



ICAO

Fifth Meeting of the Asia/Pacific Airport Collaborative Decision Making Task Force (APA-CDM/TF/5)

Video Conferencing, 15 to 17 June 2020

Agenda Item 2: Review Outcomes of Related Meetings/Seminars**AIR TRAFFIC FLOW MANAGEMENT STEERING GROUP OUTCOMES**

(Presented by the Secretariat)

SUMMARY

This paper presents relevant outcomes from the ICAO Asia/Pacific Air Traffic Flow Management Steering Group.

1. INTRODUCTION

1.1 The Tenth Meeting of the Air Traffic Flow Management Steering Group (ATFM/SG/10) was held by Video Teleconference from 04 to 08 May 2020.

1.2 The ATFM/SG/10 Meeting Report, Working and Information Papers and Presentations are available on the ICAO Asia/Pacific Regional Office Meetings web-page:

<https://www.icao.int/APAC/Meetings/Pages/2020-ATFM-SG10.aspx>

2. DISCUSSIONATFM Information Exchange

2.1 The ATFM/SG/10 meeting was informed that the Asia/Pacific (APAC) Flight Information Exchange Model (FIXM) 4.1 Extension, initiated by ATFM/SG and developed by the APAC System-Wide Information Management (SWIM) Task Force (SWIM TF), had been reviewed by the FIXM Change Control Board (CCB) and subsequently published on the FIXM website at <https://fixm.aero>. APANPIRG 30 subsequently adopted the FIXM extension under **Conclusion APANPIRG/30/12 (CNS SG/23/6-SWIM TF/3/4) – Asia/Pacific FIXM Extension for ATFM**. The FIXM extension was subsequently posted on the ICAO APAC Regional Office eDocuments web-page for immediate use by APAC administrations, where capability to do so existed (<https://www.icao.int/APAC/Pages/eDocs.aspx>).

2.2 **Table 1** summarizes the data attributes currently included in the FIXM extension.

Estimated	Calculated	Target	Actual
		Target Off Blocks Time (TOBT)	Actual Off Blocks Time (AOBT)
		Target Start Approval Time (TSAT)	
	Calculated Take-Off Time (CTOT)	Target Take-Off Time (TTOT)	
Estimated Time Over (ETO)	Calculated Time Over (CTO)		Actual Time Over (ATO)
Estimated Landing Time (ELDT)	Calculated Landing Time (CLDT)		
Other			
Trajectory		Aircraft Track	
<ul style="list-style-type: none"> • ETO • CTO • ATO • Flight level or Altitude • Waypoint 		<ul style="list-style-type: none"> • Ground speed • Bearing • Flight level or Altitude • Position (Designator or Latitude/Longitude or Relative Point) • Time over position 	

Table 1: FIXM version 4.1 Extension Data Attributes

2.3 The CNS/SG/23 meeting had adopted **Conclusion CNS SG/23/1 (ACSICG/6/1) – AFTN/AMHS-Based Interface Control Document for ATFM**, drafted by ATFM/SG/9, adopting and uploading the AFTN/AMHS-based Interface Control Document (ICD) for use by APAC Administrations in implementing cross-border ATFM communications. The ICD was also made available on the APAC Regional Office eDocuments web-page.

Progress Updates from Asia/Pacific Cross-Border Multi-Nodal ATFM Collaboration

2.4 The meeting was informed of progress in the Asia/Pacific Cross-Border Multi-Nodal ATFM Collaboration (AMNAC, renamed from the Distributed Multi-Nodal ATFM Network). The project, having developed a Common Operating Procedure (**ATFM/SG/10 WP/4 Attachment 1**), had now become a part of routine ATM operations by core team Administrations, supported by the other members.

2.5 Progress included the development of a network post-operations analysis portal (<http://bit.ly/mn-network-poa>).

2.6 Key observations from the operations in 2019 were as follows.

1. The majority of the Ground Delay Programmes (GDPs) were initiated by in response to traffic congestion in the Bangkok and Sanya FIRs, and impacted more flights but with less overall ATFM delays, as proportionally compared to GDPs activated in response to airport disruptions.
2. Overall CTOT compliance rates by flights departing from Level-3 and Level-2 ATFM nodes were 73% and 70% respectively. There was room for improvement, as compliance by some ATFM nodes continued to be low. This was an ongoing issue that the project core team still has to address through widened engagement with members and support from CANSO and IATA.

Note 1: AMNAC Level 3 Nodes: able to generate, deliver and receive CTOTs, comply with CTOTs (Cambodia, China, Hong Kong China, Singapore, Thailand). Level 2 Nodes: able to comply with CTOTs received (Indonesia, Malaysia, Myanmar, Philippines, Viet Nam); Level 1 Nodes: Observe and participate in project progress (Lao PDR).

Note 2: The performance objectives of the Asia/Pacific Regional Framework for Collaborative ATFM specify the criteria for determining which States should perform at the equivalent of AMNAC Level 3, and include the expectation that all other APAC Administrations perform at the equivalent of Level 2.

3. With more States/Administrations upgrading their ATFM capabilities over the years, the majority of flights included in the GDPs were departing from Level-3 and Level-2 ATFM nodes. This was a promising sign of ATFM development in the region and shows that States/Administrations are striving to comply with performance expectations set out in the Asia/Pacific Regional Framework for Collaborative ATFM and the ASEAN ATM Master Plan.

2.7 Recognizing that ATFM-on-SWIM was a vision that required long term development, the technical sub-group of the project had developed a Technical ICD to guide ATFM system procurement/development that would support AFTN/AMHS-based exchanges of ATFM messages, and had steered the testing of message exchange among core Air Navigation Service Providers (ANSPs), enabling the widened use of AFTN/AMHS-based ATFM messages in the region in the near term.

2.8 In the most recent update of the Common Operating Procedure an important change was made to resolve the ambiguity relating to CTOT revision. The intention was to ensure that the revised CTOT issued by the Initiating ATFMU was not so early that stakeholders were unable to react to it (**Figure 1**).

4.28 A revision of CTOT should also take into consideration the operational restrictions airspace users and airport operators are subjected to. To mitigate disruptions from insufficient reaction time for the processing of revised CTOT, stakeholders should lodge CTOT revision request as soon as practicable. In issuing a revised CTOT, Initiating ATFMU should ensure that the revised CTOT is not too early as to render stakeholders unable to react to it. **Table 9** specifies conditions for the revised CTOT.

Changes Initiated by	Earliest Revised CTOT Allowable	
	Revised CTOT is EARLIER	Revised CTOT is LATER
Airspace User	Current time + [max STT* + Buffer] New CTOT > Current time + 30 minutes	N/A
Initiating ATFMU	Current time + [reaction time] New CTOT > Current time + 45 minutes	

Table 9 - Lead Time Requirement for CTOT Revision Processing

**Max STT refers to maximum standard taxi-out time used in CTOT calculation among the airports in the network: for current operations, the maximum STT is 20 minutes*

Figure 1: Revised Procedure for Revision of CTOT (Asia/Pacific Cross-Border ATFM Collaboration Common Operating Procedures)

2.9 The project core team had also participated in discussions to harmonize sub-regional ATFM projects through the ATFM/SG ATFM Information Requirements Small Working Group (ATFM/IR/SWG), and had exchanged ATFM Daily Plans (ADPs) with Japan and Republic of Korea on a regular basis.

2.10 In response to a query on the frequency of ATFM/CDM teleconferences, which were in some cases conducted once per fortnight, the meeting was informed that Ground Delay Programmes were not run every day. CANSO stated that ANSPs should be encouraged to conduct CDM conferences every day, regardless of whether a programme of ATFM measures was necessary.

2.11 IFALPA noted that ANSPs differed in their approach to CTOT compliance. In the case of Thailand, the ANSP was proactive in ensuring compliance, including taking action for a CTOT revision in the event that the original CTOT window could not be met, while other ANSPs did not.

2.12 APA-CDM/TF is invited to note that:

1. CTOT is a key milestone in ATFM/A-CDM integration, and is used to update Target Take Off Time (TTOT) in A-CDM systems to gain the optimum network outcomes;
2. ATFM/CDM teleconferences necessarily include aerodrome operations engagement; and
3. the contribution of A-CDM processes to CTOT compliance.

Progress of Interoperability between Hong Kong China and Japan

2.13 The meeting was provided with a description of the operational trial of GDPs between Hong Kong China and Japan, in which Hong Kong ATFMU would notify Japan Air Traffic Management Centre (ATMC) of the CTOT based on Hong Kong International Airport (HKIA) capacity.

2.14 Operational issues to be evaluated and resolved during the trial included additional workload in the Japan ATMC due to the requirement to manually input CTOT received from Hong Kong ATFMU, the coordinated handling of departure aircraft from airports where a curfew was in place, and post-operations analysis. A Memorandum of Understanding (MOU) was being drafted, with planned commencement of the trial in Q3 2020, in two phases:

Phase 1: Hong Kong ATFMU issues “No delay CTOT” in order to evaluate the procedure and the reliability of message connection between Hong Kong China and Japan.

Phase 2: Hong Kong ATFMU issues genuine CTOT when HKIA or HKFIR has a capacity and demand imbalance.

2.15 Japan noted that even considering that the number of CTOTs would be low due to COVID-19 impact, it remained important to promote post-operations analysis and check feedback from airlines.

2.16 The meeting also noted with interest the effect of curfew-controlled airports in Japan on CTOT management, which currently required manual management of CTOTs.

Update on ATFM Operations in India

2.17 India informed ATFM/SG/10 of the status of ATFM implementation and the integration of ATFM with A-CDM at major airports in India, and highlighted envisioned implementation challenges. The subject of India's ATFM/A-CDM integration efforts is discussed under separate Working Papers to this meeting.

Regional ATFM Implementation Status

2.18 ICAO provided a summary of ATFM implementation status of APAC Administrations, reported against the performance objectives of the Regional Framework for Collaborative ATFM.

2.19 Based on reports received States were assessed as having *Robust* (90-100%), *Marginal* (70-89%) or *Incomplete* (0-69%) implementation. Several States were recorded as *Incorrect Report*, where they reported against the criteria applicable to States that were not required to implement ATFM under performance expectations of the Asia/Pacific Seamless ANS Plan and Regional Framework for Collaborative ATFM. The remaining APAC States were recorded as *Did Not Report*.

2.20 India, Singapore and USA were assessed as having *Robust* implementation.

2.21 *Marginal* implementation was recorded for Cambodia, China, Japan, Republic of Korea, and Thailand.

2.22 Implementation by Bangladesh, Hong Kong China, Macao China, Indonesia, Maldives, Myanmar, Nepal, New Caledonia, New Zealand, Pakistan, Papua New Guinea, Philippines and Viet Nam was assessed as *Incomplete*.

2.23 The meeting was reminded that Annex 11 Section 3.7.5 obliged States to implement ATFM where demand exceeded, or was expected to exceed, capacity.

2.24 Current reported regional implementation of the performance expectations of the Regional Framework for Collaborative ATFM is provided in **Attachment A**, highlighting the reported implementation of selected elements related to A-CDM.

ATFM Post Operations Analysis Recommended Framework

2.25 The final draft version of the ATFM Post-Operations Analysis Recommended Framework, initially developed by the core team of the AMNAC and further improved by input from India and Japan was presented by China, Hong Kong China, Singapore, Thailand, CANSO and IATA for consideration by the ATFM/SG/10 meeting (**ATFM/SG/10 WP/13 Attachment A**).

2.26 Major additions to the existing working draft document included methods to characterize assess and analyze MINIT/Miles in Trail (MIT), ATFM/CDM planning conference leveraging for sharing post-operations analysis results, issues and lessons learned, and case studies from States that had conducted post-operations analysis work.

2.27 The meeting agreed to **Draft Conclusion ATFM/SG/10-1: ATFM Post-Operations Analysis Recommended Framework** for consideration by ATM/SG/8, proposing the uploading of the document to the ICAO Asia/Pacific Regional Office eDocuments web-page to replace the existing working draft version, and urging States to utilize the guidance provided in the document.

ADP Exchange Procedure

2.28 The ATFM/IR/SWG had been tasked under its TOR to draft an Operational Requirements Document for regional ATFM, including *inter alia* ADP exchange.

2.29 ATFM/IR/SWG/4 had agreed to an ADP exchange procedure (**ATFM/SG/10 WP/14 Attachment A**) including ADP content and format, ADP exchange protocols and frequency, dissemination of ADP to local stakeholders including airport operators, aircraft operators, ground handling agencies, and contact information for ADP exchange. ATFM/SG/10 agreed to **Conclusion ATFM/SG/10/-2: ADP Exchange Procedure Working Draft** enabling the uploading of the ADP Exchange Procedure to the ICAO APAC eDocuments web-page in working draft form, pending its inclusion in the amended Regional Framework for Collaborative ATFM.

COVID-19-Related ATM Information Sharing

2.30 Among the information on COVID-19-related operations and recovery discussed at ATFM/SG/10, ICAO provided a summary of current and near-term planned activity in COVID-19-related ATM information sharing being undertaken by ICAO Headquarters and APAC Regional Office. Information was provided on ICAO global (HQ) and regional (APAC Office) information sources, and the proposed APAC COVID-19 Contingency and Recovery Planning Group (ACCRPG)

2.31 The meeting was informed of the Asia/Pacific ATM/ATFM Status Update document, routinely updated once per fortnight and as required for significant changes reported by participating States. The document, together with a template for the submission of status reports, was available on the ICAO APAC Regional Office COVID-19 BCP web-page at <https://www.icao.int/APAC/Pages/COVID-19-BCP.aspx>. **Table 2** provides an example of information provided in the document.

Thailand (Bangkok FIR)

Information Updated	4 June 2020
Precis	<ul style="list-style-type: none"> - <i>Slight increase in domestic traffic demand</i> - <i>Weather update</i>
Traffic Demand Situation	<ul style="list-style-type: none"> - Domestic operators resume partial operations - International flights are mostly cargo deliveries and non-scheduled charter operations. - Traffic demand is 320 flights per day on average, compared to 2,500 – 3,000 flights under normal circumstance (approx. 87-90% traffic reduction).
Significant Weather Outlook	<ul style="list-style-type: none"> - Expect thunderstorms caused by southwest monsoon over northern, central and southern part of the country.
ATM Status	<ul style="list-style-type: none"> - Reduced staffing levels at all ATS units due to low traffic demand and to minimize the chance of infection-spread. - Bangkok ACC is in operations with combined sectors. - AAR for VTBS and VTBD are normal VTBS AAR = 34 VTBD AAR = 26
ATFM Measure Outlook	<ul style="list-style-type: none"> - No ATFM measure expected. - BOBCAT ATFM operations in service. - Bangkok ATFMU operational 0100 – 1300 UTC
COVID-19 Flight Restrictions	<ul style="list-style-type: none"> - All international passenger flights are prohibited from entering the country until 30 June 2020. (NOTAM VTBB A1116/20)

	<p><i>*Exemption: State and military aircraft, emergency landings, technical landings without disembarkation, medical or relief flights, pre-arranged repatriation flights, cargo flights</i></p> <ul style="list-style-type: none"> - Phuket Intl. Airport (VTSP) closed for all inbound passenger flights until further notice. (NOTAM VTSP A1114/20) <p><i>*Same flight exemption as above.</i></p> <ul style="list-style-type: none"> - Domestic airports are available for arrival and departure between 0000-1200 UTC per CAAT’s decree issued 3 May 2020. Arriving passengers are subjected to comply with the local regulation in each province.
COVID-19 Entry Restrictions	<ul style="list-style-type: none"> - All passengers from overseas will be quarantined per the requirements outlined in government’s Emergency Decree. - All passengers from overseas must have fit to fly health certificate issued no more than 72 hours before traveling. - Thailand is under curfew between 1600-2000 UTC daily.
Other Related Information	(n/a)
Links	<p>NOTAM List: http://www.aerothai.co.th/en/pilot/notam</p> <p>CAAT COVID-19 Announcement: https://www.caat.or.th/th/archives/47858</p>

Table 2: Example COVID-19-related ATM Information Sharing

ATFM/SG & APA-CDM/TF

2.32 ATFM/SG/10 recalled the discussions at the joint plenary session of ATFM/SG/9 and APA-CDM/TF/4 (2019) on the future of ICAO Asia/Pacific Airport Collaborative Decision-Making (A-CDM), noting that A-CDM was widely considered to be a component of collaborative ATFM, and that other bodies such as CANSO and ICAO technical panels had merged A-CDM work into their ATFM-related technical working groups.

2.33 ATFM/SG/10 recalled ATFM/SG/9 had agreed that, when APA-CDM/TF is dissolved by APANPIRG, it will be appropriate that any further work in the A-CDM field be undertaken by ATFM/SG, with the participation of appropriate experts from that domain.

2.34 ATFM/SG/10 noted that the APA-CDM TF/4 proposal to extend the life of the task force by two years was adopted by APANPIRG/30 (*Decision APANPIRG/30/3: Proposal for Amendment of APA-CDM/TF TOR*), and that the Report of the APANPIRG/30 meeting recorded that the APANPIRG and ATM/SG Chairs had subsequently remarked that the work of the APA-CDM/TF, when dissolved, would be absorbed by ATM/SG.

3. ACTION BY THE MEETING

3.1 The meeting is invited to:

- a) note and consider any relevant matters for consideration by APA-CDM/TF from:
 - i) the information contained in this paper; including
 - ii) the inclusion of A-CDM-related attributes in the Asia/Pacific FIXM Version 4.1 Extension;
 - iii) the implementation status of A-CDM-related elements of the Regional Framework for Collaborative ATFM;
 - iv) the development of the ATFM Post-Operations Analysis Recommended Framework and ADP Exchange Procedure;
 - v) information related to COVID-19 recovery planning;
 - vi) ATM status information sharing; and
- b) discuss any relevant matters as appropriate.

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REGIONAL ATFM PLAN MONITORING AND REPORTING FORM
ATFM PERFORMANCE INDICATORS

The following indicators are based on the Performance Improvement Plan of the Asia/Pacific Regional Framework for Collaborative ATFM, which should be read in conjunction with this form. The information provided will be used by the relevant Regional bodies to assess individual Administration and overall regional compliance with the Framework, and may be used by Administrations to internally evaluate their

Not implemented = 0 Partial implementation = 0.5 Full implementation = 1		Australia	Bangladesh	Cambodia	China	Hong Kong, China	Macao, China	India	Indonesia	Japan	Malaysia	Maldives	Myanmar	Nepal	New Caledonia	New Zealand	Pakistan	Papua New Guinea	Philippines	Republic of Korea	Singapore	Thailand	United States	Viet nam	
		A. Administrations Distributing ATFM Measures																							
Indicate whether your Administration has:																									
1	Enacted regulations for the implementation of ATFM	0.0		0.5	0.5	1.0		1.0	1.0	1.0	0.0					0.5	0.0	0.0	0.5	1.0	1.0	0.5	1.0	0.5	
2	Ensured the origination, distribution and processing of FPL and ATS messages in accordance with ICAO Doc 4444 PANS-ATM and the Regional Framework for Collaborative ATFM	0.0		1.0		1.0		1.0	1.0	1.0	0.0					1.0		0.5	1.0	1.0	1.0	1.0	1.0		
3	Implemented common fixes, terminology and communications in ATFM, AMAN/DMAN and A-CDM systems	0.0		0.5	0.5	1.0		0.5	0.5	0.5	0.0					1.0	0.0	0.5	0.5	0.5	1.0	1.0	1.0	0.5	
4	Implemented meteorological services to support ATM in the terminal area (e.g. Meteorological Service in Terminal Area - MSTa)	0.0		1.0	1.0	1.0		1.0	1.0	1.0	0.0					0.5	1.0	1.0	0.0	1.0	1.0	0.0	1.0	0.5	
5	Established ATFM capability with appropriately trained staff and operating procedures	0.0		0.5	0.5	0.5		1.0	0.5	1.0	0.0					0.0	0.5	0.5	1.0	1.0	1.0	0.5	1.0	0.5	
6	Implemented local procedures for ATFM operations and communication, including phraseology and terminology for ATFM Units, ATS Units, airspace	0.0		1.0	0.5	0.5		1.0	0.5	0.5	0.0					0.5	0.0	0.0	1.0	0.5	1.0	1.0	1.0	0.5	
7	Performed an analysis of current traffic demand and expected growth for the next 5 years (rolling)	0.0		1.0	1.0	1.0		1.0	0.0	1.0	0.0					0.5	1.0	1.0	0.5	1.0	1.0	0.0	1.0	0.5	
8	Implemented a program of bi-annual strategic airport and airspace capacity, and strategic demand analysis	0.0		1.0	1.0	1.0		1.0	0.0	1.0	0.0					0.0	0.0	0.5	0.0	0.5	1.0	1.0	1.0	0.5	
9	Commenced daily pre-tactical airport and airspace capacity-demand analysis for ATFM Program airports and associated terminal airspace as well as	0.0		0.5	0.5	0.5		1.0	0.5	1.0	0.0					0.0	0.0	0.0	0.5	1.0	1.0	1.0	0.5	0.0	
10	Implemented pre-tactical modelling of airport and airspace configuration and traffic demand, and the effect of ATFM measures	0.0		1.0	1.0	0.5		1.0	0.5	1.0	0.0					0.0	0.0	0.0	1.0	1.0	1.0	0.5	1.0	0.0	
11	Implemented dynamic updating of airport and airspace capacity constraints, capacity calculations and demand information	0.0		1.0	1.0	0.5		1.0	0.5	1.0	0.0					0.5	0.0	0.0	0.5	0.5	1.0	1.0	1.0	0.0	
12	Implemented strategic airport slot allocation at all international airports where demand significantly exceeds airport capacity	0.0		1.0	1.0	1.0		1.0	1.0	1.0	0.0					1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
13	Made arrangements for relevant ATFMU to chair and/or participate in daily ATFM conferences for pre-tactical ATFM planning	0.0		1.0	1.0	1.0		1.0	0.5	1.0	0.0					0.0	0.0	0.0	0.0	1.0	1.0	1.0	1.0	0.0	
14	Commenced daily preparation of an ATFM Daily Plan (ADP) for all ATFM Program airports and associated terminal airspace	0.0		1.0	1.0	1.0		1.0	1.0	1.0	0.0					0.0	0.0	0.0	1.0	1.0	1.0	1.0	1.0	0.5	
15	Enabled sharing of relevant information between all stakeholders through implementation of CDM capability	0.0		1.0	1.0	0.5		1.0	1.0	1.0	0.0					1.0	0.0	0.0	0.0	1.0	1.0	1.0	1.0	0.0	
16	Developed procedures for ATFMU, ATS Units, airspace users, and airport operators when ATFM program is active	0.0		1.0	1.0	0.5		1.0	1.0	1.0	0.0					0.5	0.0	0.0	0.5	0.5	1.0	1.0	1.0	0.0	

		Not implemented = 0 Partial implementation = 0.5 Full implementation = 1																					
		Australia	Bangladesh	Cambodia	China	Hong Kong, China	Macao, China	India	Indonesia	Japan	Malaysia	Maldives	Myanmar	Nepal	New Caledonia	New Zealand	Pakistan	Papua New Guinea	Philippines	Republic of Korea	Singapore	Thailand	United States
17	Implemented tactical ATFM measures for flights inbound to ATFM program airports	0.0		1.0	1.0	1.0		1.0	1.0	1.0	0.0				1.0	0.0	0.0	0.5	1.0	1.0	1.0	1.0	0.0
18	Implemented tactical ATFM measures for flights inbound to constrained airspace	0.0		1.0	1.0	0.5		1.0	0.0	1.0	0.0				0.0	1.0	0.0	0.5	1.0	0.5	1.0	1.0	0.0
19	Promulgated procedures for tactical management of ATFM measures, including revision, cancellation, suspension, de-suspension, where necessary	0.0		1.0	1.0	0.0		1.0	1.0	1.0	0.0				0.5	0.0	0.0	0.0	0.5	1.0	1.0	1.0	0.0
20	Ensured tactical ATFM measures for are only applied during periods of constraint	0.0		1.0	1.0	0.5		1.0	1.0	1.0	0.0				0.5	0.0	0.0	0.5	1.0	1.0	1.0	1.0	0.0
21	Promulgated procedures to avoid subjecting individual flights to more than one tactical ATFM measure	0.0		0.0	1.0	0.5		1.0	0.5	1.0	0.0				0.5	0.0	0.0	0.0	0.5	1.0	1.0	1.0	0.0
22	Implemented local ATC procedures and, where available, CDM processes facilitating compliance with received CTOT	0.0		1.0	1.0	0.5		1.0	1.0	1.0	0.0				0.5	0.0	0.0	0.0	0.5	1.0	1.0	1.0	0.5
23	Implemented distributed multi-nodal ATFM information distribution capability	0.0		1.0	1.0	0.5		0.0	1.0	0.0	0.0				0.0	0.0	0.0	0.5	0.0	1.0	1.0	0.5	0.5
24	Ensured interoperability of implemented ATFM, A-CDM, AMAN, DMAN, ATM automation systems and airspace user systems, where operational	0.0		0.0	1.0	0.5		0.5	0.5	0.0	0.0				0.5	0.0	0.0	0.0	0.5	0.5	1.0	1.0	0.0
25	Ensured ATFM systems take long haul flights into account in demand predictions	0.0		0.0	1.0	1.0		1.0	1.0	1.0	0.0				0.0	1.0	0.0	0.0	1.0	1.0	1.0	1.0	0.0
26	Ensured ATM and ATFM systems provide timely update of estimate information for airborne aircraft	0.0		1.0	1.0	0.5		1.0	1.0	1.0	0.0				0.5	1.0	1.0	0.0	1.0	1.0	0.5	1.0	0.5
27	Commenced ATFM post-operations analysis and rectification, taking guidance from the Regional Framework as starting point	0.0		1.0	0.5	0.5		1.0	0.0	1.0	0.0				0.5	1.0	0.0	0.0	0.5	1.0	1.0	1.0	0.0
28	Developed procedures and agreements for post-operational analysis of cross-border ATFM with stakeholders	0.0		0.5	1.0	0.0		0.0	0.0	1.0	0.0				0.0	0.5	0.0	0.0	1.0	1.0	1.0	1.0	0.0
29	Ensured post-operations analyses are used for planning ATFM, airspace and ATS route improvements	0.0		0.5	1.0	0.5		1.0	0.5	1.0	0.0				0.5	0.5	0.0	0.0	1.0	0.5	0.5	1.0	0.5
30	Implemented ATS route structure improvements including CCO/CDO to reduce ATC workload and use aircraft capability to meet ATFM measures	0.0		0.0	1.0	0.0		1.0	1.0	0.5	0.0				1.0	0.5	0.5	0.5	0.5	1.0	0.5	1.0	0.0
31	Optimized ATC separation and reduced runway occupancy times at all ATFM program airports and in associated terminal airspace	0.0		0.0	1.0	1.0		1.0	1.0	1.0	0.0				0.5	0.0	0.0	0.0	0.5	1.0	0.5	1.0	0.5
B. Administrations Facilitating ATFM Measures (but not expected to																							
32	Ensured the origination, distribution and processing of FPL and ATS messages in accordance with ICAO Doc 4444 PANS-ATM and the Regional Framework for Collaborative ATFM	1.0									1.0	1.0	0.0	1.0									
33	Implemented local procedure with regards to ATFM operations and communication, including phraseologies, among ATFMU, ATS Units,	1.0	0.0				0.5				0.5	0.0	0.0	0.0	1.0								
34	Educated ATM staff and stakeholders on the basic of ATFM and its connection with ATS	1.0	0.5				0.5				1.0	0.5	0.5	0.0	1.0								
35	Made arrangements for relevant personnel from ATSU to participate in daily ATFM conferences for pre-tactical ATFM planning	1.0	0.5				0.0				0.0	0.0	0.0	0.0	0.0								
36	Enabled sharing of relevant information between all stakeholders through implementation of CDM capability	1.0	0.0				0.0				0.0	0.0	0.0	0.0	0.5								

Not implemented = 0 Partial implementation = 0.5 Full implementation = 1		Australia	Bangladesh	Cambodia	China	Hong Kong, China	Macao, China	India	Indonesia	Japan	Malaysia	Maldives	Myanmar	Nepal	New Caledonia	New Zealand	Pakistan	Papua New Guinea	Philippines	Republic of Korea	Singapore	Thailand	United States	Viet nam	
		37	Developed procedures for ATS units, airspace users, and airport operators when ATFM program is active	1.0	0.0				0.0				1.0	0.0	0.5	0.0	0.0								
38	Developed procedures for ATS units, airspace users, and airport operators when ATFM program is active	1.0	0.0				0.0				1.0	0.0	0.5	0.0	0.0										
39	Ensured local stakeholders are able to access CTOT information readily, either directly from the ATFMU distributing it or through local dissemination	1.0	0.0				0.5				1.0	0.0	1.0	0.0	1.0										
40	Ensured ATM systems provide timely update of estimate information for airborne aircraft	1.0	0.0				0.0				1.0	0.0	1.0	0.0	1.0										
41	Developed ATFM post-operations analysis workflow among ATFMU, ATS units, airspace users, and airport operators to ensure proper and timely feedback mechanism can be distributed to ATFMU originating the ATFM	0.5	0.0				0.5				0.0	0.0	0.0	0.0	0.0										
42	Developed procedures and agreements for post-operational analysis of cross-border ATFM with stakeholders	0.0	0.0				0.0				0.5	0.0	0.0	0.0	0.0										
43	Ensured post-operations analyses are used for planning ATFM, airspace, and ATS route improvements	0.5	0.0				0.5				0.0	0.0	0.0	0.0	0.0										
44	Implemented ATS route structure improvements including CCO/CDO to reduce ATC workload and use aircraft capability to meet ATFM measures	1.0	0.0				0.5				0.0	1.0	0.0	0.0	0.5										
45	Optimized ATC separation and reduced runway occupancy times at all ATFM program airports and in associated terminal airspace	1.0	0.0				0.0				1.0	0.0	0.0	0.0	0.0										
46	Performed an analysis of current traffic demand and expected growth for the next 5 years (rolling)	0.5	0.5				0.5				1.0	0.5	0.5	0.0	0.5										
47	Implemented a program of bi-annual strategic airport and airspace capacity, and strategic demand analysis	1.0	0.0				0.0				0.0	0.0	0.0	0.0	0.0										
Total		13.5	1.5	23.0	27.0	20.0	3.5	28.0	21.0	27.5	7.0	3.0	5.0	0.0	6.5	13.5	9.0	6.5	11.5	24.0	29.5	25.5	30.0	7.5	
Implementation %		X	13	75	88	65	22	91	68	89	50	19	32	0	41	44	30	41	38	78	95	83	97	25	

Note: State/Administration that did not submit the reporting status are Afghanistan, Bhutan, Brunei, Cook Islands, DPRK, Fiji, French Polynesia, Kiribati, Lao PDR, Marshall Islands, Micronesia, Mongolia, Nauru, Palau, Samoa, Solomon Islands, Sri Lanka, Timor Leste, Tonga, Tuvalu, and Vanuatu