International Civil Aviation Organization

THE TENTH MEETING OF AUTOMATIC DEPENDENT SURVEILLANCE – BROADCAST (ADS-B) STUDY AND IMPLEMENTATION TASK FORCE (ADS-B SITF/10)

Singapore, 26 -29 April 2011

Agenda Item 7: **Development of Asia/Pacific Regional ADS-B implementation plan and sub-regional ADS-B implementation plan**

POSSIBLE PROJECT: BAY OF BENGAL

(Prepared by Chairman of Task Force)

SUMMARY

This paper proposes an ADS-B Data Sharing project in the Bay of Bengal. This paper is considered a "flimsy" for consideration only.

1. Background

1.1 The following **draft** proposal arises from the ADS-B Task Force South East Asia Working Group meeting. At the meeting DCA Myanmar announced a plan to make an agreement with adjacent FIRs for ADS-B Data sharing. In addition Myanmar was also encouraged to explore the ADS-B data sharing with India from potential sites in the southern part such as Coo Co, Pathein and potential sites in the centre part of Myanmar with Thailand.

1.2 The meeting noted that India plays a key role in the sub-region. In particular, India provides ATC services in a large part of the Bay of Bengal. The meeting noted that India was taking up issues concerning the implementation of ADS-B at Port Blair.

1.3 The meeting brainstormed and proposed a draft implementation plan be prepared for the Bay of Bengal/South Asia Sub-regional Projects as shown in Appendix H to the Report for consideration by ADS-B SITF/10.

1.4 The working group allocation action item 23 to Australia, to identify new data sharing projects in Bay of Bengal proposal. This paper is the resulting **draft** proposal for consideration by the meeting and in particular by the concerned States.

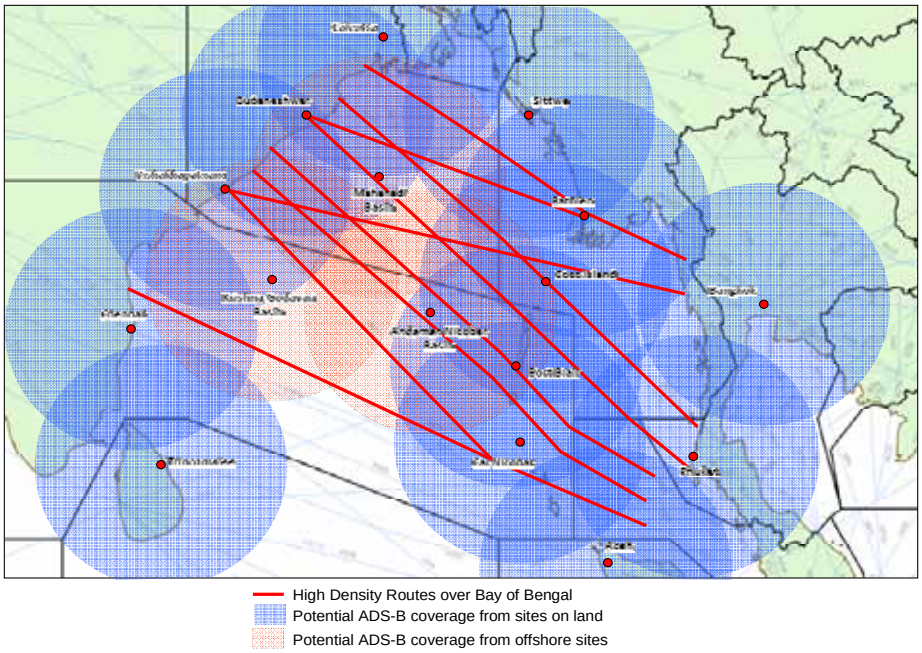
2. Context

2.1 The Bay of Bengal is predominantly managed currently using procedural ATC. The use of surveillance such as ADS-B could improve safety, efficiency and capacity of the routes through the airspace of concern. These benefits could be achieved in some part by each individual state without ADS-B data sharing. However, ADS-B data sharing would further increase the potential for seamless service delivery and improved safety.

2.2 The airspace of concern is shown below together with some ideas for potential ADS-B ground stations.

2.3 Since no islands or oil rigs are available in the centre of the Bay of Bengal, sites shown at Krishna Godavari Basin, Mahanadi Basin & Andaman Nicobar Basin are not feasible. Long range performance of adjoining sites could be considered to possibly close the surveillance gap at higher flight levels. This could possibly be achieved using high sensitivity ADS-B receivers, with high gain antennas and very high antenna masts on mountains if possible.

Potential ADS-B coverage for high density routes over Bay of Bengal



3. ATMS Modernisation

3.1 For delivery of surveillance services, appropriate ATC display systems, procedures and training need to be in place at the appropriate ATC centres. These centres are listed below <names of centres to be provided during the meeting> :

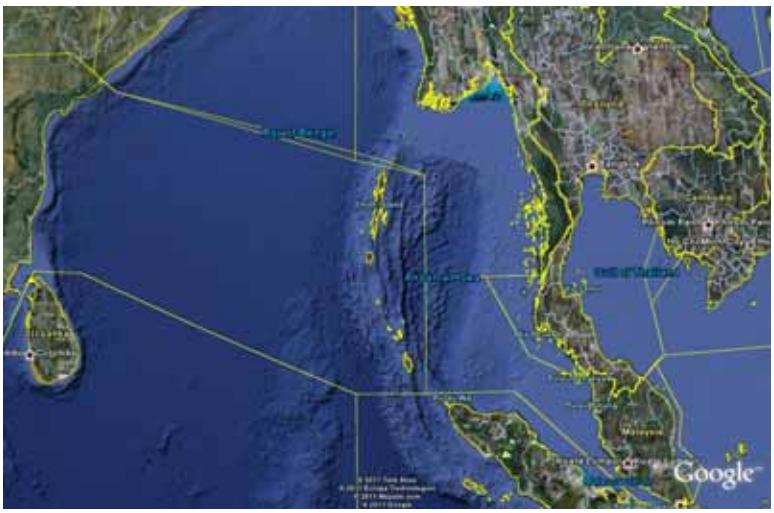
- Indian ATC centres
- Myanmar ATC centres
- Thailand ATC centres
- Indonesian ATC centres
- Sri Lanka ATC centres
- Malaysian ATC centres

4. Potential ADS-B data sharing

4.1 It is assumed that ADS-B data from the ADS-B ground stations would be directed to multiple ATC systems within India.

4.2 Taking into account the airspace described above, it would make sense if the following data sharing could be examined further :

- Sri Lanka ADS-B (near Trincomalee) with India ATC
- Indonesia's BandaAceh with India ATC & Thailand ATC
- India's Port Blair with Thailand ATC & Myanmar ATC
- India's Chennai with Sri Lanka ATC
- Myanmar's Pathein, Coco Island & Sittwe with India ATC
- Myanmar's Pathein with Thailand ATC
- India's Car Nicobar Island (Airport) with Myanmar, Indonesia and Malaysia ATC



5. Operational Concept & Scope

5.1 If the ADS-B program is adopted, an operational deployment of ADS-B cross-FIR boundary data sharing would be proposed to be deployed in a step by step manner as follows:

Phase 1 - Commence with initial ADS-B data transfer to/from country 1 to country 2 to support increased safety, situational awareness, automatic flight plan updating and safety nets.

This phase could commence operations before all infrastructures for radar-like separation at the boundary is in place. This phase could include:

- **Phase 1A** : Data sharing from existing ADS-B sites
    - <name the sites>
- **Phase 1B** : Data sharing from new ADS-B sites
    - <name the sites>
- **Phase 2** – This phase would introduce ADS-B data sharing between the states
    - <name the States and sites>
- **Phase 3** - A future phase could transition to full radar-like separation when both parties have in place suitable ATC infrastructure such as:
    - Duplicated data communication capability
    - Direct Controller pilot voice communication for both parties at the boundary
    - boundary separation standards and MOUs
    - Policies, regulations and extensive training

This phase may or may not be possible depending on the achieved surveillance coverage.

6. Schedule

6.1 The following target schedule milestones are proposed for Phase 1: <insert dates>

	India/ Sri Lanka	India/ Indonesia	Indonesia/ Thailand	India/ Thailand	India/ Myanmar	Myanmar/ Thailand	India/ Malaysia
Complete data sharing agreement:							
Phase 1 Transmittal of Data:							
NOTAM/AIC publication:							
First Operational use:							

7. Business Case concept

7.1 Phase 1 is justified on safety grounds and for strategic reasons – and to create the environment for a more comprehensive ADS-B separation service.

Project Costs will include:

- Project management for each party
- Legal and other costs to establish Data sharing agreements
- Incremental procedure development

Additional link costs will be incurred for each state
Each state will need to deploy a Foreign ADS-B Filter to support data sharing,

8. Recommendation

8.1 It is recommended that the meeting support further development of this plan and that the concerned states consider these proposals.

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