REPORT OF THE FIRST FACE-TO-FACE MEETING OF THE AIR TRAFFIC FLOW MANAGEMENT INFORMATION REQUIREMENT SMALL WORKING GROUP (ATFM/IR/SWG/F2F-1)

BEIJING, CHINA, 29 – 31 AUGUST 2018

The views expressed in this Report should be taken as those of
the Meeting and not the Organization

Endorsed by the Meeting
in coordination with the ICAO Asia and Pacific Regional Sub-Office, Beijing, China

Contents

APPENDICES

INTRODUCTION

Meeting

1.1 The First Face-to-Face Meeting of ATFM Information Requirement Small Working Group (ATFM/IR/SWG/F2F-1) was held in Beijing, China from 29 to 31 August 2018.

Attendance

2.1 The meeting was attended by 25 participants from China, Hong Kong China, India, Indonesia, Japan, Singapore and Thailand. The list of participants is at **Appendix A** to this report.

Officers and Secretariat

3.1 Mr. Hiroyuki Takata and Mr. Li Wenxin, Regional Officers, ATM at ICAO APAC RSO, facilitated the meeting.

Opening of the Meeting

4.1 Mr. Raphael Guillet, the Chief of the ICAO APAC RSO, opened the meeting with a remark. Mr. Guillet briefed the functions of the ICAO APAC RSO, which is composed of airspace management, civil military ATM cooperation, PBN implementation, Air space management and ATFM/A-CDM; he then stated that the interoperability of the ATFM/A-CDM is a most important goal that should be achieved collaboratively, and hoped the experts in this small working group could contribute more in harmonizing the ATFM/A-CDM development in this region. Mr. Guillet is attending the APANPIRG next month and he will get in touch with the ATM leaders of the States in this region to leverage on ATFM/A-CDM harmonization.

Documentation and Working Language

5.1 The working language of this meeting and all documentation was in English. There were 16 presentations and papers. A list of presentations/papers is included at **Appendix B** to this report.

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REPORT ON AGENDA ITEMS

Agenda Item 1: Review and Agreement on Agenda

1.1 ICAO presented a paper on Agenda Items Review, elaborating the intentions and considerations for proposing these agenda items for the SWG meeting;

1.2 It was attempt to facilitate achieving the objectives through discussions in 4 sessions, starting from the update of the projects progressions, followed by the review and update of the work this small working group has been doing, then moving to the discussions on the operational and technical issues that should be addressed, and ending up with the updating of the working plan;

1.3 The meeting agreed with this arrangement.

Agenda Item 2: Briefing on the Relevant ICAO Meetings

2.1 ICAO provided the meeting with a summary on the relevant ICAO meetings ranging from 2015 to 2018, focusing on the decisions and conclusions pertaining to the air traffic flow management at the ATFM/SG, APA-CDM/TF, ATM/SG, APANPIRG and DGCA;

2.2 The meeting reconfirmed that the Multi-Nodal concept was regionally agreed ATFM concept endorsed by APANPIRG. The current version of regional ATFM documents are *Asia/Pacific Regional Framework for Collaborative ATFM v3* and *Regional ATFM Concept of Operation v1,* which is available at ICAO APAC website.

Agenda Item 3: Project Update/Review

DISTRIBUTED MULTI-NODAL ATFM NETWORK PROJECT BRIEFING

3.1 The Distributed Multi-Nodal ATFM Network Project team made a briefing with regard to the project progress, key revisions to the Common Operating Procedures (COP), key challenges to the project and technical work; the status of the ASEAM ATFM Implementation Support Team was also introduced;

3.2 It was noted that as an interim measure, the AFTN is one of the major means for ATFM message on-line, computer-to-computer exchange in ADEXP format (SAM/SRM/SLC), eventually the on-line ATFM data exchange will be supported by FIXM on SWIM-based technology;

3.3 It was also noted that the multi-constraints in airspace and airports was one of the challenges for the project, and an interim solution was to conduct coordination among the relevant nodes in the project through CDM process; it was envisaged that this issue will be better addressed in the context of ATFM-on-SWIM;

3.4 The meeting was informed that the occurrence probability of multi-constraints during the

operation trial was really rare, it only occurred once for a flight departing from Hong Kong, and it was well addressed by Hong Kong CAD through the teleconference among the responsible Nodes.

NARAHG BRIEFING

3.5 The NARAHG Project team presented the Operation Concept (CONOPS) adopted in the NARAHG Project. The presentation reviewed the history of the Project, updated the status of the project progression, introduced the message list and terminologies used in CRACP operations, and explained the operation procedures;

3.6 In order to assist a better understanding of the NARAHG CONOPS, the NARAHG Project team made another presentation on Day 3 as a further clarification of the operation procedures;

3.7 The meeting discussed the NARAHG CONOPS, emphasised on the discrepancies between the two CONOPS in the Projects. Through the discussions, the following points were understood:

3.8.1 The CRACP is a data exchange platform where the ATFM data, including the ATFM Daily Plan (ADP), ATFM Measures and cross-border slot utilization, could be exchanged and displayed in real time among the ANSPs in China, Japan and ROK;

3.8.2 Unlike the Multi-Nodal ATFM Trial Project, where the arrival airport with capacity constraints allocates CTOTs directly to the flights in departure airports, the departure airports (or Departure Node Leader - an ANSP governing a group of airports) in NARAHG Project will send an Estimated Cross FIR Boundary Time (temporarily named as "ETO" in NARAHG Project) of each departure flight to the arrival airports. The arrival airport will calculate the Estimated Time of Landing based on ETO, and allocate a new landing time in accordance with its available capacity, this new landing time will be converted into a Cross Boundary Time (temporarily named as "CTO") which may equal to, or differ than, ETO provided by the departure airport, and will be sent back to the departure airport. Based on this CTO, the departure airport then could allocate the CTOT to the flight bounding to the arrival airport;

3.8.3 The abovementioned process will be triggered 2 hours prior to the EOBT of the departure flight;

3.8 The meeting suggested NARAHG Project team developing the Concept of Operation in text format to further assist the understandings;

3.9 Another discussion focused on the utilization of the terminologies in NARAHG Project, especially the usage of "CTO". ICAO reminded the meeting that although the acronym CTO itself refers to a calculated time over a fix, the "CTO" in ATM community has already been defined as an ATFM measure which will be functioning in conjunction with the aircraft capability of Required Time Arrival (RTA), the §4.8.3, Part II of the Doc. 9971 was suggested to be referred to. It was then suggested the NARAHG Project team considering the alternative terminology in use, in the meanwhile, ICAO will consult with the SMEs for further clarification.

3.10 It was stressed that the standardization of the terminology is paramount, and it was also reminded that the new terminology may be required for the cross-border ATFM applications;

CENTRAL AIR TRAFFIC FLOW MANAGEMENT (C-ATFM)

3.11 India presented the C-ATFM. The presentation briefed the needs for implementing the ATFM in India, introduced the C-ATMF system architecture and operation, elaborated the post operation analysis, and listed out the challenges. The meeting was informed that India planned to implement cross border ATFM tentatively in 2019.

3.12 The meeting was advised that the C-ATFM was based on Skyflow, an ATFM system developed by Atech, an Embraer's group company. It was noted that as an interim measure, the Delay Message (DLA) in ICAO ATS message definition is used to exchange the CTOT information among the ATS units, the major communication means are AFTN and email at the moment. The data exchange via Enterprise Messaging System (EMS) was planned in 2020.

3.13 It was also noted that a web-portal was developed over public internet to facilitate the stakeholders accessing the ATFM information; the user can access this web-portal with authorized credentials. The web-portal is protected by firewall;

3.14 The meeting was informed that the C-ATFM system acquires the surface dynamic information from the airport control centre such as the flight gate allocation in parking bay, and flight dynamic information from A-CDM system such as the EOBT/TOBT;

3.15 The meeting was also noted that a Common Business Rule has been established which facilitates the Collaborative Decision Making (CDM) process. It was because of this Rule, nearly all operational issues could be addressed at the operation level without the need to report up to the administrative level for "arbitration";

ATFM IMPLEMENTATION IN CHINA

3.16 China presented to the meeting the ATFM implementation in China, including a generic overview and 3 level ATFM administrative and operational structure, development roadmap, functionalities of the Operation Management Centre (OMC), and the participation to the cross border ATFM implementation;

3.17 The meeting was impressed about the new OMC layout where totally 86 working positions were designed.

ATFM PLAN IN JAPAN

3.18 Japan made a presentation on its ATFM Plan, starting with the current situation for international ATFM, followed by the updates on the CRACP implementation, and ended up with the future plan for CRACP implementation incorporating with the operation of a new ATFM system – Trajectorized Enhanced Aviation Management (TEAM), which will serve the air traffic flow management during the Tokyo Olympic/Paralympic Games in July 2020;

3.19 The meeting noted that Japan would resume CTO operation from February 2020 that had been temporary stopped for software upgrade. Japan pointed out the CTO operation had something

to do with RTA, therefore the meaning of CTO was different from NARAHG CTO;

3.20 The meeting was advised that allocating "CTO" to eastbound traffic (e.g. flights over Pacific Ocean from USA) will be the next step;

3.21 The meeting was also advised that currently the GDP is only applicable for domestic departure flights (i.e. allocating CTOT to all departing flights), for the inbound flights, after the aircraft entering the FIR, a "CTO" will be allocated if the regulation is necessary;

3.22 The meeting was noted that the Interface Control Document (ICD) is under development to link the TEAM system with other States, in association with CRACP Stage 3 implementation; currently the ADP information are exchanged in the form of PDF file through emails and web-portal;

ACCURACY AND EFFECTIVENESS OF CTO IN TRAFFIC FLOW CONTROL

3.23 Japan shared a study on the Accuracy and Effectiveness of CTO in Traffic Flow Control through the post operational analysis on actual data. The study focused on the relationships between CTO/EDCT/CTOT given by ATFM system and actual ATO/ATD/ATOT recorded in the system after executions. With the analysis of the collected data on 3 fixes (ONIKU, SAPRA and BULAN) along the FIR boundaries, it was concluded that it was possible to let flight fly across FIR boundary at the time closer to CTO when departure time was in compliance with EDCT/CTOT;

3.24 The meeting noted that the deviation of the data dispersed along the central line (i.e. theoretical linear relation between the time difference of ATD minus EDCT and the one of ATO minus CTO, provided the aircraft speed is a constant) was not great on the fixes ONIKU and SAPRA, while the deviation was larger on the fix BULAN. Further analysis and investigation were suggested;

ESTABLISHMENT OF INDONESIA NETWORK MANAGER

3.25 Indonesia made a presentation on the Network Manager for Indonesian national air traffic flow management; After reviewing the ATFM concept in ASBU, the presentation covered the topics of current situation, ATFM in Indonesia Modernization Air Navigation System (IMANS), ATFM implementation strategy, IMANS ATFM concept of operation, and the proposed functions with functional organization chart.

3.26 The meeting noted the latest ATFM development and implementation in Indonesia.

Agenda Item 4: SWG Work Progress Update/ Review of TOR

4.1 ICAO presented a paper on ATFM/IR/SWG TOR review, summarizing the progressions having been made since the establishment of the ATFM/IR/SWG, proposing a way of reviewing the status of completion for the tasks in TOR and suggesting the consideration of working scope expansion to include the ATFM harmonization;

4.2 The meeting noted that the original tasks for the IR/SWG were to develop an operational requirements document and an Interface Control Document (ICD). The meeting agreed that the

documents developed by this small working group should be practical, applicable, testable and verifiable for the ATFM projects, hence more operational and technical preparatory work should be needed through discussions and interactions between project teams in order to gain more experiences; as the first step of achieving the final objectives, a regional implementation plan for ATFM harmonization should be developed among the ATFM project teams to guide the ATFM harmonization trials;

4.3 The meeting also considered and agreed the suggestion raised by ICAO on the expansion of the IR/SWG working scope, and noted that a new task was assigned to the IR/SWG for reviewing the Regional A-CDM Implementation Plan. ICAO will draft the revised TOR for meeting to review and revise.

Agenda Item 5: Harmonization /Standardization Update/Discussion

5.1 Both teams of the Multi-Nodal ATFM Network Project and NARAHG Project held internal and interactive side discussions on how to harmonize the operations of two projects with the different concepts of operations. Both teams proposed to the meeting a plan for implementing the harmonization trials;

5.2 Through further discussions, it was agreed by both project teams to adopt the implementation plan proposed by Multi-Nodal Project team. The meeting then reviewed the tasks in this adopted implementation plan and agreed to allocate each task the responsible team and timelines at next IR/SWG teleconference. A task list of the implementation plan, so-called Mixed-Mode ATFM Ops Trial is attached as Appendix D to this report;

5.3 India reminded the meeting that the safety assessment should be included when developing the implementation plan to ensure a safe, manageable and seamless transition from current operations to the harmonized ones.

Agenda Item 6: Work Plan Update

6.1 The meeting planned the subsequent IR/SWG meetings by considering the proposal of ICAO that each IR/SWG face-to-face meeting would be held in conjunction with the project management meetings to facilitate the participant to plan the business travels.

6.2 It was planned to hold the next two IR/SWG face-to-face meetings as follows:

6.2.1 2nd face-to-face meeting: 29-30 November 2018 in Singapore, after the Multi-Nodal ATFM Ops Trial meeting;

6.2.2 3rd face-to-face meeting: 2nd week of April 2019 in Tokyo or Fukuoka, Japan after the Multi-Nodal ATFM Ops Trial/NARAHG meetings;

6.3 The teleconferences will be held in between of the face-to-face meeting, organized by ICAO with advanced notifications;

Agenda Item 7: Any Other Business

7.1 China presented a paper on a new information requirement for cross border ATFM collaborations.

It was suggested to add a new attribute to the flight to facilitate the flight identification and post operational analysis; it was also suggested to discuss a standardized restriction reason list;

7.2 The meeting was noted that a similar restriction reason list was adopted by Multi-Nodal ATFM Network Project as well. The standardization and harmonization of these information was necessary, the corresponding discussions will be continued in this small working group, if necessary the relevant proposal could be submitted to ATFM/SG for considerations;

7.3 Japan presented a paper on the airspace restructuring in Japan. The meeting was informed about the necessity of this airspace restructuring, the planning of the domestic airspace and facilities changes, as well as the schedule of this restructuring. Japan also highlighted that they didn't intent to reduce airspace capacity or initiate additional ATFM measures during transition periods;

7.4 The meeting appreciated Japan's introduction on the airspace restructuring.

Review of the Meeting Summary and Action Items

8.1 The meeting reviewed the meeting summary.

8.2 The Action items as reviewed by the meeting is provided at Appendix C to the Report.

Closing of the Meeting

9.1 Mr. Hiroyuki Takata, Regional Officer, ATM, ICAO APAC RSO, thanked the participants on their efforts and contributions as a closing remarks.

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ATFM/IR/SWG, 29 – 31 August 2018, Beijing, China

No.		Name	Title	Address	Contact
1		China (5)			
	1	Mr. Zheng YiBin	Assistant of ATC Division East China ATMB Of CAAC	No. 171 Kong Gang Yi Road, Chang Ning District, Shanghai, China	Tel: +86-21-22325126 Fax: +86-21-62688685 Email: 18621991507@163.com
	2	Mr. Sun Yi	Deputy Director of ATFM Department, Shanghai Air Traffic Control Center, East China Regional Air Traffic Management Bureau. CAAC	No.318, Lv Hu Rd, Qing Pu District Airport, Shanghai, P.R.China	Tel: +86-21-22320822 Fax: +86-21-22320899 Email: 17595305@qq.com
	3	Mr. Deng Min	Assistant East China Regional Air Traffic Management Bureau. CAAC Communications Navigation Surveillance Division	No. 171 Kong Gang Yi Rd, Shanghai Hong Qiao International Airport, Shanghai, P.R.China	Tel: +86-21-22332511 Fax: +86-21-62685787 Email: dengm@atmb.cn
	4	Mr. Chen WeiQing	Assistant of Technical Support And Maintenance Center East China Regional Air Traffic Management Bureau of CAAC	No. 171 Kong Gang Yi Rd, Shang Hai Hong Qiao International Airport, Shang Hai, P.R.China	Tel: +86-21-22326821 Fax: +86-21-22326848 Email: cwq3545@163.cn
	5	Mr. Fu Yongqiang	Director General of Sanya Area Control Office Hainan ATM Sub-bureau of Central South Regional ATMB of CAAC	Area Control Center of Hainan ATM Sub-Bureau, Haikou Meilan International Airport, Haikou, Hainan, China.	Tel: +86-13876027727 Fax:+86-898-65751741 Email: hnsfyq@gmail.com
2		Hong Kong, China (2)			
	6	Mr. Anfernee Poon	Evaluation Officer Hong Kong Civil Aviation Department	1 Tung Fai Road, Civil Aviation Department HQ Lantan, Hong Kong	Tel: +852-2910 6452 Fax: +852-2910 1655 E-mail: awhpoon@cad.gov.hk
	7	Mr. Leung, Cheak Kit Fernando	Electronics Engineer Hong Kong Civil Aviation Department	1 Tung Fai Road, Lantan, Hong Kong	Tel: +852-2910 6573 Fax: +852-28457160 Email: fckleung@cad.gov.hk

3		India (3)			
	8	Mr. M K Nelli,	JGM (ATM) Airports Authority of India		Tel: Fax: E-mail: mknelli@aai.aero
	9	Mr. Diganta Borah,	JGM (ATFM) Airports Authority of India		Tel: Fax: E-mail:
	10	Mr. A K Soni,	DGM (ATM) Airports Authority of India		Tel: Fax: E-mail: asoni@aai.aero
4		Indonesia (1)			
	11	Mr. Setio Anggoro	Head of ANS Planning Subdivision Indonesia/AirNav Indonesia	Jl.Ir.H. Juanda No. 1 Tangerang-15121	Tel: +62-81355069001/+021-55915000 Fax:+021-55915000 E-mail: setio@airnavindonesia.com
5		Japan (3)			
	12	Mr. Toshiya Shigenobu	Special Assistant to the Director, Air Traffic Control Division, JCAB Japan	2-1-3, Kasumigaseki, Chiyodaku Tokyo, Japan 100-8918	Tel: +81-3-5253-8111/ext 51242 Fax: +81-3-5253-1664 E-mail: shigenobu-t07sa@mlit.go.jp
	13	Mr. Toru Tsuzuki	Chief Official, ATC Data Systems Office, JCAB Japan	2-1-3, Kasumigaseki, Chiyodaku Tokyo, Japan 100-8918	Tel: +81-3-5253-8111 Fax: +81-3-5253-1664 E-mail: tsuduki-t03v6@mlit.go.jp
	14	Mr. Takeshi Narioka	Technical Advisor For JCAB Japan	5-10-24, Nishikasai, Edogawa-ku Tokyo Japan 134-8610	Tel: +81-50-5546-2291 Fax: +81-3-3804-5315 E-mail: nariokatk@nttdata.co.jp
6		Singapore (6)			
	15	Mr. Chan Tai Khoon	Head (Air Traffic Management Systems) Civil Aviation Authority of Singapore	Singapore Changi Airport, P O Box 1, Singapore 918141	Tel: +65-6541-2899 Fax:+65-6542-2447 E-mail: chan_tai_khoon@caas.gov.sg

	16	Mr. Jeffrey Loke	Deputy Chief Singapore Air Traffic Control Centre (AREA) Civil Aviation Authority of Singapore	Singapore Changi Airport, P O Box 1, Singapore 918141	Tel: +65-6541-7001 Fax: +65-6545-6252 E-mail: jeff_loke@caas.gov.sg
	17	Mr. Zhang Huan Bin	Lead Air Traffic Control Officer Civil Aviation Authority of Singapore	Singapore Changi Airport, P O Box 1, Singapore 918141	Tel: +65-6541-7001 Fax:+65-6545-6252 E-mail: zhang_huanbin@caas.gov.sg
	18	Mr. Benny Png Ben Lee	Air Traffic Control Watch Manager Civil Aviation Authority of Singapore	Singapore Changi Airport, P O Box 1, Singapore 918141	Tel:+65-9837-7299 Fax: +65-6545-6252 E-mail: benny_png@caas.gov.sg
	19	Mr. Foo Kai Yu	ATCM (Air Traffic Management Operations Planning) Civil Aviation Authority of Singapore	Singapore Changi Airport, P O Box 1, Singapore 918141	Tel: +65-6595-6063 Fax: +65-6441-0221 E-mail: foo_kaiyu@caas.gov.sg
	20	Mr. Aw Ying Kit	Executive Engineer (Air Traffic Management Systems) Civil Aviation Authority of Singapore	Singapore Changi Airport, P O Box 1, Singapore 918141	Tel: +65-6422-7034 Fax: +65- 6542- 2447 E-mail: aw_ying_kit@caas.gov.sg
7		Thailand (5)			
	21	Mr. Piyawut Tantimekabut	ATM Network Manager AEROTHAI	102 Ngamduplee Tungmahamek Sathon Bangkok 10120	Tel: Fax: E-mail: piyawut.ta@aerothai.co.th
	22	Mr. Sakon Sinlapakun	Senior Air Traffic Systems Engineer AEROTHAI	102 Ngamduplee Tungmahamek Sathon Bangkok 10120	Tel: Fax: E-mail: sakon.si@aerothai.co.th
	23	Ms. Amornrat Jirattigalachote	Strategic Planning Assistance Manager (Engineering) AEROTHAI	102 Ngamduplee Tungmahamek Sathon Bangkok 10120	Tel: Fax: E-mail: amornrat.ji@aerothai.co.th

	24	Mr. Jirasak Netiprawat	ATM Network Manager AEROTHAI		Tel: Fax: E-mail:
	25	Mr. Sugoon Fucharoen	Senior ATM Data Officer / Strategic ATFM Team AEROTHAI		Tel: Fax: E-mail: sfucharoen@gmail.com
8		ICAO (2)			
	26	Mr. Hiroyuki Takata	Regional Officer, ATM (ATFM/CDM) ICAO APAC RSO	1st Floor, Section C, China Service Mansion, No.9 Erwei Road, Shunyi District, Beijing, China 100621	Tel: +86-10-64557173 Fax: +86-10-64557164 Email: htakata@icao.int
	27	Mr. Wenxin Li	Regional Officer, ATM (ATFM/CDM) ICAO APAC RSO	1st Floor, Section C, China Service Mansion, No.9 Erwei Road, Shunyi District, Beijing, China 100621	Tel: +86-10-64557177 Fax: +86-10-64557164 Email: wli@icao.int

ATFM/IR/SWG/F2F/1 List of Papers and Presentations

Paper No.	Agenda Item	Title	Presented by
1	1	Agenda Item at IR-SWG-1	Secretariat
2	-	Tentative programme	Secretariat
3	2	Relevant ICAO meetings ATFM_IR_SWG	Secretariat
4	3	ATFM-IR_SWG - MN Briefing	Multi-Nodal group
5	3	CRACP operation concept	NARAHG
6	3	C-ATFM-India-ATFM SWG	India
7	3	Establishment of Indonesia Network Manager	Indonesia
8	3	ATFM IMPLEMENTATION IN CHINA	China
9	3	ATFM Plan in JAPAN	Japan
10	3	POA of MINIT convert EDCT (Accuracy and Effectiveness of CTO in Traffic Flow Control)	Japan
11	4	TOR Review at IR-SWG-1	Secretariat
12	5	joint plan for multi-nodal and NARAHG	China
13	5	Mixed-Mode ATFM Work Plan	Thailand
14	5	CRACP New IR	China
15	6	Meeting Schedule	Secretariat
16	7	Airspace restructure	Japan

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Action Items

Action ID	What	Who	Due Date	Status	Remarks
IR/F1-01	Consult with SMEs to clarify the CTO	ICAO	ATFM/IR/SWG/F2F/2	Open	
IR/F1-02	Develop NARAHG Concept of Operation and simplified operation scenarios	NARAHG Team	ATFM/IR/SWG/F2F/2	Open	
IR/F1-03	Complete the Regional ATFM Harmonization Implementation Plan through IR/SWG teleconference	All	ATFM/IR/SWG/F2F/2	Open	
IR/F1-04	Draft the revision of the IR/SWG TOR	ICAO	ATFM/IR/SWG/F2F/2	Open	
IR/F1-05	Analyze the trend of CTOT paper trial (including ELDT, CLDT and Calculated time of FIR)	Hong Kong China and Japan	ATFM/IR/SWG/F2F/2	Open	

Note:
The Action ID format: IR/{F,T}X-YY, where F - Face-to-Face Meeting; T - Teleconference; X - Number of meeting; YY - Number of action item

Task List for Mixed-Mode ATFM Ops Trial

Task ID	Task	Task Lead	Due Date	Status	Remarks
Phase I: Backbone Readiness					
	Define Data to be Exchanged				
	Write Data Dictionary				
	Agree on Interim Communication Protocol				
	Define Message Format				
	Write Ops Scenarios				
	Assess ATFM System Status				
	Define Additional Capability Requirements				
	Develop ATFM System Capability				
	Demonstrate ATFM System Capability				
Phase II: Concept Validation – Operational					
Dry Validate					
	Prepare ATFMU-ATFMU Simulation Plan				
	Simulate ATFMU-ATFMU Connection				
	Prepare ATFMU-Stakeholder Simulation Plan				
	Simulate ATFMU-Stakeholders				
	Assess Simulation Result				
	Amend Procedure (If needed)				
Wet Validate					
	Prepare “Live” Demonstration Activities				
	Demonstrate Procedure in “Live” Environment				
	Assess Demonstration Result				
	Amend Procedure (If needed)				

Task ID	Task	Task Lead	Due Date	Status	Remarks
	Outreach and Education				
Phase II: Concept Validation - Technical					
	Ensure Functional Connection per Agreement				
	Plan Message Tests				
	Test Information Exchange With Agreed Message Format				
	Plan System-to-System Tests				
	Test Exchange with Scenarios				
Phase III: Implementation					
	Write/Revise Common Operating Procedures				
	Revise APAC Regional Framework for ATFM				
	Publish/Amend Local Procedure to Support the Implementation				