*International Civil Aviation Organization*

**The Twenty-Second Meeting of the APANPIRG ATM/AIS/SAR Sub-Group (ATM/AIS/SAR/SG/22)**

Bangkok, Thailand, 25 – 29 June 2012

**Agenda Item 5: Provision of ATM/AIS/SAR in the Asia/Pacific Region, including associated CNS matters**

# ATM AUTOMATION IN INDIA

(Presented by India)

**SUMMARY**

This information paper presents the progress of ATS Automation systems infrastructure development at various ATC Centers in India.

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-7 Dynamic and flexible ATS route management
GPI-9 Situational awareness
GPI-16 Decision support systems and alerting systems
GPI-17 Data link applications

## 1. INTRODUCTION

1.1 The modernization of ATM systems in India dates back to the mid 90s when Mumbai and Delhi were equipped with ATS automation systems. Mumbai and Delhi automation systems have gone through two major system changes and they are equipped with the state-of-the-art Raytheon AutoTrac3 Automations Systems. Bangalore and Hyderabad are equipped with Selex ATS Automation system, similar to the system installed in Kualalumpur. Chennai has been equipped with an advanced version of ATS Automation System Auto Trac3+.

1.2 In a major move forward, AAI, the Indian ANSP has embarked upon an ambitious project of installing the Indra AIRCON 2100 ATS Automation systems at 38 ATC Centers, including major centers such as Trivandrum, Guwahati, Ahmadabad, Nagpur, Varanasi, Mangalore, Cochin and Amritsar.

1.3 ATS Automation systems are capable of multiple surveillance sensor integration and facilitate enhanced surveillance. The Chennai system has multiple radar (10) feeds and this has been a key enabler in the Upper Airspace Harmonization program, which eventually has won accolades for the Indian ANSP in the form of Jane's ATC Awards for "Operational Efficiency". The Nagpur ACC controls the central part of the country and contributes significantly in managing AR-4 MTF and the major north-south and east-west domestic routes. The Center is equipped with an automation system with surveillance feeds from Bhopal, Hyderabad and Nagpur Radars integrated to provide extended surveillance up to 400NM and the required redundancy.

1.4 The ATS Automation systems provide excellent Decision Support Tools (DSTs) which facilitate early resolution of potential conflicts, e.g., STCA and provide explorative probing tools to optimize strategic planning, e.g., MTCD, terrain conflict warnings (MSAW), which substantially enhance safety. The automated Flight Data Processing Systems vastly improve efficiency and provide excellent support to monitor route non-conformances, probable entry into Special User Airspaces (SUA) etc.

1.5 The Controllers are provided with enhanced surveillance, processed and critical information which directly contribute to reduce their workload and improve service delivery. A key feature in the ATS Automation systems is the ability to divide the volume of airspace into sectors and permit their dynamic consolidation & deconsolidation depending on traffic demands. Met information (GRIB) and Aeronautical information like NOTAMs are integrated into the system to provide useful met information updates and to automatically activate graphical display of SUAs on the Situation Data Displays (SDD).

1.6 ADS-B surveillance data from 14 installations across the country is liked to be selectively integrated into these Automation systems by October 2012. These systems are also capable of Mode – S data display. A regulatory notification (Civil Aviation Requirements) for mandatory Mode- S equipage is already in place.

## 2. DISCUSSION

2.1 The ATS Automation Systems are capable of AIDC (ATS Inter Facility Data Communication) and AIDC trial operations between several pairs of the three interoperable systems (Raytheon, Selex and Indra) are in progress. The AIDC implementation is in conformance with ASBU BO-25.

2.2 One of the major challenges in the near term include successful completion of AIDC trials and real time implementation, within India, especially given the interoperability issues between three different ATS Automation systems. However, India is confident of overcoming this challenge successfully. The APAC AIDC ICD version 3 is being employed by India. India is keen to know the readiness of adjoining ANSPs with regard to AIDC within APAC region as well as ICAO MID & ESAF regions, since India is committed to establishing AIDC with its neighbouring ATS Units in States located within these regions. It is also pertinent to know whether ICAO has a global AIDC ICD version or whether other regions have their own version of AIDC ICD, if so, the associated issues of variations.

2.3 The implementation of the FPL 2012 format by November, 2012 is a milestone activity and India is prepared to complete the task and as a prerequisite the ATS Automation systems are being programmed for a smooth switch-over from the old format to the new format. The phase-1 and 2 i.e., internal and external testing has been completed and the testing with airline operators is planned in the beginning of July2012.

2.4 The ATS Automation infrastructure in place, is an important building block for the strategic ATFM Phase I implementation in India covering the Indian airspace and its major airports. It is envisaged that the data output from these ATS Automation systems will be leveraged to provide superior ATFM solutions.

2.5 India is also making steady progress in its plan to migrate from multiple ACCs to 4 Upper Area Control Centers in the interim and two Upper ACCs in the final stage. The Chennai Upper Airspace Harmonization (UAH) is in place and Kolkata Automation and UAH programme is planned for completion by December, 2012. Mumbai and Delhi UAH programs shall be executed thereafter and it is envisaged to be completed by December 2013.

## 3. ACTION BY THE MEETING

3.1 The meeting is invited to:

a) note the information contained in this paper; and

b) discuss any relevant matters as appropriate.

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