



International Civil Aviation Organization

FIFA World Cup 2022 Task Force

Eighth Meeting (FWC2022 TF/8)
(Doha, Qatar, 8 February 2023)

Agenda Item 2: FWC 2022 Post Implementation Assessment

POST EVENT REVIEW AND RECOMMENDATIONS

(Presented by the Secretariat)

SUMMARY

This paper aims to present the outcomes of the post event review and recommendations for similar future events.

Action by the meeting is at paragraph 3.

REFERENCES

- MIDANPIRG/19 & RASG-MID/9 Report (Riyadh, Saudi Arabia, 14 – 17 February 2022)
- FWC 2022 TF/7 Report (Doha, Qatar, 21– 22 September 2022)

1. INTRODUCTION

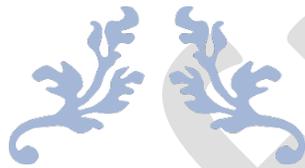
1.1 The meeting may wish to recall FWC 2022 Action Plan, the checklist including the details from the Roadmap and Operational Plan to ensure all projects implementations are tracked and harmonized, with due consideration to the AIRAC Cycle dates.

2. DISCUSSION

2.1 The meeting may wish to review the Post Event Review, at **Appendix A**.

3. ACTION BY THE MEETING

3.1 The meeting is invited to note the Post FWC 2022 Event Review at **Appendix A** and agree on the list of recommendations for similar future events.



POST IMPLEMENTATION REVIEW OF AIR TRAFFIC
AND AIRSPACE MANAGEMENT DURING FIFA
WORLD CUP 2022



MIDANPIRG FWC 2022 TF
February 2023
V0.1

CONTENTS

1.	Summary	2
2.	Introduction	2
	History and background	2
	Scope and objectives	2
3.	MIDANPIRG FWC2022 Task Force	3
	Establishment of the Task Force	3
	Team members	3
4.	Challenges	3
	Identifying the Challenges	3
	A) The need for Airspace structure enhancements	3
	B) The need for ATFM solution	3
5.	FWC2022 MID RVSM Airspace Assessment by the MIDRMA	3
6.	Airspace Capacity Enhancements	4
7.	ATFM IMPLEMENTATION	4
	Establishment of the Doha ATFM Unit	4
	Supporting Tools	4
8.	Action Plan	4
	Scope of the action plan	4
	Key activities and Action items	5
	Implementation checklist	5
9.	Airspace Users' Engagement and Consultation	5
	Periodic meetings to address	5
	Development of online tool	5
10.	Outcomes, deliverables and results	5
11.	Recommendations	5
	Appendix A: FWC2022 TF Terms of Reference	i

1. SUMMARY

Given the expected significant traffic growth expected during the FWC2022 event, hosted in Doha, Qatar, during the period 20 November to 18 December 2022, the MIDANPIRG decision established the MIDANPIRG FWC2022 to develop a regional plan to accommodate the expected demand for the MID Region ATS route structure and airspaces. The task force developed an action plan to support the MID Regions States and ensure the readiness of the ATS units to accommodate the expected demand. The action plan was developed with all MID States and representatives from the international and regional organizations and industry. It evaluation of the current ATS Route structure within the region and included airspace enhancement projects, furthermore, the implementation of ATFM solution in Doha airports, which required close coordination with the other States. After implementing the identified items, it was reported that the traffic during the event, which reached 50% more than the normal traffic, was accommodated as planned with no major issues to be reported.

2. INTRODUCTION

History and background

One of the key challenges faced by Air Navigation Service Providers (ANSPs) and airlines is how to increase airspace capacity without compromising aviation safety. New air traffic management (ATM) development paradigms aimed for doubling the airspace capacity two times while increasing safety by a factor of 10, by 2030.

Given the continued growth in air transportation, specially within the MID Region, which is known for its attractive destinations, beside the hosting of global events like FWC2022; the mix of Airspace Users' capabilities are also observed within the Region. Airspace enhancements projects continue to enhance capacity, as the Region lacks the implementation of an ATFM solution, however, there is an initiative by the Region to implement multi-nodal ATFM concept as a first step of implementation. The development of the regional requirements, documents and guidance material was recently completed, and the MID States started the training and building capacity for ATFM implementation on a national level, however, the FWC2022 event was sooner than the agreed timelines of training for ATFM implementation.

Scope and objectives

The scope of this study is to evaluate the development of regional plans and implementation of the action items by the different stakeholders, related to airspace and air traffic management. It includes the success, challenges, limitations and other lessons learned; the objective of this review is to develop a list of recommendations that will be available for future similar events within the Region.

3. MIDANPIRG FWC2022 TASK FORCE

Establishment of the Task Force

The FWC 2022 TF was established by the MIDANPIRG/16 (2016) through Decision, according to its ToR, at Appendix A. The main task of the FWC2022 TF is to address the coordination between ANSPs, Airspace Users and regulators, on local, regional and interregional levels, to accommodate traffic demand in a safe and efficient manner.

Team members

The task force is composed of experts from States, regional and international organizations and industry.

4. CHALLENGES

Identifying the Challenges

The identified challenges are split into two parts:

A) The need for Airspace structure enhancements

The Airspace structure in the MID Region is diverse, some FIRs are modern and efficient, while others are legacy and due for revision. Enhancement projects are already ongoing, but the timelines of the FWC2022 precluded the regional Airspace enhancement projects. To overcome this issue, the MIDRMA was tasked to develop RVSM Airspace assessment based on the traffic data forecasted for the FWC2022.

B) The need for ATFM solution

The State of Qatar has identified the need for ATFM solution for traffic arriving and departing to/from airports within the Doha FIR.

The ATFM implementation within the MID Region was identified as regional target and the ATFM TF has developed a Concept of Operations CONOPS, however the timelines of the implementation plan extended beyond the FWC2022.

C) Traffic forecast and ATC units planning

On coordination with the Airport operators and Slot coordinators, in addition to the other available data including historical data; a realistic Air traffic demand forecast could be established.

D) Systems interoperability

5. FWC2022 MID RVSM AIRSPACE ASSESSMENT BY THE MIDRMA

One of the MIDRMA tasks includes the development of Safety Monitoring Report which is developed on an annual basis. This is based on a Traffic data sample collected from all MID States for a particular month and Large Height Deviation Reports during the year.

The MIDRMA was also tasked to develop a FWC2022 RVSM Airspace Assessment, based upon the forecasted traffic data provided by the State of Qatar. This forecast was a challenge as it

depended upon the results of the matches especially during the elimination phase of the tournament. The MIDRMA used all the historical LHD data, as it was found impractical to forecast these events. Additionally, the MIDRMA used the nominal annual growth of the traffic (apart from COVID-19 impact). The forecasted traffic together with the LHDs were used with the other standard parameters to develop a worst-case scenario showing a model for Vertical Collision Risk computation and graphically represented this for the impacted FIRs within the MID Region.

The results of the assessment, based on worst-case scenario data, showed that new hotspots and bottlenecks were created. The assessment results were shared with the concerned States/ANSPs to take the necessary measures, including changes in the traffic orientation schema; establishment of ATS routes/conditional Routes; and enhanced LoAs.

6. AIRSPACE CAPACITY ENHANCEMENTS

The State of Qatar developed new terminal procedures, including SIDs, STARs and independent parallel approaches. The new structure has significantly increased the efficiency within the Doha TMA which lead to enhanced capacity.

Additionally, many airspace enhancement projects were developed and published within Amman, Cairo and Jeddah FIRs.

7. ATFM IMPLEMENTATION

[Establishment of QCAA ATFM Regulation QCAR 098 of 2022](#)

Qatar enacted Qatar Civil Aviation Regulation (QCAR) 098 of 2022 regarding the implementation of Air Traffic Flow Management and the establishment of the Air Traffic Flow Management Unit which became effective on the 08 September 2022.

[Establishment of the Doha ATFM Unit](#)

The establishment of the Doha ATFM Unit enabled daily collaborative decision making calls and publication of the ATFM daily plan. This was disseminated via e-mail and online via the ATFM tool.

Data collection from Airport Operators and airport slot coordinators was found crucial along with ATC flight plans.

[Supporting Tools](#)

QCAA has deployed an ATFM system that shows the traffic demand versus available capacity. When required ATFM measures may be applied.

8. ACTION PLAN

[Scope of the action plan](#)

The FWC2022 Action Plan was developed by the TF members, reviewed during the TF meetings and updated/amended as required. The implementation of the Action items was monitored by MIDANPIRG.

Key activities and Action items

1. Development of reports and status monitoring to the MIDANPIRG
2. Developing MID RVSM Airspace assessment
3. Developing FWC2022 Roadmap and Operation Plan
4. Providing Forecasted traffic movements
5. Development and deploying the ATFM concept and training sessions
6. Familiarization and experience sharing activities with previous FWC hosting States/ANSPs

Implementation checklist

Several airspace enhancement projects were initiated based on the results of the MIDRMA Assessment, which required a checklist to monitor the different activities required to complete the projects and issuing of Aeronautical Information Publications, in a harmonized manner. The checklist was presented and endorsed by the MIDANPIRG/19.

9. AIRSPACE USERS' ENGAGEMENT AND CONSULTATION

Periodic meetings to address operational issues

Many coordination meetings were held with IATA and Airspace Users using online (virtual) teleconferencing tools, to exchange operational data and raise operational issues.

Development of online tool

IATA AME developed an online platform to connect the Airspace Users with Airspace managers to swiftly address the operational issues.

10. OUTCOMES, DELIVERABLES AND RESULTS

1. Action Plan with timelines and assignee to implement roadmap and operational plan for the event,
2. Establishment of ATFM procedures and training,
3. Recommendations to avoid challenges in similar future events.

11. RECOMMENDATIONS

The following list of recommendations are emanating from the TF members, to be available for future similar events:

Recommendation 1: Major events within the Region that attract significant number of aircraft movements require regional involvement by the ANSPs and Airspace Users to ensure the safe and efficient management of Air Traffic and Airspaces. Given the success of the FWC2022, the FWC2022 Action Plan could be reused as base line for similar event.

Recommendation 2: The collaboration with Airspace Users, aeronautical data providers is crucial in planning and implementing major events. When possible, It is imperative to avoid last minute changes and strictly adhere to AIRAC Cycle to ensure compliance; However, short term changes should be expected and may impact flight planning; Recommendation 10 refers.

Recommendation 3: Based on the current ATS Route structure, historical and forecasted data, using the available resources, the MIDRMA could provide an assessment to identify hotspots, bottlenecks and other areas of enhancements that will be provided to ANSPs,. The enhancements in ATS Routing could be made on a temporary (CDR2 Routes) and/or permanent basis to accommodate the traffic demand during and beyond the event.

Recommendation 4: The implementation of advanced technologies and solutions will always require training to ensure successful implementation. Support for training is required for other concerned States.

Recommendation 5: Coordination between ANSPs and Airport Operators / airport slot coordinators will enhance the planning and calculation of the demand on airport and Airspace; and real time/daily operations.

Recommendation 6: National plans alignment (between different entities within the State). Establishment of national operations platform to coordination normal operations and contingencies. Including relevant entities like CMC.

Recommendation 7: The harmonization of aeronautical information publication from different States.

Recommendation 8: Operational and working arrangements and to be developed, for temporary usage during a special event.

Recommendation 9: Temporary Contingency planning and alternate arrangement relevant to the event is

Recommendation 10: User consultation/engagement will further enhance the planning and operations of major events, periodic conferences to exchange views and possible impact on each side.

Note: Direct Airspace users and ANSP communication platform will enable both parties to share their plans and to address operational issues.

APPENDIX A: FWC2022 TF TERMS OF REFERENCE

TERMS OF REFERENCE (TOR) OF THE MIDANPIRG FIFA WORLD CUP 2022 TASK FORCE (FWC2022 TF)

1. OBJECTIVES AND SCOPE

- 1.1 The Task Force will be expected to apply the performance-based approach through a collaborative manner to address the most strategic decisions to reach the following:
- a) A sufficient coordination between the Air Navigation Service Providers (ANSPs), airports, airspace users and regulators;
 - b) A sufficient coordination at local, regional and inter-regional levels to accommodate safely and efficiently the expected significant increase of traffic; and
 - c) A defragmented approach from an operational perspective to achieve (gate-to-gate, city pairs, and an oriented track system) which leads to more than optimum flight and airport operations efficiency.
- 1.2 The Task Force shall support the MID Region ATFM System once established.

2. TERMS OF REFERENCE OF THE TASKFORCE

- 2.1 Develop and follow-up the implementation of FWC2022 Action Plan to accommodate the expected high increase of traffic, in a safe and efficient manner, taking into consideration similar experiences from other regions.
- 2.2 Address other major events and develop action plan(s) to accommodate the changes in traffic flows as required.
- 2.3 Define explicit and implicit strategic objectives (e.g. improved safety, increased air traffic capacity, improved efficiency, and mitigation of airspace congestion impact).
- 2.4 Identify operational and technical requirements including proposals for airspace management changes and amendment to the MID ATS Route Network to accommodate the air traffic through the establishment of temporary routes as required.
- 2.5 Develop the concept of collaborative decision-making at the strategic, tactical and pre-tactical levels, which would be implemented before and during the World Cup event.
- 2.6 Suggest methods for increased interaction between airspace providers in order to make sure that the network effects of any trajectory selection are properly incorporated in the decisions.
- 2.7 Develop collaborative regional mechanism for the implementation of ATFM solutions/measures such as Ground Delay Program (GDP), which would be implemented for departures from airports in the region.

- 2.8 Assess the operational performance of the ATM network by its capability to accommodate demand through realistically modeled network nodes, i.e. airports and airspace volumes.
- 2.9 The Task Force shall work in close coordination with the ATFM TF to avoid duplication of efforts.

3. COMPOSITION

- 3.1 The World Cup 2022 Task Force is composed of experts from:
- a) MIDANPIRG Member States;
 - b) India, FAA, AACO, ACAO, AEROTHAI, CANSO, EUROCONTROL and IATA; and
 - c) other representatives from States, Organizations and Industry may be invited on ad-hoc basis, when required.
- 3.2 ICAO MID Office will act as the Secretary of the Task Force.

4. WORKING PROCEDURES

- 4.1 Qatar shall act as the Chairman of the Task Force.
- 4.2 In order to effectively perform its tasks and responsibilities, the Task Force will meet as required in order to achieve its objectives.
- 4.3 A Core Team might be established to follow-up with the concerned State(s) and air operators the conduct of safety and operational assessments and provide support as appropriate.
- 4.4 The Chairperson, in close co-operation with the Secretary, shall make all necessary arrangements for the most efficient working of the Task Force. The Task Force shall at all times conduct its activities in the most efficient manner possible with a minimum of formality and paperwork (paperless meetings). Permanent contact shall be maintained between the Chairperson, Secretary and Members of the Task Force to advance the work. Best advantage should be taken of modern communications facilities, particularly video-conferencing (Virtual Meetings) and e-mails.
- 4.5 Face-to-face meetings will be conducted when it is necessary to do so.

- END -