*International Civil Aviation Organization*

**MIDANPIRG Air Traffic Flow Management Task Force**

**Third Meeting (ATFM TF/3)**
*(Amman, Jordan, 12 – 13 January 2020)*

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**Agenda Item 3:**       **Plan of Actions**

UPDATE ON THE IMPLEMENTATION OF A COLLABORATIVE ATFM IN THE UAE

*(Presented by United Arab Emirates)*

SUMMARY

The purpose of this working paper is to present the current status and considerations for the implementation of Collaborative Air Traffic Flow Management (ATFM) and its governance in the UAE.  For the benefits of a larger audience this knowledge is shared with the States in the region to assist in establishing similar measures where required and to emphasise the importance of airspace users' involvement from the beginning of the process.

Action: The Conference is invited to discuss the conclusion and to urge States to utilise these lessons learnt as suggested in paragraph 3.

1.    **INTRODUCTION**

1.1       The UAE aviation community under the umbrella of the National Airspace Advisory Committee (NASAC) has achieved many milestones that increases the safety and efficiency of aviation in the UAE.  NASAC has paved the path for initiating and coordinating various measures to pro-actively deal with the demand of air traffic flow in the Emirates FIR.

1.2       This was accomplished by involving various stakeholders that owns a range of resources from departure to arrival gates in the operation of a flight.  This approach ensured that the right membership of all airspace users to bring in genuine and competing operational issues to be addressed as a team.

1.3       It is NASAC that developed and published a strategy for ATM in the UAE under the title UAE ATM Strategic Plan 2030, which has set the UAE ATM priorities and aligned the strategies of the UAE ATM stakeholders, taking applicable strategies from MID Strategy and Global Air Navigation Plan. The dialogues continued in the community and as a result the document was further enhanced to include an ATM/CNS architecture and a national level contingency measures.

1.4          The Airspace Restructuring Project Phase 3, an outstanding demonstration of collaboration under NASAC, included the assessment of en-route and CTA ATC sector capacities using historic and predicted traffic flow and their optimisation.  This exercise determined the nominal capacities that are available in the UAE airspace.

1.5          The availability of resources that determine airspace capacity generally remain constant in the UAE, but occasional reductions in capacity can be caused by environmental circumstances such as adverse weather or regional events.  Within the UAE, environmental circumstances primarily affects aerodrome capacity. But en-route capacity reductions are not uncommon due to similar circumstances in the adjacent en-route sectors.

1.6          UAE stakeholders understand that in order to improve traffic flow and to manage situations where demand exceeds the capacity, close cooperation amongst the aviation community is required.  This is where the synergy from NASAC plays a vital role.

1.7          Due to the fact that air traffic flow is dynamic and changes frequently the UAE aviation stakeholders have recognised that implementation of Collaborative Air Traffic Flow Management (ATFM) and a strong governance structure, such as a Network Operation Centre (NOC) is a key enabler to achieve a smooth and efficient flow of air traffic.  Hence the major efforts of the UAE aviation community have been put into the coordinated and optimised use of constrained resources.

1.8          Building on the success of the current flow management services and governance structure, the UAE is committed to implement an enhanced and Collaborative ATFM to allow a holistic approach for balancing demand and capacity.  The implementation will be based on the principles of

a)  Involvement of aviation stakeholders like ATSUs, airspace users, airports and military.

b)  Network View – A holistic view of flights including the business assessment of the airspace users to support decision making.

c)  Predictability – Only high-quality real-time information allows for maximum efficiency and effectiveness of flow measures.

d)  Transparency – All stakeholders shall have access to the same set of information.

e)  Distributed approval authority – the resource owner or who has the jurisdiction of the resource should be the approval authority for a decision affecting them.

f)  Compliance Monitoring – to demonstrate the effectiveness and aiming for continuous improvements.

g)  Equity – All Airspace Users will be treated fairly and equally.

## 2.    DISCUSSION

2.1          The first phase of introducing Collaborative ATFM is the identification of the needs and realisation of the challenges of each stakeholder (service providers, Civil and Military airspace users).  It is very important to capture their requirements, preferably by an independent body.  UAE has planned to carry out this task by a Vendor who shall be experienced in this field.

2.2          Part of this exercises shall include the creation of a governance structure and the required legal framework to support it.  It shall support the handling of normal conditions as well as conflict

situations due to competing interests, such as the authority for one entity to make a final call.  Overall, the equity based concept shall ensure a fair balance of advantage and disadvantage situation for each operator.  UAE captures all such information and reports it to the governance on a regular basis.

2.3            It is important to prepare the implementation based on normal and abnormal operational conditions, such as adverse weather, resource unavailability etc.  Due to the nature of the hub operations of the UAE's major airports, the backlog build up can be detrimental.  Necessary resilience shall be incorporated to deal with such situations.  UAE's proven Zone Closure procedure, as described in the UAE AIC A 06/2019, with the addition of Zone 0 procedures for the relocation of flight from the diverted airports will be incorporated into the implementation.

2.4            The participation of required members from all stakeholders is important for the success of a collaborative decision making.  Therefore, the systems and governance implemented shall support decentralised collaboration.  The network view and participation for collaboration shall be possible from anywhere in the world, utilizing the advancement in Information Technology.  The UAE has planned to implement a virtual platform for collaboration that will enable participation of all stakeholders from the comfort of their respective operations.

2.5            The availability of accurate, up to date and authoritative information in a secured manner to the right people at the right time is important for the success of the entire process.  Such information shall be derived from the necessary systems of all the stakeholders according to the ownership of the data depending on the phase of the flight and made available using a common platform in open formats.  The UAE is using System Wide Information Management Gateway (SWIM-GW) system for this purpose that is capable of collecting information from airline, airport and ATC systems and share the needed piece of information to the required stakeholder in a secured manner.

2.6            The importance of data collection and analysis is very important and the computer systems available today are highly capable to do this in very large quantities.  This will also facilitate the aspects of data mining that will make pin point predictions.  This feature will help the decision makers to create what-if scenarios utilising historic as well as predicted data as decision enablers.  The UAE has planned to utilise modern technologies such as Machine Learning and Artificial Intelligence in these processes.

**3.      ACTION BY THE MEETING**

3.1            The meeting is invited to note the information in the paper and urge States to:

    a)  involve all stakeholders (service providers, Civil and Military airspace users) from the beginning to capture their requirements and ensure a service oriented systems and processes;

    b)  create a well-structured governance and a strong legal frame work to support it;

    c)  utilise modern technologies for the ease of access and the right involvement all the stakeholders where applicable; and

    d)  collect data and analyse it for ongoing improvements in day to day operations, systems and processes.

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