



International Civil Aviation Organization

The Fourth Meeting of ICAO Asia/Pacific Air Traffic Flow Management Steering Group (ATFM/SG/4)

Bangkok, Thailand, 1 – 5 December 2014

Agenda Item 5: Development of Regional ATFM Framework

PROGRESS OF THE COLLABORATIVE AIR TRAFFIC FLOW MANAGEMENT (ATFM) OPERATIONAL TRIAL

(Presented by Australia, China, Hong Kong China, Indonesia, Malaysia, Singapore, Thailand, Viet Nam, CANSO, IATA and IFATCA)

SUMMARY

This paper updates on the collaborative efforts among Australia, China, Hong Kong China, Indonesia, Malaysia, Singapore, Thailand and Viet Nam to conduct an Air Traffic Flow Management (ATFM) Operational Trial using the concept of the distributed Multi-Nodal ATFM network.

The initiative aims to enhance operational efficiency and optimise available capacity through increased predictability and Demand-Capacity balancing which enable ANSPs, Airport Operators and Airspace Users to better manage their operations. States are encouraged to accord priority to ATFM as the region continues to experience sustained and robust air traffic growth.

1. INTRODUCTION

1.1 At the third meeting of the ATFM Steering Group (ATFM/SG/3) States acknowledged that rapid and sustained increase in air traffic demand within the Asia Pacific region impacted cross-border air traffic flow. Meanwhile, ongoing capacity enhancement measures may not be sufficient to achieve Demand-Capacity balance at capacity constrained resources. Thus a suitable and effective regional ATFM solution was needed to address the cross border air traffic flow needs of the Asia Pacific region.

1.2 The concept of the Distributed Multi-Nodal ATFM Network, conceived through the collaborative research project by Singapore and Airbus Prosky, was presented at ATFM/SG/3 in March 2014. ANSPs from Malaysia, Hong Kong, China and Thailand as well as other relevant stakeholders participated in the concept development providing operational inputs shaping the concept for regional suitability. The concept was endorsed through formulated Decision of the ATFM/SG/3.

ATFM/SG Decision 3/1: Distributed Multi-Nodal Networked ATFM Concept

That, the distributed multi-nodal networked ATFM concept be considered as a viable foundation to be incorporated into the regional ATFM framework for the development and implementation of ATFM for the Asia/Pacific Region, taking into account the guidance of ICAO Doc 9971.

1.3 ATFM/SG/3 was apprised that following the concept development, several States would embark on a collaborative ATFM Operational Trial based on the Distributed Multi-Nodal ATFM Network concept. The ATFM Operational Trial initiative which is the first of its kind in this region, received support and encouragement from ANSPs, ICAO as well as IATA, ACI, CANSO, EU/AATIP and IFATCA.

2. DISCUSSION

Members and Commitment

2.1 AEROTHAI, AirNav Indonesia, Airservices Australia, ATMB China (SanyaFIR), Civil Aviation Authority of Singapore (CAAS), Department of Civil Aviation Malaysia, Hong Kong Civil Aviation Department (HKCAD), Viet Nam ATM (VATM), Airport Authority Hong Kong (AAHK), Airports of Thailand (AOT), Changi Airport Group (CAG), IATA, AirAsia, Bangkok Airways, Cathay Pacific, Malaysia Airlines, Nok Air, Singapore Airlines, Thai Airways, Thai Smile, Thai Lion Air and Tiger Airways have indicated strong support and commitment to collaborate and actively participate in the ATFM Operational Trial.

ATFM Operational Trial Approach

2.2 The collaborative ATFM Operational Trial initiative started its preparatory efforts since the kick off meeting in June 2014. The ATFM Operational trial is planned to commence in June 2015. Participating members will review their level of preparedness at a Go/No-Go decision point in May 2015 prior to the commencement of the ATFM Operational Trial.

2.3 The Distributed Multi-Nodal ATFM Network concept forms the foundation for the ATFM Operational Trial. However, in order to trial the complete scale of elements within the Distributed Multi-Nodal ATFM Network concept, a greater level of preparation and capability development would be required by all stakeholders. Thus, the ATFM Operational Trial would adopt only selected elements of the Multi-Nodal concept for timely commencement of the trial. This approach would provide room for continuous development as well as expansion of participation as the trial progresses into subsequent phases.

2.4 The ATFM Operational Trial would initially focus on addressing Demand-Capacity Balancing at the individual airports of participating ANSPs. This would be achieved by applying ATFM Measures such as Ground Delay Program (GDP) to regulate arriving flights through the provision of Calculated Take-Off Time (CTOT) information computed based on expected arrival time at the destination airport. Subsequently the trial would focus on addressing Demand-Capacity balancing within sectors and airspace managed by participating ANSPs.

2.5 It is acknowledged that upon successful ATFM implementation, ATFM measures would only be required for achieving effective demand-capacity balance on as needed basis. However, for the purpose of the ATFM Operational Trial, ATFM measures will be applied in a structured fashion to allow for comprehensive exploration and study of their effectiveness. Through such comprehensive trial and study, best practices could be formulated to facilitate quality ATM and ATFM service provision.

ATFM Operational Trial meetings and Developments

2.6 In recent months, several ATFM Operational Trial project meetings and an Airline Focus Group meeting have been held. The meetings offered participating ANSPs with a structured capability development plan and milestones akin to ATFM Capability Elements in the Draft Regional Framework document. These capability development plan and milestones include provisions to address Demand-Capacity Management, ATFM system requirements, and common business rules for stakeholders and ATFM personnel management.

2.7 Furthermore, the meetings provided airspace users and airport operators with general appreciation of the ATFM Operational Trial efforts and stakeholder requirements. The meetings also serve as an effective platform to receive feedback from aircraft operators in preparation for the ATFM Operational Trial.

2.8 Dedicated Point of Contacts (POCs) from each stakeholder formed the working group that continues to work off-line and concentrate on the details of ATFM Operational Trial and preparation efforts in between meetings. While the ATFM Operational Trial preparatory efforts continue to progress independently within each stakeholder group, details of the working group's offline efforts continue to be reviewed and discussed at each ATFM Operational Trial meetings to provide refinement in capability building.

2.9 It is acknowledged that high level of airspace user participation is required to bring equitability in delay absorption when ATFM measures are applied. Thus the ATFM Operational Trial initiative would consider the approach of applying ATFM measures on all arriving flights into a participating airport during the period when such measures are required to manage the flow of air traffic. However, exemption can be accorded to special flights such as Humanitarian, Emergency, Medical Evacuation and Head-of-State flights taking reference to ICAO Doc 9971.

2.10 The ATFM Operational Trial initiative considered timely distribution of CTOT restrictions to relevant stakeholders for the effective use of this information. For the purpose of the ATFM Operational Trial and alignment with international practice, it was agreed that CTOT should be distributed not less than 2 hours before Estimated Off-Block Time (EOBT).

2.11 Efficient and timely handling of flight plans (FPL) and ATS messages has significant impact on the predictability of traffic flow. Hence, ATFM Operational Trial participants and airspace users will exercise greater discipline when managing FPLs and ICAO message handling. For the purpose of the ATFM Operational Trial as well as alignment with international practice, it was agreed that Flight Plans would be filed not less than 3 hours prior to EOBT. Revisions which include changes or delays beyond 15 minutes from EOBT will be notified by the aircraft operator.

2.12 Airspace user's compliance to ATFM measures is a key contributor to the credibility of the ATFM framework. Therefore, it would be managed such that departure compliance will be measured against CTOT while arrival compliance will be measured at significant flight arrival milestones. Compliance enforcement will be managed during post operational analysis.

2.13 Taking reference to the tiered approach to ATFM service categories in the Draft Regional Framework document, a tiered Participation Level approach for ANSPs, Airport Operators and Airspace Users was adopted. This approach enables wider participation from the onset of the ATFM Operational Trial. The participation requirements at each level for ANSPs are enclosed in **Annex A** and the participation requirements at each level for Airspace Users are enclosed in **Annex B**. Further details of requirements for each participation level will be developed progressively along with participation level for airport operators. Airport operator participation level is related to airport operations planned during the ATFM Operational Trial which will include Airport Collaborative Decision Making (A-CDM) framework and processes.

ATFM Operational Trial effort continuation

2.14 The ATFM Operational Trial preparations are progressing intensively with the series of meetings planned in the upcoming months. These will provide the group with opportunities to further refine the process and procedures and put in place the necessary tools and people, in time for the commencement of the Operational Trial in June 2015. Progress of ATFM Operational Trial initiative will be shared at all relevant forums to provide continuous updates to the larger aviation community in the region.

2.15 The ATFM Operational Trial aims to set the stage for cross border ATFM/CDM processes, operational procedures and business rules to be harmonized taking guidance from ICAO Doc 9971 and the leadership role of the ICAO ATFM Steering Group. The concept adopted for this collaborative trial may very well allow us to develop a common solution for region wide adoption and eventually enable ATFM to be implemented across different regions. This is a crucial step towards implementation of the Asia Pacific Seamless ATM Plan.

3. ACTION BY THE MEETING

3.1 The meeting is invited to:

- a) Note the information contained in this paper;
- b) Urge States to accord priority to this ATFM Operational Trial in developing a regional ATFM solution;
- c) Endorse the need for convergence towards a common cross border solution through close collaboration and harmonization of ATFM efforts; and
- d) Discuss any relevant matters as appropriate.

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Tiered Participation Level for ANSPs**a) Level 0 : Current Operations**

- ANSPs may be asked to support ATFM Operations through Minimum Departure Intervals between flights or providing longitudinal separation between flights such as Miles-in-Trial or Minutes-in-Trial

b) Level 1 : Observe Trial (includes Level 0)

- Participate in CDM/ATFM Meetings
- Participate in Operational Trial Planning process.

c) Level 2 : Facilitate CTOT for Departures (includes Level 0 and 1)

- Receive CTOT for departure to other Demand-Capacity imbalance airports
- Facilitate airline operator CTOT compliance for departing flights

d) Level 3 : Demand-Capacity Balancing Capability (includes Level 0, 1 and 2)

- Evaluate Traffic Demand
- Evaluate and update Airport Acceptance Rate (AAR)
- Distribute CTOT to airline operators and ANSPs

Tiered Participation Level for Airspace Users

a) **Level 1: Participate in the Operational Trial**

- Receive CTOT for departure to other Demand-Capacity imbalance airports
- Manage flight operations and coordinate with ATCs and Airport Operators to achieve CTOT compliance for departures
- Participate in the ATFM / CDM Operational Trial Project and Focus Group meetings
- Participate in the Operational Trial planning process

b) **Level 2: Slot Swapping and CTOT User Inputs (includes Level 1)**

- Optimize flight operations through slot swapping and CDM process
- Provide CTOT User to ATFM portal (advanced Operational Trial – later phase)
- Evaluate and update on outcomes of ATFM measures
- Refine CDM process for optimized flight operations