



*International Civil Aviation Organization*

**MID Region ATM Enhancement Programme Steering Committee**

**Second Meeting (MAEP SC/2)**  
*(Cairo, Egypt, 20-22 October 2015)*

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**Agenda Item 2: MAEP Projects/Working Packages**

**UPDATE ON THE MAEP IPMO ACTIVITIES**

*(Presented by the MAEP IPMO)*

**SUMMARY**

This paper presents a summary of the work being done by MAEP Interim Project Management Office since its establishment.

Action by the meeting is at paragraph 3.

**REFERENCES**

- MAEP SC/1 Report

**1. INTRODUCTION**

1.1 The First MID Region ATM Enhancement Programme Steering Committee meeting held in Dubai – UAE on 20 – 22 January 2015 recognized that the process of establishment of the MAEP PMO might take long time. In order not to lose momentum and based on a proposal made by AACO/IATA, the meeting agreed that, until the formal establishment of the MAEP PMO, a MAEP Core Team should be established to act as an Interim PMO. The meeting also noted with appreciation that AACO, CANSO and IATA are willing to support the Interim PMO. Accordingly, the meeting agreed that the MAEP Core Team composed of IATA, AACO, CANSO, ICAO, the MAEP Board Chairperson and MAEP SC Co-Chairpersons, act as an Interim PMO.

1.2 In addition, the meeting agreed that the first set of tasks to be performed by the Interim PMO includes mainly:

- Development of an initial version of the MAEP Master Plan, for presentation to the DGCA-MID/3 meeting;
- Identification of additional quick-wins initiatives;
- Exploration of viable options for the funding of MAEP and its projects;
- Support and monitor the implementation of the call sign initiative; and
- Coordination with all concerned stakeholders to initiate Phase 1 of the ARNOP project.

## 2. DISCUSSION

2.1 Since its establishment, the IPMO held two physical meetings and several conference calls to accomplish the tasks assigned. Please find below a summary of the work done by the IPMO:

2.1.1 **Development of an initial version of the MAEP Master Plan, for presentation to the DGCA-MID/3 meeting:** The IPMO delivered a first draft which was presented to the DGCA/3 meeting. During deliberations, the meeting agreed that the document developed is an overview document rather than a Master Plan for MAEP as the latter requires specific projects with specific timelines, budgets, stakeholders, and would be best to be developed by the PMO upon its assignment. Accordingly, the IPMO agreed to rename the document to “**MID Region ATM Enhancement Programme (MAEP) Overview**” which would be used to promote MAEP to States in order to encourage them to join the Programme. The document is attached to this Working Paper in **Appendix A**.

2.1.2 **Identification of additional quick-wins initiatives:** The MAEP IPMO identified several quick wins for implementation; however, and since MAEP is not officially active and hence no funding is available for implementation, the IPMO agreed to put these initiatives forward once the Programme is active and PMO is established.

2.1.3 **Exploration of viable options for the funding of MAEP and its projects:** The IPMO discussed extensively the issue of funding MAEP projects. Although several generic options were devised for funding projects, it was agreed that, since the funding requirement and scheme of each project will very much depend on the scope, plan, stakeholders and infrastructure requirements of the project, the IPMO agreed that discussion of project funding be looked at on a case by case upon the initiation of each project.

2.1.4 **Support and monitor the implementation of the call sign initiative:** The IPMO was and still performing this task. The initiative is expected to be concluded by the end of 2015 with a final report detailing the outcome and recommendations.

2.1.5 **Coordination with all concerned stakeholders to initiate Phase 1 of the ARNOP project:** This task was initiated and coordinated by Airbus Prosky directly with no interference from the IPMO; although all members of the IPMO volunteered to support when needed.

## 3. ACTION BY THE MEETING

3.1 The meeting is invited to:

- a) review and endorse the “MID Region ATM Enhancement Programme (MAEP) Overview” document in **Appendix A**; and
- b) conclude the work of the MAEP Interim Project Management Office and dissolve it.

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# MID Region ATM Enhancement Programme (MAEP) Overview

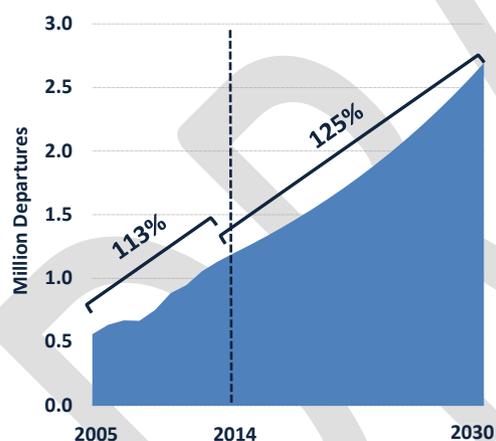
## 1 Introduction

Aviation is a crucial part of the transport infrastructure globally and in the Middle East Region specifically. The vast geography of the Region and the lack of effective transport alternatives make air transport essential for moving people and goods, hence becoming a natural catalyst to enhance, among other sectors, business, trade and tourism. As a result, aviation is one of the most important economic stimulators in the Region.

Eying the benefits of air transport to sustainable economic development, this Region has been a global model in developing its airport infrastructure. Supported by visions to have air transport at the centre of national strategies, and acknowledging the need for infrastructure development, multi-billion US Dollar projects were put in motion to build new airports and expand existing ones. Those projects are expected to accommodate the growth in passenger numbers in the 10 – 20 coming years.

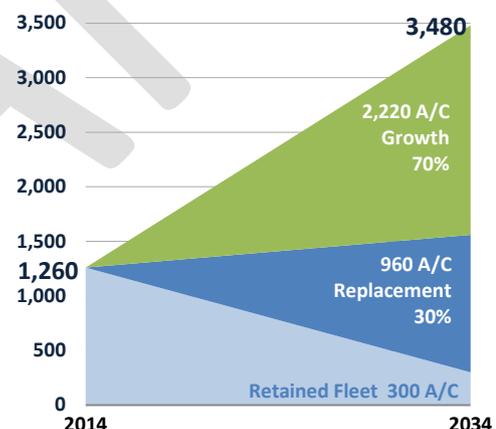
However, infrastructure is not only airports. Airspace is another infrastructure that needs to be used effectively and efficiently in order to accommodate the growth in aircraft movements in the Region.

### Middle East Aircraft Movements & Growth



Source: ICAO

### Middle East Commercial Aircraft Deliveries



Source: Boeing Co.

The current and projected growth in aircraft movements is driven on one hand by the expansion of the Region's airlines: Although airlines are continuously using bigger aircraft, their expansion is putting more pressure on the existing airspace infrastructure. The second driver is the strategic geographic position of the MID Region that makes it a natural crossroad for overflying traffic.

In order to maximize the benefit from the developments on the ground (i.e. airports), it is paramount that those projects are coupled with the development of a suitable and sustainable airspace infrastructure to meet the increase in demand (i.e. ATM and airspace capacity). ATM modernization, through the renovation of systems, processes and equipment, where needed, has to be cost effective, environmentally responsible, and in line with global initiatives and Regional priorities. In addition, airspace is a scarce and finite resource that needs to be fully utilized. Expanding the available airspace to civil aviation through the review of the current ATS route network and the implementation of operational concepts which support airspace optimization and availability (such as Flexible Use of Airspace and Performance Based Navigation) is also vital for the sustainability of aviation. Moreover, individual developments in ATM and airspace capacity are not enough to deliver the results to support seamless operations, enhanced safety and

sustainability. Harmonization, integration and collaboration among aviation stakeholders are essential to realize the full potential of national projects in air and ground infrastructure.

As a result of the requirement for collaboration between concerned stakeholders to achieve enhanced ATM and airspace capacity in the MID Region, the Second Meeting of the Directors General of Civil Aviation-Middle East (DGCA-MID/2) (Jeddah, Saudi Arabia, 20 - 22 May 2013), through Conclusion 2/4 approved the launch of the MID ATM Enhancement Programme – MAEP, and established its Board.

MAEP will provide the ICAO umbrella under which all Regional air navigation projects would be implemented. MAEP will focus on Regional efforts to overcome the fragmented airspace structure and the reliance on conventional technologies and operations, preventing airlines, Air Navigation Service Providers (ANSPs) and airports from profiting from the capabilities of existing and future systems.

This document is a high level overview providing essential information on the Programme including identified/agreed Regional projects.

## 2 Strategic Context

The Fourth Edition of the **ICAO Global Air Navigation Plan (GANP)** represents a rolling 15-year strategic methodology (2013-2028) which leverages existing technologies and anticipates future developments based on State and industry agreed operational objectives.

The GANP's Aviation System Block Upgrades (ASBU) methodology is a programmatic and flexible global system engineering approach that allows all States to advance their air navigation capabilities based on their specific operational requirements. ASBUs will enable aviation to realize global harmonization, increased capacity, safety enhancements, and improved environmental efficiency that modern air traffic growth demands in every Region around the world.

On a Regional level, a holistic approach is required to complement the global efforts. The **MID Region Air Navigation Strategy** sets out the ASBU Block 0 Modules considered priority for implementation in the MID Region, with their associated applicability areas, performance indicators/metrics and targets. The Strategy, which is based on the outcome of the different MIDANPIRG subsidiary bodies and other inputs from States and relevant stakeholders, was endorsed by the fourth meeting of the MIDANPIRG Steering Group (MSG/4) and revised by the MIDANPIRG/15 meeting.

Whilst States remain responsible for the implementation of projects to meet the objectives of the MID Air Navigation Strategy, MAEP provides a single platform to support the implementation of Regional projects. MAEP also provides a vehicle for inter-Regional cooperation and collaboration, in particular with other Regional ATM Programmes such as SESAR (Europe) and NextGen (USA), and for industry partners seeking to support the Region.

## 3 Objectives and Benefits

MAEP scope and strategic objective were endorsed by the Third Meeting of the Directors General of Civil Aviation-Middle East (DGCA-MID/3) (Doha, Qatar, 27-29 April 2015), based on the outcomes of MAEP Board/1, MSG/4 and MAEP Steering Committee meetings as follows:

*The MID Region ATM Enhancement Programme (MAEP) is a Regional platform that provides the basis for a collaborative approach towards planning and implementing air navigation projects in support of the MID Air Navigation Strategy, taking into consideration previous initiatives. This includes the following:*

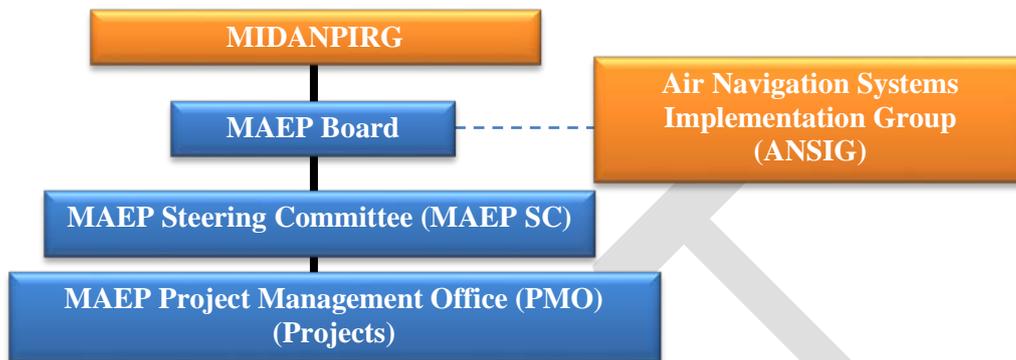
- 1) *Maximize Air Traffic Management performance in the MID Region through project management and within the time frame (2016-2028).*
- 2) *Improve efficiency and increase capacity to safely accommodate air traffic growth.*
- 3) *Support the implementation of air navigation projects in the MID Region in a harmonized and*

*collaborative manner in line with the MID Air Navigation Strategy and Global Air navigation Plan (GANP), taking into consideration the users' requirements.*

4) *Addresses ATM community expectations in a cost-effective and environmentally sustainable manner.*

#### 4 Governance and organisational arrangements

MAEP will be executed as an ICAO Technical Cooperation Project, in accordance with the following Organizational Structure:



##### MAEP Board

The Board is composed of high level representatives from States signatories to the MAEP Memorandum of Agreement (MoA), which shall come into effect on the date it is signed by five (05) States. The Board is responsible for overall leadership, supervision, direction, and management of the Programme. It acts as the highest supervisory body over the activities of the Programme, and has the statutory authority and obligation to govern the affairs and business of MAEP in addition to an obligation to promote and advocate MAEP on all levels across the Region.

##### MAEP Steering Committee (MAEP SC)

The MAEP SC acts as an advisory body to the MAEP Board, guiding MAEP's work and ensuring that its objectives are accomplished in a timely, effective and efficient manner. MAEP SC reviews the Regional objectives, plans and users' requirements, and recommends priorities to the MAEP Board. The MAEP SC oversees the activities of the PMO in line with the plans and budgets approved by the MAEP Board.

The MAEP SC is composed of all stakeholders and co-chaired by elected representatives from States and Organizations.

##### MAEP Project Management Office (PMO)

The PMO, a dedicated office co-located in the ICAO MID Regional Office, is the operational arm of MAEP. The PMO operating (running) expenses are funded through contribution from States as per the decision of MAEP Board. The PMO reports directly into MAEP SC and into MAEP Board through the MAEP SC. The duties and responsibilities of the MAEP PMO include the following:

1. Review Regional objectives in line with the development of the Region's priorities and proposes amendments to the MAEP SC.
2. Identify, propose and prioritize projects to meet the Regional objectives.
3. Develop and maintain the MAEP Master Plan by proposing amendments for the review of MAEP SC and endorsement of MAEP Board.
4. Develop and maintain Business Plans for each agreed Regional project and recommend them to the MAEP SC.
5. Manage the implementation of MAEP funded Regional projects in accordance with approved plans.
6. Ensure coordination between national and Regional projects.

7. Develop Key Performance Indicators (KPIs) for tracking the implementation of the projects.
8. Submit progress reports for each project to the Steering Committee, as appropriate and when required.
9. Identify and report projects' risks to the MAEP SC and maintain a risk database.
10. Provide Secretarial support to MAEP SC.

## 5 MAEP Projects

MAEP Projects will be agreed by the MAEP Board and will directly support the implementation of the MID Region Air Navigation Strategy. Each project will have its own Business Plan including project charter, framework, operating concept, stakeholders, implementation strategy, work plan, duration, budget, timeline and funding mechanism.

The following projects were identified by the MAEP Board/1 meeting and supported by DGCA-MID/3 and MIDANPIRG/15 meetings:

- MID ATS Route Network Optimization project (ARNOP)
- MID Flight Procedure Programme (MID FPP)
- MID Integrated Flight Plan Processing System (MID IFPS)
- MID Region AIM Database (MIDAD)
- MID IP Network
- Regional/sub-Regional ATFM system

A brief description of each project including objectives, challenges, benefits, relation to Regional priorities and global objectives, estimated duration and cost (if possible) is highlighted below:

### **MID ATS Route Network Optimization project (ARNOP)**

### **Objectives:**

The project's objective is to assess the current airspace structure, and present a plan to enhance it. It will be conducted in two phases: The first phase is the assessment of the current airspace infrastructure taking into account the previous studies on the topic (i.e. MIDRAR, ACAC CNS/ATM Study, GCC virtual upper airspace study, etc...). The second phase is the implementation of the outcome and recommendations of the first phase.

### **Benefits**

The project will result in an airspace structure and concept of operations that are:

- Performance-based
- Addresses ATM community expectations
- Cost-efficient
- Environmentally sustainable
- Regionally harmonized

### **Challenges**

- The commitment of States and stakeholders is key for the success of the project.
- For the first phase, commitment is needed to facilitate and assist Airbus in conducting the study
- For the second phase, commitment is needed to support implementation of the recommendations which raises the resource challenges associated with large projects

### **Relation to ASBU / MID Air Navigation Strategy**

- All Modules

### **Stakeholders**

- Phase I: Airbus supported by all stakeholders
- Phase II: States/ANSPs supported by all MAEP stakeholders

### **Duration**

- Phase I (assessment) – 12 months starting 30 June 2015
- Phase II (implementation of recommendations) - To be Defined in phase I

### **Cost**

- Phase I (assessment) will be implemented by in-kind contribution of Airbus
- Phase II (implementation): It is expected that implementation will be broken down into several projects by MAEP PMO once phase I is concluded and the recommendations developed. Cost of each project and the overall cost for the implementation will be estimated afterwards

## **Objective**

The project will provide a Regional solution for procedure design and airspace management.

## **Benefits**

- Support and increase PBN implementation
- Increase the number of TMAs with approved PBN operations
- Increase safety and efficiency in flight operations
- Pool resources in order to fill the shortage of procedure designers, procedure design work, procedure design training and of service provision for ATC/ATM training for PBN implementation

## **Challenges**

- The commitment of States and stakeholders is key for the success of the project
- National technical infrastructure may be required
- Organizational and regulatory arrangements
- Regulatory

## **Relation to ASBU / MID Air Navigation Strategy**

- APTA (Airport Accessibility)
- CCO (Continuous Climb Operations)
- CDO (Continuous Descent Operations)

## **Stakeholders**

- States/ANSPs supported by all MAEP stakeholders

## **Duration**

- 3 years renewable

## **Cost**

- TBD

## **Objective**

The project will provide a Regional processing system to check flight plans, acknowledge receipt/acceptance or reject them in case of error.

## **Benefits**

- Increase interoperability, efficiency, safety, flexibility and capacity
- Reduce the delays in the exchange of flight plan messages
- Reduce air traffic controller (ATC) workload and increase data integrity supporting reduced separation, translating directly to cross sector or boundary capacity flow increases
- Facilitate collaborative decision-making (CDM)
- Resolve the issues related to the loss of flight plan messages and duplication of flight plan messages
- Assist operators and service providers to plan and execute better trajectories
- Adhere to ICAO Standard flight plan format
- A major element for the implementation of Regional/Sub-Regional of MID ATFM System

## **Challenges**

- The commitment of States and stakeholders is key for the success of the project
- National technical infrastructure may be required
- ATM systems require that policies related to the access and use of information are developed
- Regulatory, governance and training

## **Relation to ASBU / MID Air Navigation Strategy**

- FICE (FF-ICE - Flight and Flow Information for the Collaborative Environment)
- NOPS (Network Operations)
- SWIM (System Wide Information Management)

## **Stakeholders**

- States/ANSPs supported by all MAEP stakeholders

## **Duration**

- TBD

## **Cost**

- TBD

## **Objective**

The project's objective is to establish and maintain a central AIM database for the MID Region.

## **Benefits**

MIDAD will provide the optimal solution for the identified limitations and drawbacks related to the current operational structure and provision of AIS/AIM services in the MID Region such as:

- Inconsistent data quality
- Lack of cross border aeronautical information coherence checking
- Duplicated, redundant and dispersed investments in the development and maintenance of systems by both Aeronautical Information Services and the end users
- No single integrated aeronautical information database has been implemented , and no Regional or sub-Regional AIS database has been established
- Lack of interoperability between systems

MIDAD will also provide the following benefits to the air transport community:

- A reliable source of aeronautical information
- Improved data quality, enabled by constant data checking and integrity based on cyclic redundancy checks (CRC), including NOTAM validation and cross-border data coherence verification
- A secure channel for timely and efficient electronic distribution of aeronautical information to all users
- Reduced investment costs in the development and maintenance of local systems by both AIS Units and airspace users, and reduced workload throughout the complete AIS process

## **Challenges**

- The commitment of States and stakeholders is key for the success of the project
- National technical infrastructure may be required
- Funding of implementation and running cost

## **Relation to ASBU / MID Air Navigation Strategy**

- DATM (Digital Air Traffic Management)
- SWIM (System Wide Information Management)

## **Stakeholders**

- States/ANSPs supported by all MAEP stakeholders

## **Duration**

- Phase I: Completed
- Phase II: To be concluded in 2017
- Phase III (Implementation): ongoing from 2018

## **Cost**

- Phase I: Completed
- Phase II: US\$ 1.5 million
- Phase III (Implementation): TBD

## **Objective**

The project's objective is to establish a secure, closed circuit IP network for the MID Region for internal and cross-border communication.

## **Benefits**

- Enhance the Point-to-Point circuit arrangement between States to support Aeronautical Fixed Service (AFS)
- Reduce telecommunication cost
- Enhance information security
- Support new enhancements/developments
- provide a dynamic network which minimizes required coordination for network management and enhancement
- Respond to Air Traffic requirements in a timely manner

## **Challenges**

- The commitment of States and stakeholders is key for the success of the project
- National technical infrastructure development may be required
- Regulatory, Oversight and Training

## **Relation to ASBU / MID Air Navigation Strategy**

- FICE (FF-ICE - Flight and Flow Information for the Collaborative Environment)
- SWIM (System Wide Information Management)

## **Stakeholders**

- States/ANSPs supported by all MAEP stakeholders

## **Duration**

- 10 years renewable

## **Cost**

- TBD

## **Regional/Sub-Regional ATFM System**

## **Objectives:**

To manage air traffic in a collaborative and efficient manner across the Region, and harmonize the implementation of ATFM measures

### **Benefits**

The project will result in airspace operations that:

- Are Regionally harmonized
- Manage flow of traffic in a way that minimizes delay and maximizes the use of the available airspace capacity
- Address ATM community expectations
- Ensure smooth flows and manage sector capacity with minimal impact on airspace users
- Address system disruptions including crises caused by human or natural phenomena

### **Challenges**

- The commitment of States and stakeholders is key for the success of the project
- The project has a multitude of pre-requisites which need to be implemented such as:
  - ✓ Maximizing the use of current airspace
  - ✓ Better coordination along FIR borders
  - ✓ CNS improvements
  - ✓ Harmonization of regulations which may require developments on national levels
  - ✓ Integrated Initial Flight Plan Processing System (IFPS)
- Regulatory, oversight and training

### **Relation to ASBU / MID Air Navigation Strategy**

- NOPS (Network Operations)

### **Stakeholders**

- States/ANSPs supported by all MAEP stakeholders

### **Duration**

- TBD although expected to kick off once the project's pre-requisites are implemented

### **Cost**

- TBD

- END -