



DIRECTORS GENERAL OF CIVIL AVIATION-MIDDLE EAST REGION

Second Meeting (DGCA-MID/2)
(Jeddah, Saudi Arabia, 20-22 May 2013)

Agenda Item 5: Air Navigation

ESTABLISHMENT OF MID AIRSPACE EVOLUTION PROGRAM 2018 (MAE 2018)

(Presented by the United Arab Emirates)

SUMMARY

This paper presents a proposal for the establishment of a *Middle East Airspace Evolution Program 2018* (MAE 2018) – to oversee and coordinate the development of an evolutionary and seamless ATM plan for Region, that is aligned with the ICAO Global Air Navigation Plan (GANP) and supported by the Aviation System Block Upgrade framework (ASBU).

1. INTRODUCTION

1.1 The aviation sector is a critical part of the transport infrastructure for the States of the Middle East region.

1.2 Lack of integration across the region is a constraint on seamless operations; limiting the effectiveness and efficiency of service provision.

1.3 Sustainable growth in aviation is dependent on modernisation of the airspace system to deliver both safety and operational improvements that are:

- a) Globally harmonised;
- b) Environmentally responsible; and
- c) Cost-effective.

1.4 The ICAO 12th Air Navigation Conference (Montreal, 19-30 November 2012) accepted the Aviation System Block Upgrade (ASBU) as a program framework that develops a set of ATM solutions or upgrades that exploits current equipment, establishes a transition plan and enables global interoperability.

1.5 The ASBUs describe a way to apply the concepts defined in ICAO Global ATM Operational Concept (Doc 9854), with the goal of implementing regional performance improvements, and are used in the proposed new edition of the ICAO Global Air Navigation Capacity & Efficiency Plan 2013 – 2028 (Doc 9750).

1.6 The purpose of this Paper is to propose the creation of the “ *Middle East Airspace Evolution Program 2018*” (MAE 2018), whose primary purpose would be to coordinate the activities of MIDANPIRG and the States in the development of regional implementation plans for the deployment of ASBU Block 0 and Block 1 Modules.

2. DISCUSSION

2.1 Traditionally, ATM improvements were implemented on a State by State basis; funded from either State revenues or User charges; and based on individual national ATM plans and requirements. However these State initiatives were often launched in isolation without the benefit of a broader, collaborative approach on a regional basis. Other programs have been initiated by States and organisations in partnership. Examples of these initiatives include:

- a) CANSO MIDRAR;
- b) ICAO ARN/TF (under the auspices of MIDANPIRG); and
- c) IATA – in response to individual airline proposals.

2.2 While these programs have achieved varying degrees of success, they have not embraced the system-wide approach to implementation based on the ICAO ASBUs that enable the development of seamless ATM development in the MID region.

2.3 Notwithstanding the individual and collective efforts by States and organisations, the MID region airspace is still characterised by:

- a) Fragmented airspace structures;
- b) High-levels of tactical intervention by ATC;
- c) Choke Points; traffic bunching; and queuing; and
- d) Reliance on conventional technologies.

2.4 Given the projected traffic growth across the region, it is necessary for the ATM System to safely deliver maximum capacity while also providing the greatest efficiency possible. This could be achieved through the coordinated implementation of the modules of the ICAO ASBUs in accordance with regional plans to enhance the performance of the ATM system.

“If aviation is to continue to drive global economic prosperity and social development to the extent our community and the world have grown accustomed, especially in the face of dramatic regional traffic growth projections and the pressing need for more determined and effective climate-related stewardship, States must fully embrace the new Block Upgrade process and follow a unified path to the future global Air Navigation system”¹

ICAO Global Air Navigation Plan (GANP - Draft Fourth Edition) & ASBU

2.5 The ICAO Global Air navigation Plan (GANP – Draft Fourth Edition) is an overarching framework that includes key aviation policy principles to assist ICAO regions, sub-regions and States with the preparation of their regional and State air navigation plans.

2.6 The GANP includes the aviation system block upgrade (ASBU) framework, its modules and its associated technology roadmaps covering inter alia communications, surveillance, navigation, information management and avionics.

2.7 The GANP also outlines ICAO’s ten key aviation policy principles guiding global, regional and State air navigation planning. These include the following:

¹ ICAO Global Air Navigation Capacity & Efficiency Plan 2013 – 2028, p25 (GANP)

- a) Commitment to the implementation of ICAO's Strategic Objectives and Key Performance Areas;
- b) Aviation safety is the highest priority;
- c) Tiered approach to air navigation planning;
- d) Global Air Traffic Management Operational Concept (GATMOC);
- e) Global air navigation priorities;
- f) Regional and State air navigation priorities;
- g) Aviation system block upgrades (ASBUs), modules and roadmaps;
- h) Use of ASBU blocks and modules;
- i) Cost benefit and financial issues; and
- j) Review and evaluation of air navigation planning.

2.8 An Aviation System Block Upgrade (ASBU) designates a set of improvements that have been developed to ensure that aviation safety is maintained and enhanced, that ATM improvement programmes are effectively harmonised, and that barriers to future aviation efficiency and environmental gains can be removed, at reasonable cost.

2.9 The core of the ASBU concept is a pragmatic system of Modules involving Communications, Navigation and Surveillance capabilities linked to four specific and interrelated Performance Areas, namely:

- a) Airport Operations;
- b) Globally Interoperable Systems and Data;
- c) Optimum Capacity and Flexible Flights; and
- d) Efficient Flight Path.

2.10 The Modules associated with Block Zero (B0) are ready for deployment now, utilising existing avionics, infrastructure, procedures and standards. Modules associated with Block One (B1) are estimated to be ready for deployment as of 2018, while Blocks B2 and B3 are at the conceptual stage, with planning horizons for years 2023 and 2028 respectively.

Regional Air Navigation Plans (eANP) and ASBU methodology

2.11 As reaffirmed during ANC/12, the regional planning and implementation process is the principal engine of ICAO's implementation work of air navigation systems. In this regard, the development and maintenance of the MID Regional Air Navigation Plan (Doc 9708) is undertaken by MIDANPIRG in coordination with States.

2.12 ANC/12 also noted that during 2012, ICAO commenced the transition of Regional Air Navigation Plans into an online format, which are referred to as eANP (ver 1.0). Further development of Regional eANPs will include the addition of ASBU methodology.

Establishment of a MID Airspace Evolution Program 2018 (MAE 2018)

2.13 In considering the process of aligning regional eANPs with the GANP, ANC/12 agreed that PIRGs should focus initially on implementing ASBU Block 0 Modules and finalise the development of their ASBU aligned regional plans by May 2014.

2.14 ANC/12 also called on States and PIRGs to develop action plans to address the identified impediments to ATM modernisation as part of their ASBU planning and implementation activities.²

² ANC/12 Recommendation 6/1 – Regional performance framework – planning methodologies and tools

2.15 Further, ANC/12 recommended that States and PIRGs continue to take a coordinated approach among air traffic management stakeholders to achieve effective investment into airborne equipment and ground facilities.³

2.16 The planning and implementation of future ATM upgrades, as recommended in the GANP and ASBUs will require a regional solution implemented across a number of States and managed cooperatively between the participating Nations.

2.17 Considering the amount of work and coordination activities that is likely to be associated with aligning the MID Regional Air Navigation Plan (eANP) with the GANP and ASBU, the meeting is invited to consider implementation of the proposed *MID Airspace Evolution Program 2018* (MAE 2018).

2.18 It is envisaged that MAE 2018 would provide the basis for a collaborative implementation strategy that takes into account current and forecasted traffic levels for major airports and major traffic flows, as well as designating regional priorities and mechanisms so that ATM planning and implementation efforts by individual States can be harmonised and coordinated in a timely manner at the regional level.

MID Airspace Evolution Program 2018 (MAE 2018) – Structure

2.19 It is suggested that MAE 2018 be established under the auspices of MIDANPIRG and structured as per the following:

- a) Establishment of the MAE Board (MAEB):
 - i. Reports directly to the ICAO MID Regional Director; and
 - ii. MIDANPIRG.
 - iii. Composed of Senior ANS officials representing MID States
- b) The MAE Board will select a recognised international specialist agency to manage the project following an agreed and coordinated process.
- c) Creation of the MAE Steering Group (or Task Force) who is composed of airspace technical expertise from MID states and organizations and will:
 - i. Oversee the project activities/deliverables and overall compliance.
 - ii. Develop the Scope of Work in alignment with agreed regional priorities under ASBU Block 0 and Block 1 and prioritised either Short Term; Mid Term; or Long Term.
 - iii. Develop the Project phases and implementation roadmap.
 - iv. Maintain a Project Risk Register.
- d) The Project will then be managed by the specialized agency in coordination with the MAE Steering Group.

MID Airspace Evolution Program 2018 (MAE 2018) – Objectives

2.20 It is recommended that the primary objectives of the proposed MAE 2018 include the following:

- a) To develop a plan for implementing ASBU Block 0 and Block 1 Modules;
- b) To develop ASBU aligned regional ANP by May 2014;
- c) Develop an action plan to address identified impediments to ATM modernisation as part of ASBU planning and implementation activities;
- d) Enhance the safety of the airspace system;

³ ANC/12 Recommendation 6/12 – Prioritization and categorization of block upgrade modules.

- e) Enable sustainable growth in aviation;
- f) Increase flight efficiency by removing bottlenecks; and
- g) Reduce the cost of Air Traffic Management.

MID Airspace Evolution Program 2018 (MAE 2018) – Funding

2.21 Today, most airport and ATM upgrades are funded by airport or by the State (whether by airline revenue or consolidated funds) and implemented within that State.

2.22 Future ATM upgrades, as recommended in ASBU, will require a Regional solution implemented across a number of States and managed cooperatively between the participating Nations.

2.23 Accordingly, there are several funding options for MAE 2018, including the following:

- a) Fair contribution by States/ANSPs based on the number of air traffic movements;
- b) Fair or fixed contribution by Regional operators / International organisations, approved by agreed methodologies; and
- c) Direct payment by the States/Operators, or collection of fees by arrangement with one of the recognised international fees collectors (e.g. Eurocontrol, IATA, CANSO etc).

2.24 Consequences of not establishing a regional and collaborative ATM enhancement program:

- a) Strongly jeopardise the safety of air traffic operations as the workload on ATCOs increases while the bottlenecks and congested areas remain if not increase
- b) Strongly jeopardise the aviation expansion plans in the MID region and therefore harms the economic and financial situation of MID States
- c) Negatively affects the states CAAs and ANSPs financial situation as the demand for new ATC sectorisation and manpower, unnecessary systems will increase
- d) Negatively impacts the neighbouring regions safely and economically and therefore negatively impacts the MID image
- e) Politically is not acceptable

Conclusion

2.25 The MID airspace structure needs to evolve and change to meet increasing demand on capacity whilst maintaining the highest standards of safety and reducing the impact on the environment.

2.26 A particular priority is the harmonised use of airspace across States and regions with a consistent set of standards, rules, procedures and equipage.

2.27 The publication of the GANP (Fourth Edition), together with the ASBUs, provides the framework for the development and implementation of Seamless ATM for the region, through the creation of the ***Middle East Airspace Evolution Program 2018 (MAE 2018)***.

3. ACTION BY THE MEETING

3.1 The meeting is invited to:

- a) note that the introduction of the ICAO Aviation System Block Upgrades (ASBUs) will allow early benefits of new technologies and procedures to be realised, while maximising safety, capacity and overall system efficiency;
- b) note the information of the WP and particularly 2.24;
- c) discuss the relationship between the MID eANP and the GANP, including the ASBU methodology and the required alignment of regional plans by 2014;
- d) agree on the establishment of a Middle East Airspace Evolution Program 2018 to coordinate the development of regional implementation plans associated with GANP and ASBU Modules; and
- e) if the meeting agreed on 3.1.c above, the meeting is invited to decide on the following:
 1. MAE Program commencement date and timeframe
 2. Preferred funding options as detailed in 2.23
 3. Proposed program methodology detailed in 2.19

-END-