



ICAO

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**Twenty-Fourth Meeting of the Communications/
Navigation and Surveillance Sub-group (CNS SG/24)
of APANPIRG**
Bangkok, Thailand,

Agenda Item 6: Surveillance

6.2 Other surveillance related issues

AIR TRAFFIC CONTROL SURVEILLANCE ACTIVITIES IN INDIA

(Presented by India (Airports Authority of India))

SUMMARY

This paper provides update on Air traffic control Surveillance activities in India.

1. INTRODUCTION

1.1 Airports Authority of India, has been entrusted with the responsibility to provide the Air Navigation Services (ANS) in India. AAI is responsible for provision of air navigation services over an air space of 2.8 Sq NM (9.5 million sq Km), which includes 1.04 million sq. NM continental airspace and 1.76 million Sq NM oceanic airspace.

1.2 The current surveillance capabilities are continuously being upgraded and augmented with state-of-the-art surveillance systems and integrated with ATM Automation systems. Old Radars and ASMGCS systems are also being replaced with new systems with latest features. India has undertaken various projects for improving surveillance coverage over Indian airspace including ground surveillance at busy and fog-bound airports. The status of the surveillance infrastructure and activities in India have been reported at various forums/meetings earlier. The current status on provision of surveillance facilities and on-going projects including planned activities to be implemented are as discussed below.

2. Discussion

2.1 Current Operational and future Surveillance Infrastructure projects: - In order to cope up with air traffic and reduced separation requirements between the aircrafts, Airports Authority of India has installed various surveillance sensors to cover the whole Indian air space. Presently, Indian airspace is covered by redundant surveillance coverage. Presently 16 nos. of ASR/MSSR, 02 nos. of ARSR/MSSR, 12 independent MSSR, 04 ADS-C/CPDLC links and 21 ADS-B Ground receivers are in operations at various locations in India. Surveillance data from multiple Radars and ADS-B stations have been integrated with major ATC centers to provide seamless surveillance services over Indian airspace.

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2.2 11 Nos. of ASMGCS systems are in operation at busy and fogbound airports to have smooth operations at these airports during low visibility weather conditions.

2.3 In addition to above, additional surveillance sensors are being installed and augmented at various locations to achieve redundant surveillance coverage. A third layer of redundancy shall be available for En-route operations on continental airspace, once the augmentation of installing additional Radars and ADS-B surveillance is completed.

2.4 **Space based ADS-B** : In order to achieve surveillance coverage over its vast oceanic airspace, India is implementing Space based ADS-B surveillance. AAI has entered into a service contract with service provider for provision of Space based ADS-B surveillance data at Chennai and Mumbai. The space-based ADS B surveillance will cover whole of oceanic Indian airspace.

2.5 **ADS-B Data sharing with neighboring countries**: In order to have better coordination and enhanced surveillance over its vast oceanic region, India/AAI has entered into agreement or planning to share ADS-B data with neighboring countries as per details given below :-

(i) **ADS-B data sharing with Myanmar**

ADS-B data of Sittwe (Myanmar) and Coco island (Myanmar) ADS-B ground stations has been integrated with Kolkata (India) ATC Centre.

ADS-B Data of Port Blair (India) and Agartala (India) ADS-B ground station has been integrated with Yangon (Myanmar) ATC Centre.

(ii) **ADS-B data sharing with Malaysia**

ADS-B data of Campbell Bay (India) ADS-B ground station to be integrated with Kuala Lumpur (Malaysia) ATC Centre.

ADS-B data of Langkawi (Malaysia) ADS-B ground station to be integrated with Chennai (India) ATC Centre.

(iii) **ADS-B data sharing with Indonesia**

ADS-B data of Campbell Bay (India) to be integrated with Jakarta (Indonesia) ATC Centre.

ADS-B data of Banda-Aceh (Indonesia) ADS-B ground station to be integrated with Chennai (India) ATC Centre

2.6 **ADS-B USAGE AND MANDATE**

2.6.1 36 Nos of ADS B ground receivers have been planned for surveillance coverage. 35 Nos. Of ADS B Ground Receivers have been installed at various locations and one ADS-B ground receiver is pending for installation at Agatti island. Out of installed 35 no's, 21 no's are already commissioned and integrated with ATM Automations systems of various ATC centers. Remaining 14 no's will be commissioned shortly and integrated with ATM Automation systems.

2.6.2 ADS-B ground receivers at 36 locations will enhance redundancy for surveillance in existing Radar airspace and extend surveillance coverage to low density airports and certain oceanic airspace. It will also facilitate extension of surveillance coverage for low altitude (below existing Radar coverage), leading to more efficient use of airspace.

2.6.3 Status of ADS-B usage for Surveillance for Air Traffic Service is as given below: -

(i) Establishment of ADS-B Based Surveillance Approach centers at non-Radar airports: ADS-B based surveillance approach centers have been established for 07 Non-Radar airports i.e. Calicut, Tiruchirappalli, Patna, Agartala, Bhubaneshwar, Coimbatore and Jaipur.

(ii) Establishment of ADS-B Based Surveillance services for Terminal and En-route operations at Radar equipped airports: ADS-B based Surveillance services has been established for ‘Terminal and En- route’ operations at 04 airports i.e. Ahmedabad, Cochin, Guwahati and Trivandrum. These airports are equipped with Radar surveillance also. Work is in progress to establish ADS-B based Surveillance services for ‘Terminal and En-route’ services at 05 more such airports i.e at Amritsar, Mangalore, Lucknow, Varanasi and Mumbai.

(iii) Establishment of ADS-B Based Surveillance for En-route operations ADS-B based Surveillance services have been established for En-route operations using ADS-B equipment operational at Dibrugarh, Jaisalmer, Nagpur, Port Blair and Vijayawada.

2.6.4 Regulatory ADS-B usage mandate: - In order to promote the ADS-B usage in India, the Director General of Civil Aviation (DGCA), India has issued ADS-B Avionic mandate that from 01.01.2020 onwards, all aircrafts flying over Indian continental airspace at or above FL-290, are to be equipped with on-board ADS-B equipment. Also, the regulator is contemplating to provide priority in landing to the aircrafts equipped with ADS-B at airports where ADS-B based approach surveillance services are being provided.

3. CONCLUSION

India continues to augment its capabilities for surveillance of its airspace as well as airfield ground movements and is now making greater use of ADS-B and Mode S Radar.

4. ACTION BY THE MEETING

The meeting is invited to:

- a) Note the information contained in this paper; and
- b) Discuss any relevant matters as appropriate.
