



International Civil Aviation Organization

The Fourth Meeting of the South Asia/ Indian Ocean ATM Coordination Group (SAIOACG/04) and the Twenty First Meeting of the South East Asian ATM Coordination Group (SEACG/21)

Hong Kong, China: 24 – 28 February 2014

Agenda Item 3: Review of Current Operations and Problem Areas

DEVELOPMENT OF AN A-CDM PLATFORM AT MUMBAI

(Presented by Airports Authority of India)

SUMMARY

This paper presents India's effort in the development of an A-CDM Platform as a pilot project at Mumbai airport. This tool will be useful for the various users at the airport, namely, ATC, the Airport Operator, Airlines, Flight Handlers, Aviation regulator and the Military Liaison Cell and will also serve the general public with timely and accurate flight updates.

1. INTRODUCTION

1.1 In today's exponentially growing aviation industry, there is a need to optimize aircraft movement considering safety, passenger comfort and commercial aspects. The objective of the Mumbai A-CDM (Airport Collaborative Decision Making) project is to improve the overall efficiency of operations at Mumbai Airport, with a particular focus on the reduction of delays at holding point. This is achieved by enhancing the decision-making process and by sharing of up-to-date relevant information by web interface to partners who are involved at the airport (such as airline operators, air traffic control, handling agents, and the airport management) and by application interface to air traffic control and Joint Coordination Centre(JCC). Though the initiative and project execution is by AAI, regular meetings of the Steering Committee are being held with the stakeholders to take their views and to incorporate their requirements and fine tuning their needs in keeping the true spirit of Collaborative Decision Making.

2. DISCUSSION

2.1 The Mumbai ACDM Project is an initiative by ATC officers at Mumbai airport. Salient features of the project are:

- a. Automatic calculation of (Target Start up Approval Time) TSAT.
- b. Flight Data processing, independent of ATC Automation System (AT3).
- c. NOTAM Application: All India NOTAMs processed automatically.
- d. Real time information sharing among stakeholders (Airport operator, Aircraft operators, Ground Handlers, ATC, Air Force, Aviation regulator) through ACDM website.

Input Providers

2.2 This project interactively works on the input from following sources (a joint program between all airport partners) -

- a. AFTN
- b. Airport Operator (MIAL)
- c. Airline Operators
- d. Ground Handlers
- e. ATC work positions
- f. Air Force –Movement Liaison Unit (AFMLU)

Beneficiaries of the project:

- a. Airline Operators.
- b. Airport Operator (MIAL)
- c. ATC operational units.
- d. Decision makers (AAI / DGCA)
- e. Air Force – Movement Liaison Unit
- f. Customs and Immigration
- g. Public at large

Data Sources:

- a) AFTN (Aeronautical Fixed Telecommunication Network): Capturing all Flight Plan related information from AFTN, processing and saving information in Database.
- b) AODB (Airport Operations Database): Capturing Processed Flight Plan related information from AODB along with Bay Number and Registration number of aircraft.

The Process

2.3 The system receives Flight plan related data from AFTN and Bay Number from AODB and control inputs like RWY in use, over-riding capacity, and over-riding priority from ATC. It then follows complex algorithm and generates Dynamic TSAT (Target Start up Approval Time) based on above mentioned inputs and control variables from the matrix of Runway in use, Apron and Departure Capacity. It continuously updates TSAT to bring it closer to user preferred timing, i.e. at or after TOBT (Target off Block Time). ATC input: 1) Runway in use, 2) Capacity of Runway, 3) departure Capacity, 4) closures.

2.4 All parameters will have default values already in place to reduce requirements of frequent ATC inputs.

User interfaces

2.5 Various input of the system are taken and output are shown to users through two types of interfaces (GUI):

- a) Application interface: will be available with ATC as decision support tool and for providing control inputs. In application interface, touch enabled laptop will be used where controller will interact with electronic flight progress strips.
- b) Web interface: through website - where TSAT information is displayed in Dashboard view. This web site will provide sharing of information through various interactive sections like TSAT, NOTAM, ADC/FIC, D-ATIS, E-AIP, MET, Arrival & Departure Data for intelligent decision making and to achieve Common Situational Awareness.

Benefits of the project

2.6 A-CDM is a Common Information Sharing Platform introduced to get timely and accurate information for quick and precise decision making. Implementation of ACDM will significantly reduce the delays at holding point resulting in considerable fuel saving and reduced carbon emission in the environment. Broadly, ACDM will provide following benefits.

2.7 Direct Benefits:

- i. Reduction of delays to departures at holding point.
- ii. Orderly flow of traffic.
- iii. Optimization of airport and airspace capacity and better On Time Performance.
- iv. Reduction of R/T congestion thereby improving safety.
- v. Achieving Common Situational Awareness (CSA).
- vi. ADC (Air Defence Clearance) adherence improvement by stake holders.
- vii. Decision making tools for Air Force – MLU to provide revised ADC.
- viii. All India NOTAMs available in website, always updated automatically.
- ix. Latest ATIS of 46 Indian Airports available through web interface.
- x. Current MET information available through web interface.
- xi. Various charts and reports of aircraft movements through web interface.
- xii. E-AIP and AIP Supplements will be available on same web interface.

- 2.8 Indirect Benefits:
- i. Reduction in wastage of Aviation fuel.
 - ii. Reduction in Carbon Emission, reduction in Environmental Pollution.
 - iii. Reduction in Passengers discomfort.
 - iv. Increase of Trust Level between ATC and Airlines Operators due to greater transparency as the system is calculating TSAT in similar way every time, for all operators, considering Runway-in-use, closures, parking bay and priority criteria.
 - v. Efficient use of resources by Airline operators.
 - vi. Predictability.
 - vii. Flexible planning for quick turnaround.
 - viii. Optimal use of Airport Infrastructure, gates and terminals.

Future Expansion

2.9 The next stage of the project would be the generation of EIBT (Expected In Block Time), which requires reliable, real time data source of arriving aircraft. The A-CDM team is working on the same and is hoping to achieve the same shortly. The subsequent step would be to extend this project to other big Indian Airports. With proper networking, all the Indian Airport CDM can be brought under a single AAI portal, which will be beneficial for interacting with ATFM and CFMU.

3. ACTION BY THE MEETING

- 3.1 The meeting is invited to:
- a) note AAI's effort to develop an Airport CDM platform in-house and provide the benefit so derived to all players at the airport and subsequently extend the same to replicate it at a national level.
 - b) share ANSPs with their experience in A-CDM projects for value addition of the project
 - c) discuss any relevant matters as appropriate.

.....