International Civil Aviation Organization

The Third Meeting of the South Asia/Indian Ocean ATM Coordination Group (SAIOACG/03) and the Twentieth Meeting of the South East Asian ATM Coordination Group (SEACG/20)

Bangkok, Thailand, 18 – 22 February 2013

Agenda Item 4: Implementation of CNS/ATM Systems

ADS-B IMPLEMENTATION AND DATA SHARING

(Presented by Airports Authority of India)

SUMMARY

This paper provides an insight into the status of ADS-B implementation in India. The Indian ADS-B plan aims at providing redundancy where Radar coverage exists and also fill the surveillance gaps, where Radar coverage is not possible due to high terrain and remote areas. This paper also presents the possible exchange of ADS-B data between India and its neighboring States.

This paper relates to –

Strategic Objectives:

A: ***Safety*** *– Enhance global civil aviation safety*

C: ***Environmental Protection and Sustainable Development of Air Transport*** *– Foster harmonized and economically viable development of international civil aviation that does not unduly harm the environment*

Global Plan Initiatives:

GPI-9 Situational awareness
GPI-12 Functional integration of ground systems with airborne systems
GPI-16 Decision support systems and alerting systems
GPI-17 Data link applications
GPI-21 Navigation systems
GPI-22 Communication infrastructure

1. INTRODUCTION

1.1 In line with ICAO Global Plan Initiative and Aviation System Block Upgrades (ASBU), India has taken the initiative to provide seamless surveillance coverage by augmenting the existing radar coverage through the installation of fourteen ADS-B ground stations at strategic locations.

1.2 ADS-B Implementation was consistent with ICAO APAC Regional implementation plan in terms of augmentation of surveillance coverage and adherence to time-lines.

1.3 India is committed to seamless ATM and has committed its willingness for resource sharing at ICAO meetings. In the SITF/11 and BOBASIO/2 meetings as well as APANPIRG/22 and APANPIRG /23 India expressed its willingness to share ADS-B data with Myanmar, Maldives, Sri Lanka, Malaysia and Indonesia.

2. DISCUSSION

ADS-B Implementation

2.1.1 The site acceptance test (SAT) has been successfully carried out at all the fourteen stations, including Agartala, Amritsar, Jaipur, Lucknow, Varanasi, Ahmedabad, Nagpur, Guwahati, Calicut, Cochin, Coimbatore, Mangalore, Port Blair and Trivandrum.

2.1.2 In addition to the fourteen stations, India plans to install 7 ADS-B ground stations, by mid 2013, at Patna, Bhubaneswar, Jaisalmer, Srinagar, Trichy, Vijayawada and Dibrugarh1 (ADS-Coverage diagram attached as **Appendix 1**). This plan is consistent with the Upper Airspace Harmonisation plan of Kolkata and Delhi FIRs, and to supplement surveillance coverage in the Kolkata and Chennai FIRs.

2.1.3 The ATS Automations systems at major ATC Centers, viz., the 12 ACCs are capable of processing ADS-B data and providing the information on Situation Data Displays either as standalone ADS-B tracks or reinforced position symbols (fused with radar tracks).

2.1.4 The Indian ANSP is monitoring the airframes (ADS-B tracks) on stand-alone monitors as well as Situation Data Displays and studying the integrity of the ADS-B information and evaluating the use of ADS-B in both Non-Radar and Radar environment for Air Traffic Control purposes.

2.1.5 The process to obtain regulatory approval has commenced and Stake holder meetings have been conducted in Dec, 2012 and Jan, 2013 to detail the business case and to spread the awareness about the mutual benefits that will accrue to both the ANSP and the Airline Operators by their participation.

ADS-B Data Sharing With Neighbouring States by India

2.1.6 The successful ADS-B data sharing programs between some of the APAC States and the development of a template for a “Letter of agreement” between the sharing nations has inspired India to make progress in similar lines with its neighbouring States.

2.1.7 India and Myanmar intend to share ADS-B data and VHF communications to significantly improve efficiency and safety over a number of airways over the Bay of Bengal, leading to seamless ATM operations using ADS-B as a key component of the ICAO Aviation System Block Upgrades (ASBU).

2.1.8 A CANSO ADS-B Focus Group comprising representatives from AAI, DCA Myanmar, CAAS, IATA and CANSO met in Singapore on 3-4 July 12, where AAI and DCA Myanmar agreed in-principle to share data from the following sites: India: Agartala and Port Blair (ADS-B stations commissioned in Oct 2012) Myanmar: Sittwe and Coco Island (ADS-B stations likely to be commissioned by 1 H2013). Under this ADS-B data sharing arrangement, India and Myanmar would have seamless surveillance coverage for many of the RNP-10 routes in the northern BOB region thus significantly improving safety, capacity and efficiency of flights in the airspace concerned.

2.1.9 The Indian ANSP has already commenced the process of acquiring approval from the Government and Regulatory agencies for ADS-B data sharing with neighbours. States such as Australia, Singapore and Indonesia which have already entered into a contract on ADS-B data sharing have been providing inputs in several meetings in the recent past based on their experience. However It is felt that a copy of the ‘Letter of agreement’ signed could be used as a benchmark by both the states to expedite the whole process of regulatory approval.

3. ACTION BY THE MEETING

3.1 The meeting is invited to:

a) note the information on ADS-B implementation status in India;

b) take note of India's readiness and the progress made to share ADS-B data with its neighbouring States, especially with Myanmar;

c) consider sharing of A copy of the 'Letter of agreement' signed by the States who have already entered into a contract on ADS-B data sharing that could be used as a benchmark by the states to expedite the process of regulatory approval and;

d) discuss any relevant matters as appropriate.)

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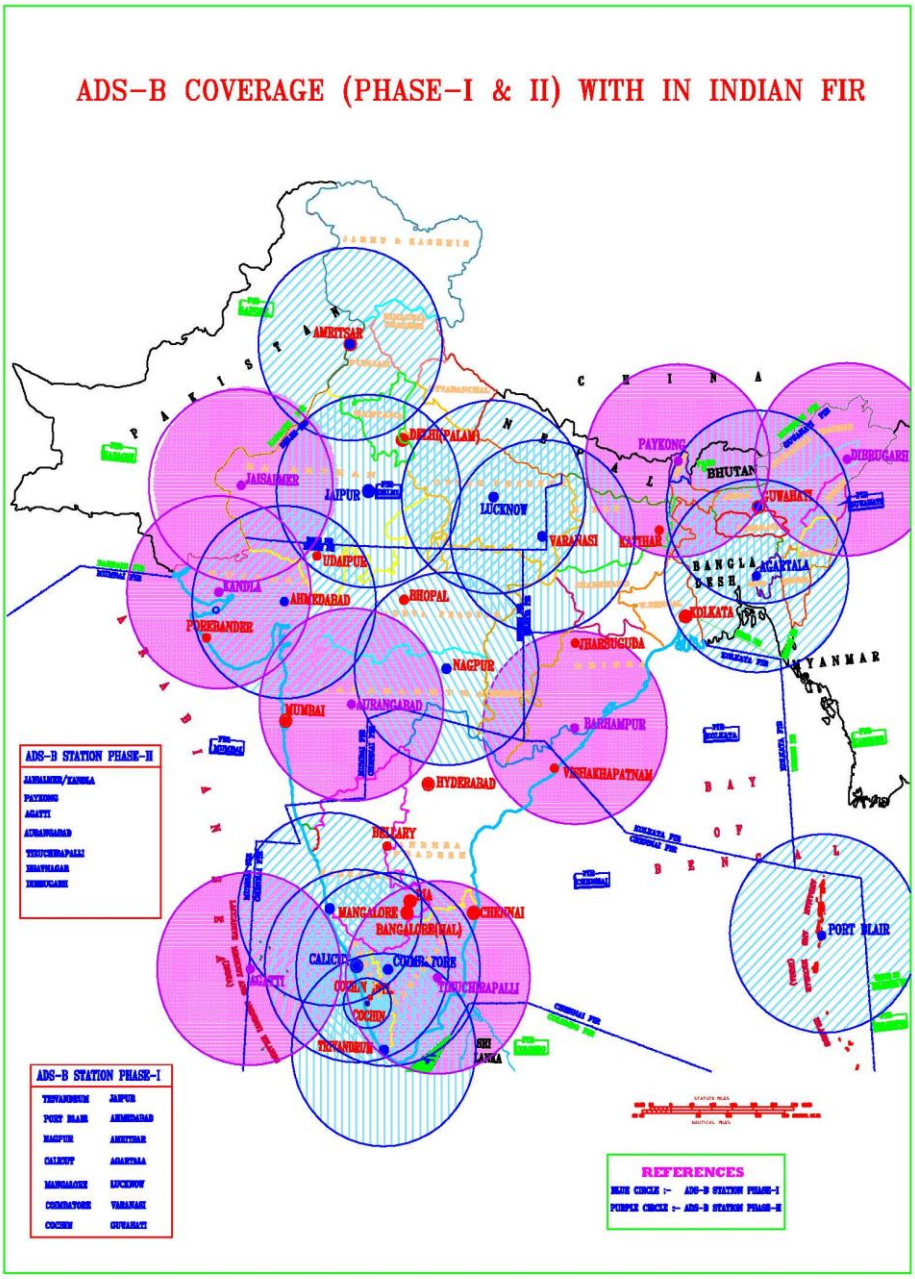
Appendix-1


ADS−B COVERAGE (PHASE−I & II) WITH IN INDIAN FIR
AMRITSAR
DELHI(PALAM)
JAISALMER
JAIPUR
LUCKNOW
PAYKONG
BHUTAN
DIBRUGARH
GUWAHATI
VARANASI
KATTHAK
AGARTALA
BANGLA DESH
UDAIPUR
KANDLA
AHMEDABAD
BHOPAL
PORBANDER
KOLKATA
JHARSUGUDA
NAGPUR
MYANMAR
MUMBAI
AURANGABAD
BARHAMPUR
VISHAKHAPATNAM
HYDERABAD
BELLARY
MANGALORE
CHENNAI
BANGALORE(HAL)
CALICUT
COIMB. JORE
TIRUCHIRAPALLI
COCHIN
TRIVANDRUM
SRI LANKA
PORT BLAIR
BAY OF BENGAL
ADS−B STATION PHASE−II
JAISALMER/KANDLA
PAYKONG
AGARTI
AURANGABAD
TIRUCHIRAPALLI
BHAVNAGAR
DIBRUGARH
ADS−B STATION PHASE−I
TRIVANDRUM
JAIPUR
PORT BLAIR
AHMEDABAD
NAGPUR
AMRITSAR
CALICUT
AGARTALA
MANGALORE
LUCKNOW
COIMBATORE
VARANASI
COCHIN
GUWAHATI
REFERENCES
BLUE CIRCLE :- ADS−B STATION PHASE−I
PURPLE CIRCLE :- ADS−B STATION PHASE−II