



International Civil Aviation Organization

The Second Meeting of the Asia/Pacific Air Traffic Flow Management Steering Group (ATFM/SG/2)

Hong Kong, China, 1 - 4 October 2013

Agenda Item 6: Any Other Business

REVIEW OF ATFM RELATED PROVISIONS OF ASIA/PACIFIC BANP

(Presented by the Secretariat)

SUMMARY

This paper discusses the ATFM related provisions of the Asia and Pacific Regions Air Navigation Plan Volume I (Basic ANP), and their alignment with the Regional Collaborative Framework for ATFM.

This paper relates to –

Strategic Objectives:

A: *Safety – Enhance global civil aviation safety*

C: *Environmental Protection and Sustainable Development of Air Transport – Foster harmonized and economically viable development of international civil aviation that does not unduly harm the environment*

Global Plan Initiatives:

GPI-6 Air traffic flow management

1. INTRODUCTION

1.1 Part V of the Asia and Pacific Regions Air Navigation Plan Volume I, Basic ANP contains elements of the existing planning system and introduces the basic planning principles, operational requirements and planning criteria related to Air Traffic Management (ATM) as developed for the Asia/Pacific Regions. This includes the objectives and general principles of the ATFM service.

2. DISCUSSION

2.1 While developing the Asia/Pacific Collaborative Framework for ATFM, the ATFM/SG should also consider the need for alignment of the framework and the BANP.

2.2 ATFM-related extracts from the BANP are appended at **Attachment A**.

3. ACTION BY THE MEETING

3.1 The meeting is invited to:

- a) note the information contained in this paper;
- b) note and discuss any elements of the BANP that should be considered for inclusion in the draft framework;
- c) include alignment of the framework and BANP in the ATFM/SG/2 work program;
- d) submit BANP Proposals for Amendment PfA where necessary; and
- e) discuss any relevant matters as appropriate.

.....

Part V

AIR TRAFFIC MANAGEMENT (ATM)

INTRODUCTION

1. This part of the Asia and Pacific (ASIA/PAC) Basic Air Navigation Plan contains elements of the existing planning system and introduces the basic planning principles, operational requirements and planning criteria related to air traffic management (ATM) as developed for the ASIA/PAC regions.

2. As a complement to the Statement of Basic Operational Requirements and Planning Criteria (BORPC) set out in Part I, Part V constitutes the stable guidance material considered to be the minimum necessary for effective planning of ATM facilities and services in the ASIA/PAC regions. A detailed description/list of the facilities and/or services to be provided by States in order to fulfil the requirements of the plan is contained in the ASIA/PAC Facilities and Services Implementation Document (FASID). During the transition and pending full implementation of the future communications, navigation and surveillance/air traffic management (CNS/ATM) system, it is expected that the existing requirements will gradually be replaced by new CNS/ATM system-related requirements. Further, it is expected that some elements of CNS/ATM system will be subject to amendment, as necessary, on the basis of experience gained in their implementation.

3. The Standards, Recommended Practices and Procedures to be applied are contained in:

- a) Annex 2 — *Rules of the Air*;
- b) Annex 6 — *Operation of Aircraft*;
- c) Annex 11 — *Air Traffic Services*;
- d) *Procedures for Air Navigation Services — Air Traffic Management* (Doc 4444);

e) *Procedures for Air Navigation Services — Aircraft Operations* (Doc 8168); and

f) *Regional Supplementary Procedures* (Doc 7030).

4. Background information of importance in the understanding and effective application of this part of the plan is contained in the *Report of the Third Asia/Pacific Regional Air Navigation Meeting* (Doc 9614, ASIA/PAC/3 (1993)).

5. The elements of the material referred to above are presented in the following paragraphs under the headings of Airspace Management (Part V.I — ASM), Air Traffic Services (Part V.II — ATS) and Air Traffic Flow Management (Part V.III — ATFM), with appropriate cross-references to ASIA/PAC/3 recommendations and conclusions.

OBJECTIVES OF AIR TRAFFIC MANAGEMENT

General

6. The primary objective of an integrated ATM system in the ASIA/PAC regions is to enable aircraft operators to meet their planned times of departure and arrival and adhere to their preferred flight profiles with minimum constraints and with no compromise to safety. To accomplish this, the technologies afforded through new CNS systems will have to be fully exploited through international harmonization of ATM standards and procedures. From the aircraft operator's point of view, it is desirable to equip aircraft operating internationally with a minimum set of avionics usable everywhere. Additionally, many of the expected service improvements cannot be meaningfully implemented by one State, but must be implemented in contiguous regions. Therefore, the ATM regional concept of providing ATM over expanded areas must be pursued.

Elements of the ATM system

7. The envisaged ATM system in the ASIA/PAC regions will consist of several sub-elements; these are: airspace management (ASM), air traffic services (ATS), air traffic flow management (ATFM) and the ATM-related aspects of flight operations. These sub-elements will evolve and take on different roles, mainly because they will integrate into a total system. Rather than viewing ground and air as separate functions, the ATM-related aspects of flight operations will be fully integrated as a functional part of the ATM system. Ultimately, this interoperability and functional integration into a total system is expected to yield a synergy of operations that does not currently exist. Through the use of data link for data interchange between elements of the ATM system, this functional integration will be accomplished.

Airspace management

8. The objective of ASM is to maximize, within a given airspace structure, the utilization of available airspace by dynamic time-sharing and, at times, segregation of airspace among various categories of users based on short-term needs. It is also an adjunct to air traffic control (ATC) along the same lines as ATFM.

9. In the seamless, global ATM system, ASM will not be limited only to tactical aspects of airspace use. Its main scope will be toward a strategic planning function of airspace infrastructure and flexibility of airspace use.

Air traffic services

10. ATS will continue to be the primary element of ATM in the ASIA/PAC regions. ATS is composed of several sub-elements: alerting service, flight information service (FIS) and ATC. The primary objective of ATC service is to prevent collisions between aircraft and between aircraft and obstructions on the manoeuvring area, and to expedite and maintain an orderly flow of air traffic. The objective of FIS is to provide advice and information useful for the safe and efficient conduct of flights. The objective of the alerting service is to notify appropriate organizations regarding aircraft in need of search and rescue aid and assist such organizations as required.

Air traffic flow management

11. The objective of ATFM is to ensure an optimum flow of air traffic to or through areas during times when demand exceeds or is expected to exceed the available capacity of the ATC system. The ATFM system in the ASIA/PAC regions should therefore reduce delays to aircraft both in flight and on the ground and prevent system overload. The ATFM system will assist ATC in meeting its objectives and achieving the most efficient utilization of available airspace and airport capacity. The ATFM system in the ASIA/PAC regions should also ensure that safety is not compromised by the development of unacceptable levels of traffic congestion and, at the same time, assure that traffic is managed efficiently without unnecessary flow restrictions being applied.

ATM system regional evolution and implementation timelines

12. Although changes in the ATM system in the ASIA/PAC regions will be implemented in an evolutionary manner, the design of the emerging system should allow for the implementation of a series of well-planned and feasible improvements with a favourable cost-benefit ratio. The ATM system should satisfy user needs while meeting safety, capacity, efficiency, regularity and environmental protection requirements. The implementation plan should allow for incremental improvements, so that the services provided are appropriate to given applications and areas, thereby ensuring homogeneous, continuous and effective service from gate-to-gate. A well-planned implementation schedule is also essential to guarantee an interface between adjacent systems so that boundaries remain transparent to airspace users.

13. The evolution of ATM in the ASIA/PAC regions has been planned on the basis of an integrated regional infrastructure. This is accomplished through planning based on a series of homogeneous areas and major international air traffic flows. Nine areas have been identified, taking into consideration the varying degrees of complexity and diversity in the region. A high-level view of ATM system implementation is depicted in the *Asia Pacific Regional Plan for the New CNS/ATM Systems* (ASIA/PAC Document 007/4).

Part V.III

AIR TRAFFIC FLOW MANAGEMENT (ATFM)

GENERAL PRINCIPLES OF THE ATFM SERVICE

61. In airspaces with high volumes of air traffic, ATFM is needed to support ATM as a planning tool by providing for an optimum flow of air traffic to or through areas during times when demand exceeds or is expected to exceed, the available capacity of the ATM system. The oceanic ATFM service should be interfaced with domestic ATFM organizations/units to provide maximum harmonization.

62. When operationally required, the APANPIRG should develop appropriate procedures for the provision of the ATFM service within the ASIA/PAC regions to cater for the requirements of flights to and from FIRs in the regions and adjacent to it. To achieve this, the following basic principles should be covered in the future ATFM system:

- a) pro-active ATFM requires the ability to dynamically interact with the strategic planning of traffic flows. Therefore, ATFM in the ASIA/PAC regions should be interfaced with the overall ATFM strategies in other regions. To this end, the ATM system should also be capable of adjusting to the varying requirements;
 - b) re-active ATFM is required to take account of short-term contingencies. The ATM system should be able to react quickly and provide early information and advice to the controller and the pilot of the best tactical response necessary to achieve ATFM objectives;
 - c) data should be collated on likely future demand using historical information, planned development by airports and airlines, aircraft manufacturers, plus the economic forecasts and trends in States of the regions;
 - d) a recognized and common methodology for the assessment of the capacity of the current and planned ATM system should be developed to include sector capacities and in particular “choke” points;
 - e) regions should consider the introduction of a centralized flow management unit; and
 - f) where more than one flow management unit exists, plans to harmonize procedures and practices with adjacent units should be developed.
-