OF RNP ROUTES:

5.1 As a prelude to the implementation of RHS, India is starting implementation of distance based separation of 80NM on RNP10 routes w.e.f. 1st November, 2010. This will enable controllers to gain experience on using distance based longitudinal separation in FANS 1A environment.

6. ACTION BY THE MEETING:

6.1 The meeting is invited to:

- a) Take note of India's progress on their work in the implementation of RHS;
- b) Urge States, who have not already done so, to sign the Letter of Agreement and collect and pass their GNE data collection to BOBASMA for safety analysis; and,
- c) Discuss the readiness of member states involved in the implementation of first phase of RHS.

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