International Civil Aviation Organization

The Eighth Meeting of the ICAO Asia/Pacific Air Traffic Flow Management Steering Group (ATFMSG/8)

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Agenda Item 4: Review of Current CDM/ATFM Operations and Problem Areas

INTEROPERABILITY AMONG ATFM DEVELOPMENTS

(Presented by China, Hong Kong China, Singapore, Thailand, CANSO and IATA)

SUMMARY

This paper presents the proposal for an interoperability matrix to aid the necessary coordination meetings and discussion between Multi-Nodal ATFM project and NARAHG project to achieve interoperability among the two ATFM initiatives.

1. INTRODUCTION

1.1 The ICAO Asia/Pacific Regional Framework for Collaborative ATFM advocated the adoption of a distributed multi-nodal ATFM network approach to cross-border ATFM for the region. Key considerations to achieving regional ATFM interoperability are the components of systems, procedures and practices. The distributed multi-nodal network concept was developed as a means for States to implement ATFM without having a need for a single entity to provide ATFM services for the whole region. Through this approach, several initiatives to implement ATFM have emerged.

1.2 The Multi-Nodal ATFM Network Project Group is one with 11 ANSPs participating, and the other is the Northeast Asia Region ATFM Harmonisation Group (NARAHG) Project. In order for effective cross-border ATFM services to be delivered throughout the region, the need to harmonise the workings of each group has never been stronger.

2. DISCUSSION

Coordination meeting

2.1 Recognizing the diversity in operating environment in various States, each project group will develop processes and procedures through extensive consultation with their stakeholders to best suit their operating environment. It is foreseeable that there will be variation in operating procedures and processes, and full harmonization may not be possible between the different groups. Nonetheless, there would still be a need to ensure interoperability for effective and satisfactory level of ATFM services especially important for flights transiting multiple active ATFM operation area.

2.2 The prelude to achieving interoperability would be first to understand the differences and similarities between the ATFM initiatives. This can be done by piecing the various information presented at different forums. However, it would be advantageous for a focused face-to-face meeting to take place to enable clarification and gaining of detailed insights of the progress of each other's projects. In this regard, the Multi-Nodal Project group would like to express fullest commitment to the establishment of an interoperable regional ATFM network

Interoperability Matrix

2.3 To aid in future discussions, the Multi-Nodal Project group is proposing a form to determine areas to consolidate information containing certain specific details from the various ATFM groups. As an initial stage, we are proposing to involve Multi-Nodal ATFM Project and NARAHG project. The form contains 5 categories for considerations to determine areas for interoperability (listed in **Annex A**);

1. Infrastructure – types of communication network
2. Information exchange network – Mechanism to share ATFM information
3. ATFM information - types of ATFM information exchanged
4. ATFM solutions – types of ATFM Measure employed
5. Operating procedures – coordination procedures necessary to support the deployed ATFM Measure

2.4 The proposed checklist is not to justify the right and wrong of individual groups as each group would have developed their project according to the guidance provided in the Asia Pacific Framework for Collaborative ATFM. Rather, the inputs to the checklist can help to identify similarities and most importantly the gaps in our processes that could subject airspace users (AUs) to disjointed, duplicate or conflicting instructions, complicating operations for AUs and airspace operators.

2.5 With the use of the checklist, it also serves as a tool to streamline the discussion process. Stakeholders would then have visibility of the areas that needs to be addressed to achieve interoperability between the ATFM groups. Thereafter, the collaboratively identified task of achieving interoperability can be further categories according to the timeline in which the task can be achieved. For example, mid-term goals of de-conflicting operational procedures, long term goals of a harmonised regional ICD document.

2.6 With the pace of cross-border ATFM capabilities by States in this region picking up, the likelihood of such coordination being required among 2 or more ATFM service providers will increase. In the future, the processes that Multi-Nodal Project and NARAHG project groups undertake to achieve interoperability could well be a best practice for others in the region to consider adopting.

3. ACTION BY THE MEETING

3.1 The meeting is invited to:

a) note the information contained in this paper;

b) consider participating in coordination meeting with the Multi-Nodal group with the aim of achieving interoperability between the two ATFM initiatives;

c) feedback on the structure and practicality of the attached interoperability checklist; and

d) discuss any relevant matters as appropriate.

Annex A- Interoperability form

	Description	Multi-Nodal (MN)	NARAHG (NG)	Remarks
Technical				

Infrastructure	Types of communication network:
	Email
	Voice call
	AFTN
	Sys to sys connectivity
		Currently
		• Email - for ADP, alert/notification of ATFM measure
		  ○ In discussion to manage a web portal to consolidate ADP
		• Direct telephone line available for coordination
		• CDM Web conference facilities
		• ATFM restriction(CTOT,CTO) can be send via
		  ○ Email
		  ○ ATFN: SAM, SRM, SLC messages
		• CTOT,CTO information available on web portal for viewing
		  ○ Web Portal is operated by individual Level 3 ATFM Node
		• ATS messages send via AFTN		

Information exchange network	Mechanism for information exchange	SWIM • FIXM extension to incorporate the necessary ATFM fields.	Data sharing platform - CRACP.	

ATFM Information	type of information to be send
	
	ICD - TSG
	
	CRACP
		• Airport Arrival Rate
		• Standard aerodromes taxi time
		• ATS messages exchanged
		  ○ FPL
		  ○ CNL
		  ○ CHG
		  ○ DLA
		
		• data fields to be exchanged (tentative)
		  ○ ACID
		  ○ ADEP
		  ○ ADES
		  ○ ATOT
		  ○ ATO
		  ○ AC TYPE
		  ○ CLDT
		  ○ CHANGE REQUEST
		  ○ CHANGE APPROVAL
		  ○ CTOT CANCELLATION NOTICE
		  ○ EET
		  ○ EOBT
		  ○ FLIGHT LEVEL
		  ○ ROUTE
		  ○ SPEED
		  ○ SWAP REQUEST
		  ○ SWAP APPROVAL
			CTO and CTOT using FPL message (CTOT for reference)
			• ATS messages exchanged
			  ○ FPL
			  ○ CNL
			  ○ CHG
			  ○ DLA	

Operational				
ATFM solution	types of ATFM Measure for	<u>Participation level</u>	• GDP for Airport Arrival Constraint - initiated by arrival ANSP	NG – all ANSP along the route of flight to be ATFM proficient and able to generate CTO / CTOTs

	different situation	• Level 3 ATFM node - ability to implement, receive and comply with ATFM measure for DCB
		• Level 2 ATFM Node - ability to receive and comply with ATFM measures
		• Level 1 ATFM Node – observer
		ATFM Measure considered
		• GDP for Airport Arrival Constraint - initiated by level 3 ATFM Node
		• GDP for Airspace Constraint – initiated by constrained Level 3 ATFM Node
		  ○ CTOT and CTO issued to the departing aerodrome
		  ○ CTOT and CTO information available for all members and stakeholders
		• MIT/MINIT
		• GSt
			• GDP for Airspace Constraint – initiated by constrained and interim ANSP
			• MIT/MINIT
			• Level Capping	

Operating procedures	Types of coordination taking place	Procedures and process are listed in the Distributed Multi-Nodal ATFM Network Common Operating Procedures (COP), which includes; 1. Roles and responsibilities of Stakeholder 2. CTOT management and Lead Time requirement 3. Issue of CTOT 4. Revision of CTOT 5. Cancellation of ATFM measures, Etc		