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ASSEMBLY — 37TH SESSION

TECHNICAL COMMISSION

Agenda Item 39: Transition from Aeronautical Information Services (AIS) to Aeronautical Information Management (AIM)

AIS/AIM AUTOMATION IN INDIA

(Presented by India)

EXECUTIVE SUMMARY

This information paper provides an update on implementation of AIS automation in India to improve Aeronautical Information services through an Integrated AIS/AIM System to manage aeronautical data chain processes involved in designing to publication stages of Aeronautical Information Publication products including Aeronautical Maps/Charts and Circulars.

Strategic Objectives:	This working paper relates to Strategic Objectives A and D.
Financial implications:	Not applicable.
References:	Annex 15, *Aeronautical Information Services* Doc 9906, *Quality Assurance Manual for Flight Procedure Design*

1. INTRODUCTION

1.1 Safety and Efficiency of Air traffic Management system largely depend on high quality Aeronautical information. Quality, accuracy, reliability and timeliness of data are the key elements of data chain for improved AIS. Implementation of Automation and Quality Management System, are essentially vital for enhanced Aeronautical Information Service.

1.2 In support of achieving compliance to these needs and to ensure quality of service Quality management system and automation in AIS was taken up by India as early in the year 2000 at its four International NOTAM offices of Delhi, Mumbai, Kolkata and Chennai.

1.3 A similar initiative in this direction has also been carried out to establish an Integrated AIS/AIM Automation System to strengthen the existing system for designing and publication of AIP products, AIC and Aeronautical Charts. The Integrated AIS/AIM Automation System will bring in quality checks on the production processes of AIP products through harmonization of data chain management from origination to publication stages.

2. AIS/AIM AUTOMATION SYSTEM

2.1 The new system is an integrated computer network, based on AICM/AIXM concepts, to assist and support the workflow of AIS office using a common database of aeronautical information, from which the data can be exploited, to produce automated document outputs such as AIP and its amendments/Supplements, aeronautical charts, Aeronautical Information Circulars.

2.2 The Central Database of the system hosts all information common to civil aviation like FIRs, Aerodromes, NAV facilities, maps, rules etc., and NOTAM related to them. Different units of AIS can access this database through their connected workstations using specific applications for creating and maintaining relevant aeronautical products. Specific security policy related to access and authentication for different users are configured to ensure highest level of data quality and integrity to meet international safety requirements.

2.3 The client workstations connected to the Central Database foresees desired functional requirements of different units with appropriate application tool featuring:

2.3.1 Aeronautical Data Management

To allow management of aeronautical data through customized database to support data manipulation including insert/extract/update information and aeronautical spatial features (with their attributes). The module is also capable of storing and cataloguing all the produced documents, charts and templates for operational needs.

2.3.2 Airspace/Procedure Design Management

To allow flight procedure designers to create, visualize, check and modify 3-D flight procedures and 3-D airspace elements for conventional non precision/precision, RNAV, GBAS, SBAS, VNAV flight procedures. The tool is also capable in designing the Air routes respecting the lateral separation and obstruction verification for MEA/MEL computation, Aerodrome surfaces construction and evaluation considering terrain and human made obstacles.

2.3.3 Aeronautical Chart Maintenance

This tool provides automatic extraction and charts symbolization according to the release cycles by retrieving aeronautical data stored in the central database using the Computer-Aided Design (CAD)/ Geographic Information System (GIS) engines. The module supports true temporality while capturing all Meta data regarding the changes that users worked on the data. Rollbacks and producing of charts according to past releases are also achieved through this tool.

2.3.4 AIP production/publication Management

A publishing tool that temporally extracts information from central database and automatically generates ICAO aeronautical publication products such as an AIP, AIP Amendment or AIP Supplement for the current cycle based on pre-defined rules and document templates. Charts or other graphic objects inclusion is also automatically treated. The module is capable of producing HyperText Markup Language (HTML) or Extensible Markup Language (XML) output to obtain a web-based AIP or an eAIP version.

2.3.5 Navigation Aids Performance Assessment related to designed Instrument Flight Procedures

An analysis tool devoted to inspecting the radio electrical features of installed nav aids and model the real propagation phenomena found in airport scenario where signals (VOR, DME, ILS, ATC Radar) interfere with artificial or natural obstructions. This tool also shares the ATS and terrain information with the instrument flight procedure design tool to simulate the parameters that are typically inspected during commissioning or periodical flight checks as described in ICAO Annex 10 and Doc. 8071.

2.4 Current status: The system has been installed and training of the personnel has been completed. The validation process is on for commissioning at a later date.

3. CONCLUSION

3.1 India has always taken proactive lead in providing quality information to the benefit of end users through the establishment of competent systems in AIS. The provision of Integrated AIS/AIM System demonstrates India’s continued commitment to ensure compliance to standard and recommended practices of ICAO.

3.2 The Assembly is invited to take note of the efforts and progress made by India in the implementation of Automation in AIS.

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