



*International Civil Aviation Organization*

**The Thirteenth Meeting of the FANS Implementation Team for the Bay of Bengal (FIT-BOB/13) and the Fifth Meeting of the Bay of Bengal Reduced Horizontal Separation Implementation Task Force (BOB-RHS/TF/5)**

Bangkok, Thailand, 07 – 11 February 2011

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**Agenda Item 3: Operational Issues**

**Agenda Item 4: Safety Analysis and Airspace Monitoring Issues**

**IMPLEMENTATION OF 50NM LONGITUDINAL SEPARATION ON RNP 10 ROUTES  
IN THE BAY OF BENGAL**

(Presented by India)

**SUMMARY**

The purpose of this working paper is to provide the meeting with a summary of the work accomplished by India in preparation for the introduction of 50NM longitudinal separation on RNP 10 routes in the Bay of Bengal, Arabian Sea Region and Indian Ocean.

**1. INTRODUCTION**

- 1.1 In the Third Meeting of the Bay of Bengal Reduced Horizontal Separation Implementation Task Force, held in Singapore between 18<sup>th</sup> and 21<sup>st</sup> May 2010, it was proposed that the implementation of 50NM longitudinal separation on RNP 10 Routes N571, P628, P762 and L510 would take-off either on AIRAC date 13<sup>th</sup> January or 10<sup>th</sup> February 2011.
- 1.2 The meeting would recall that, at the BOB-RHS/TF/4 meeting held on 18<sup>th</sup> to 22<sup>nd</sup> October 2010, the meeting agreed that there were additional items not included in the Task List but were required to be completed by all concerned before an implementation date of this project.
- 1.3 Accordingly each State further agreed to prepare a working paper for BOB-RHS/TF/5 to indicate that they had undertaken all of the tasks mentioned in the Task List of the Task Force/4 meeting, Appendix M as well as a further specific list of item mentioned in Appendix N to the report to ensure a “GO” outcome decision is possible.

**2.0 DISCUSSION**

- 2.1 The tasks accomplished by India in preparation for the implementation of 50 Nm RHS are as follows:
- 2.2 BOBASMA is in receipt of TSDs, Traffic Movements and GNE Reports from Mumbai, Kolkata, Chennai, Kuala Lumpur, Jakarta and Yangon FIRs for the conduct of the safety assessment and continued monitoring. BOBASMA has also forwarded

all the relevant data to SEASMA as agreed to in the earlier meeting to facilitate SEASMA to carry out the safety assessment independently which could be compared with BOBASMA results before submission of final competency report to RASMAG by India EMA.

*Note: No data on TSD & GNE received for Colombo FIR.*

- 2.3 The Operational Letter of Agreement has been signed by India. However BOBASMA is yet to receive the signed operational LOA from other states.
- 2.4 Direct Controller Pilot Communication is available in the Bay of Bengal Arabian Sea region through CPDLC & RCAG 126.15 MHz which is working satisfactorily as a primary backup for CPDLC on routes N571, P762, P628 & L510. Arrangements are being made to place HF Radio Rx/Tx in OCC communication panel so that the controller may also have HF as DCPC.
- 2.5 Seamless navigation is achieved through GNSS and surveillance is by ADS-C for FANS-1A aircraft. For Non-FANS 1(A) aircraft positions are monitored by conventional Flight Progress Strip marking.
- 2.6 Over the last one year regular ATS interoperability tests were conducted for the Chennai, Mumbai and Kolkata system by Boeing and the exchange of messages were found to be satisfactory. Further tests were conducted to check data link handoffs between Chennai/Mumbai, Chennai/Kolkata, Chennai/Kualalumpur and Chennai/Yangoon. Some minor issues were identified and are being addressed. It is expected that the automation of the ATS systems of Mumbai & Chennai to be completed by 31<sup>st</sup> March 2011 will help in further correcting such issues.


*Note: No ATS inter-operability test conducted between Colombo and Chennai.*

- 2.7 ATC procedures for application of 80NM longitudinal separation on RNP 10 routes is already published and Distance based separation of 80 Nm using MNT between RNAV equipped aircraft on ATS routes N571 & P628 was implemented from 1<sup>st</sup> December 2010 so that controllers could gain adequate experience and confidence in using distance based separation. Certain new clauses are incorporated for the application of Reduced Horizontal Separation of 50NM. AAI proposes to send a few OCC controllers from Mumbai, Kolkata and Chennai FIR to CAAS Singapore during the month of March 2011, for familiarization in using 50:50 NM separations.
- 2.8 Oceanic controllers in India have vast experience in the use of distance based separation within controlled airspace. Two phases of training were planned to be conducted for the introduction of 80Nm and 50Nm distance based separation in Oceanic airspace. The first phase of the training is completed and the second phase will commence in the month of March/April 2011 prior to the introduction of RHS of 50 NM longitudinal separation.
- 2.9 Airports Authority of India is in the process of preparing and publishing an AIP amendment for introduction of RHS 50Nm on RNP10 routes N571, P762, P628 & L510 through AIRAC date 28th June 2011 if agreed by all states concerned.


- 2.10 It is suggested to include in the proposed model AIP supplement, those special procedures for in-flight contingencies and weather deviation procedures( Ref: India AIP ENR1.9-6 to 1.9-10) which are presently applicable during adverse Meteorological conditions in oceanic airspace of Bay of Bengal and Arabian Sea for the aircraft flying on RNP10 routes with 80 Nm or 10 minutes separation.
- 2.11 The proposed Amendments to Operational Letter of Agreement have been sent to Kualalumpur and Yangoon for the implementation of 80NM longitudinal separation which will support the introduction of 50NM longitudinal separation as well.
- 2.12 The Non RNAV routes in Mumbai, Chennai & Kolkata FIRs are being studied for traffic density and in the process of either being withdrawn or changing them to RNAV/RNP10 routes.
- 2.13 Qualitative Safety assessment by ATS providers as part of the safety Management System has been completed by the respective FIRs in India prior to the implementation of 80Nm Distance Based Separation.
- 2.14 The quantitative safety assessment is completed on 31st January 2011 by BOBASMA using Lateral collision risk model & longitudinal collision risk model. The TLS value in the lateral plane is (Nay) = $3.538377 \times 10^{-9}$  and the TLS value for the longitudinal axis is (Nax) =  $2.996897 \times 10^{-10}$ .The above values are arrived after taking into consideration the most stringent values for  $E_y$  (same), Delta V,  $P_y = 1.132864 \times 10^{-7}$  etc.
- 2.15 The detailed report on the qualitative safety assessment along with supporting documents would be submitted in the RASMAG/14 meeting to be held between 21<sup>st</sup> and 25<sup>th</sup> February 2011.


### 3 ACTION BY THE MEETING

- 3.1 The meeting is invited to:

 Impress upon the States

- those haven't so far forwarded TSD and GNE data to dispatch the same so that the safety assessment can be carried out for the area under consideration.
- which have not yet accomplished the tasks as per the items mentioned in BOB-RHS/TF/5 –WP/03 and to specify a definite timeline by which the tasks would be completed.

 Assist neighboring States where coordination is required to complete the task;  
and

 Work together to arrive at a suitable AIRAC date for implementation of Phase1 of the project.

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