



International Civil Aviation Organization

**Aerodrome Operational Planning
Sub-Group (AOP SG)**

Ninth Meeting
(Cairo, 23– 25 September 2013)

Agenda Item 3: Global and Regional Development related to AOP

ELECTRONIC AIR NAVIGATION PLAN

(Presented by the Secretariat)

SUMMARY

This paper presents the progress achieved in the development of the new Regional Air Navigation Plan Template.

Action by the meeting is at paragraph 3.

REFERENCES

- Global eANP Working Group/1

1. INTRODUCTION

1.1 MIDANPIRG/12, through Decision 12/49, recognized the need for a complete review of both the content and format of the MID Basic ANP and FASID and MIDANPIRG/13, through Decision 13/32, agreed to the establishment of an Ad-hoc Working Group tasked with the development of a revised version of the MID ANP.

1.2 The First Meeting of the MID Air Navigation Plan Ad-hoc Working Group (ANP WG/1) was successfully held in Cairo, 27-29 May 2013. The meeting was attended by a total of twenty five (25) participants from six (6) States (Bahrain, Egypt, Oman, Qatar, Saudi Arabia and United Arab Emirates).

2. DISCUSSION

2.1 With regard to Regional Air Navigation Plans (ANPs) and for the process of aligning the Regional ANPs with the GANP, the 12th Air Navigation Conference (AN-Conf/12) agreed that PIRGs should focus initially on implementing ASBU Block 0 Modules and finalize the development of their ASBU aligned regional plans by May 2014.

2.2 In connection with the above, the following Recommendation developed by the AN-Conf/12 is highlighted:

Recommendation 6/1 – Regional performance framework – planning methodologies and Tools

That States and PIRGs:

- a) develop and maintain regional air navigation plans consistent with the Global Air Navigation Plan;*
- b) finalize the alignment of regional air navigation plans with the Fourth Edition of the Global Air Navigation Plan by May 2014;*
- c) focus on implementing aviation system block upgrade Block 0 Modules on the basis of operational requirements, recognizing that these modules are ready for deployment;*
- d) use the electronic regional air navigation plans as the primary tool to assist in the implementation of the agreed regional planning framework for air navigation services and facilities;*
- e) consider how the continuous monitoring approach to safety oversight maps to the evaluation of Member States' safety oversight capabilities concerning aviation system block upgrades;*
- f) involve regulatory and industry personnel during all stages of planning and implementation of aviation system block upgrade modules; and*
- g) develop action plans to address the identified impediments to air traffic management modernization as part of aviation system block upgrade planning and implementation activities;*

That, ICAO:

- h) review the current amendment process to the Regional Air Navigation Plans (ANPs) and recommend improvements to increase efficiencies related to the approval and maintenance of the data in the regional ANPs;*
- i) develop guidance material, on the basis of best practices employed worldwide, for the regional/local deployment of new ATM technologies, required procedures, operational approvals and continue to support States in the implementation of the aviation system block upgrades;*
- j) identify the issues, funding, training and resource requirements necessary to support a safety framework that would lay the foundation for successful implementation the aviation system block upgrades;*
- k) develop an outreach strategy to address the economic and institutional impediments to implementation of the aviation system block upgrades; and*
- l) develop a mechanism for sharing of best practices for the aviation system block upgrade implementation.*

2.3 The meeting may wish to note that ICAO Headquarters established a Secretariat Working Group, composed of a representative from each Regional Office and ICAO Headquarters, to prepare an action plan and monitor the review/development of the ANP/eANP project. The Terms of Reference (TOR) of the eANP Working Group (eANP-WG) are as at **Appendix A** to this working paper.

2.4 The First Meeting of the eANP-WG was held from 4 to 8 February 2013 at the ICAO EUR/NAT Office in Paris. The eANP-WG agreed on the objective, scope and procedure for amendment of the future ANP. A revised structure, format and Table of Contents of the ANP was agreed taking into account the ASBU methodology. In this regard, it was agreed that the new ANP should be composed of three volumes:

a) Volume I should contain stable plan elements whose amendment necessitated approval by the Council and these elements be related to:

- assignment of responsibilities;
- mandatory requirements subject to regional agreement; and/or
- additional requirements specific to the region which are not covered in SARPs.

Note.- The following is a non-exhaustive list of such elements:

- *Flight Information Regions (FIR) boundaries (Table and Charts);*
- *Search and Rescue Regions (SRR) boundaries (Table and Charts);*
- *Volcanic Ash Advisory Centres (VAAC);*
- *Tropical Cyclone Advisory Centres (TCAC);*
- *Volcano Observatories (VO);*
- ...

b) Volume II should contain dynamic plan elements whose amendment did not necessitate approval by the Council and these elements be related to:

- assignment of responsibilities;
- mandatory requirements subject to regional agreement; and/or
- additional requirements specific to the region which are not covered in SARPs.

Note.- The following is a non-exhaustive list of such elements:

- *Major traffic flows;*
- *ATS route network;*
- *Meteorological Watch Offices (MWO);*
- *Secondary Surveillance Radar (SSR) codes;*
- *Five-letter name-codes;*
- *VOLMET Broadcasts;*
- ...

c) Volume III should contain dynamic (flexible) plan elements whose amendment did not need approval by the Council and these elements be related to the implementation of certain air navigation systems, based mainly on the ASBU modules endorsed at Regional or Sub-regional level.

2.5 Regarding the content of Volume III, the eANP-WG will design the supporting enablers (tables/databases) and method of monitoring of implementation for a selected number of Block 0 modules which will serve as a prototype or model for each Region to use when developing the enablers for their selected modules. The modules will not be imposed on the Regions as it was recognised that certain modules were either well-established in a Region or not required at all.

2.6 It was agreed that with minor changes, the current Council-approved Procedure for Amendment of the Basic ANP would be applicable to the new Volume I and the current Amendment Procedure of the FASID would be applicable to the new Volumes II and III. These procedures will be complemented, at a later stage, by the description of the process of amendment (i.e. population of data, review, validation and approval) using the web-based platform of the ANP (eANP).

2.7 Following the agreement of the proposed content of the three Volumes after the Second Meeting of the eANP-WG, the respective PIRGs will be involved in the further development at an appropriate time.

2.8 The meeting may wish to note that the eANP WG/1 meeting established a Steering Committee (SC) to coordinate and administer the activities of the working group and take decisions as appropriate to progress its work.

2.9 The Steering Committee had three teleconferences, to review and approve, as appropriate, the drafts of the different Parts of Volumes I and II developed, so far.

2.10 The meeting may wish to note that the following process for review and approval of draft proposals was agreed:

- a) development and coordination of draft (led by eANP-WG Focal Point) with peers at Regional Offices and HQ Chiefs of Sections;
- b) review and comment of mature draft by eANP-WG members (led by eANP-WG Focal Point and shared with all concerned including HQ Chiefs of Sections); and
- c) endorsement of final mature version, and possible arbitration in case of disparities, by Steering Committee.

2.11 The current versions of the ANP Vol I and II AOP Parts developed by the eANP WG are at **Appendices B** and **C** to this working paper.

2.12 The approval of the final version of the three Volumes will be made at the eANP WG/2 meeting (Montreal, 18-22 November 2013).

2.13 As a follow-up action to the MIDANPIRG/13 Decision 13/32, the ANP WG/1 meeting was held in Cairo, 27-29 May 2013. The meeting was apprised of the outcome of the eANP-WG/1 meeting (Paris, 4 - 8 February 2013) and the eANP WG SC teleconference organised on 25 March 2013.

2.14 The ANP WG/1 meeting reviewed the available draft version of the different Parts of Volume I and II developed within the framework of the Secretariat eANP WG and made comments for improvement of the current drafts. The Report of the ANP WG/1 meeting is available at: <http://www.icao.int/MID/Documents/2013/anp%20wg1/ANP%20WG1%20-%20REPORT.pdf>.

2.15 The comments made by the ANP WG/1 meeting were shared with and supported by the Secretariat eANP WG SC during the second teleconference organised on 3 June 2013 and the report of the eANP WG/1 meeting was sent to all the eANP WG members.

3. ACTION BY THE MEETING

3.1 The meeting is invited to:

- a) note the information contained in this paper; and
- b) review the ANP Vol I and II AOP Parts at **Appendices B** and **C** to this working paper.

APPENDIX A**TERMS OF REFERENCE OF THE eANP WORKING GROUP
(eANP-WG)****1. BACKGROUND**

1.1 The eANP Working Group was established on 19 December 2012 by the Air Navigation Bureau (ANB) as a result of the recommendations formulated by the ICAO Deputy Regional Directors (DEPRD) training (Montreal, November 2012), taking into consideration new developments, including the outcome of the AN-Conf/12.

2. TERMS OF REFERENCE

2.1 The Working Group is expected to:

- a) Make proposals for changes to the Regional Air Navigation Plans (ANPs), including:
 - development of a new structure, format and content;
 - harmonization of the tables contained in the current Facilities and Services Implementation Documents (FASID) to support the implementation of the ICAO Aviation System Block Upgrades (ASBUs); and
 - relevant implementation monitoring and reporting process.
- b) Review and propose amendments to the current ANP amendment procedures and approval process, as appropriate;
- c) Coordinate with the ICAO Aviation Safety Tools (SAST) Section the development of the electronic Air Navigation Plan (eANP) on a web-based platform;
- d) Prepare an action plan to carry out the above activities.

2.2 The results and proposals developed by the eANP Working Group will be presented to the Director of Air Navigation Bureau (D/ANB) for necessary action.

3. WORKING METHODS

- a) The Working Group should avoid duplication of work with other ANB projects and maintain close coordination among the existing entities, including the ROs, to optimize the use of available resources and experience;
- b) The Working Group may designate, as necessary, ad-hoc groups to work on specific topics and activities; all tasks and activities should be clearly defined by time and deliverables; and
- c) The Working Group should conduct its work electronically (emails and teleconferences), and only hold meetings when necessary.

4. COMPOSITION

- a) Designated members from each Regional Office and Headquarters; and
- b) Focal points/experts from ICAO to support the designated members and the activities of the Working Group.

APPENDIX B

(NAME) ANP, VOLUME I

PART II – AERODROME OPERATIONS AND PLANNING (AOP)

1. INTRODUCTION

1.1 This part of the (NAME) Regional Air Navigation Plan compliments the provisions of ICAO Annex 14, Volumes I & II related to Aerodrome Operations and Planning (AOP). It contains stable plan elements related to the assignment of responsibilities to States for the provision of aerodrome facilities and services within the ICAO (Name) region in accordance with the Article 28 of the Convention on International Civil Aviation (Doc 7300) and mandatory requirements to be implemented by States in accordance with regional air navigation agreements.

1.2 Adherence to ICAO Standards and Recommended Practices (SARPS) will significantly contribute to aviation safety. States should therefore ensure that they have the necessary regulatory framework in place to reinforce the adoption of ICAO SARPS within their national regulations. States should also ensure that any differences to ICAO SARPS have been assessed in respect of safety and are notified in accordance with ICAO requirements.

1.3 The dynamic plan element material that are related to the assignment of responsibilities to States for the provision of the Aerodrome facilities and services including the mandatory requirements based on regional air navigation agreements related to the AOP are contained in the (NAME) ANP Volume II Part II AOP.

1.4 The (NAME) ANP Volume III, Part II AOP contains recommendations that States can follow in programming the provision of their air navigation facilities and services including aerodrome facilities and services. This contains also the regionally agreed Aviation System Block Upgrades (ASBU) modules applicable to the specified ICAO region aimed at increasing capacity and improving efficiency of the aviation system while maintaining or enhancing safety level and help achieve the necessary harmonization.

Standards, Recommended Practices and Procedures

1.5 The Standards, Recommended Practices and Procedures and associated guidance material to be applied are contained in:

- a) Annex 14 — Aerodromes, Volumes I and II;
- b) PANS-Aerodromes (Doc 9981, pending final approval);
- c) Airport Planning Manual (Doc 9184);
- d) Aerodrome Design Manual (Doc 9157);
- e) Airport Services Manual (Doc 9137);
- f) Manual on Certification of Aerodromes (Doc 9774);

- g) Assessment, Measurement and Reporting of Runway Surface Conditions (Cir 329);
- h) Operation of New Larger Aeroplanes at existing aerodromes (Cir 305);
- i) Advanced Surface Movement Guidance and Control Systems (A-SMGCS) Manual (Doc 9830);
- j) Manual of Surface Movement Guidance and Control Systems (SMGCS) (Doc 9476);
- k) Heliport Manual (Doc 9261);
- l) Manual on the prevention of runway incursions (Doc 9870);
- m) Stolport Manual (Doc 9150);
- n) ICAO Bird Strike Information System Manual (Doc 9332); and
- o) Manual on Civil Aviation Jet Fuel Supply (Doc 9977).

2. GENERAL REGIONAL REQUIREMENTS

2.1 Regular aerodromes and their alternates required for international commercial air transport operations should be determined through regional agreements, based on the list of international aerodromes designated by States and the needs of the international commercial flights as identified by user requirements. Planning requirements for alternate aerodromes should to the greatest practicable extent be satisfied by existing regular aerodromes used for international aircraft operations. However, where in specific cases the designation of another aerodrome in close proximity to a regular aerodrome would result in appreciable fuel conservation or other operational advantages, this aerodrome may be designated for use as an alternate aerodrome only. Planning of alternate aerodromes should be made on the basis of the following objectives:

- a) to ensure that at least one suitable alternate is available for each international aircraft operation;
- b) to ensure that the facilities at the designated alternate aerodrome(s) are appropriate for the alternate aircraft operations.

2.2. Aerodromes, in addition to those required for international commercial air transport operations, should be determined to meet the needs of the international general aviation flights as identified by user requirements.

2.3 The list of regular and alternate aerodromes (including their designations) required in the (Name) region to serve international civil aviation operations(international scheduled air transport, non-scheduled air transport and general aviation operations) is given in Table AOP I. Each Contracting State shall ensure the provision of aerodrome facilities and services at the international aerodromes under its jurisdiction

3. SPECIFIC REGIONAL REQUIREMENTS

3.1 TBD (if necessary)

Table AOP I

INTERNATIONAL AERODROMES REQUIRED IN THE [Name] REGION

EXPLANATION OF THE LIST

City/Aerodrome: Name of the city and aerodrome, preceded by the location indicator.

Designation: Designation of the aerodrome as:
RS — international scheduled air transport, regular use;
RNS — international non-scheduled air transport, regular use;
AS — international scheduled air transport, alternate use;
ANS — international non-scheduled air transport, alternate use.

Note 1 — when an aerodrome is needed for more than one type of use, normally only the use highest on the above list is shown.

[Example — an aerodrome required for both RS and AS use would only be shown as RS in the list.]

Note 2 — when the aerodrome is located on an island and no particular city or town is served by the aerodrome, the name of the island is included instead of the name of a city.

Table AOP I



Location Indicator	Name of City/Aerodrome	Designation
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Location Indicator	Name of City/Aerodrome	Designation
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APPENDIX C

(NAME) ANP, VOLUME II

PART II – AERODROME OPERATIONS AND PLANNING (AOP)

1. INTRODUCTION

1.1 This part of the (NAME) Regional Air Navigation Plan, Volume II contains dynamic plan elements related to the assignment of responsibilities to States for the applicability of the Standards and Recommended Practices established in Annex 14, Volume I and II and related documents that govern the application of the Aerodrome Design and Operations.

2. GENERAL REGIONAL REQUIREMENTS

2.1 Basic Planning and Operational Criteria

2.1.1 The specific physical characteristics planning for each regular use international aerodrome should meet the requirements of the critical aircraft.

2.1.2 The specific physical characteristics for each alternate use international aerodrome should be based on the requirements of the diverted critical aircraft and the take-off requirements for the aircraft for a flight to the aerodrome of intended destination.

2.1.3 Physical characteristics, visual aids and emergency as well as other services should be determined for each regular and alternate aerodrome required for international civil aviation operations and should include runway length and strength, as well as the aerodrome reference code(s), selected for runway and taxiway planning purposes.

2.1.4 Where at an aerodrome, planning for Category II or III operations, as the case may be, is not a requirement during the plan period but such operations are contemplated at a time beyond the plan period, planning should take into account the possible requirement for Cat II or III operations.

2.1.5 In cases where the extension or development of an aerodrome to meet infrequent operations of the critical aircraft would entail disproportionate expenditures, alternative solutions should be explored.

2.2 Visual aids for low visibility aerodrome operations

At aerodromes where there is a requirement to conduct Low Visibility operations, the appropriate visual and non-visual aids should be provided.

2.3 Non-precision approach aids

Where required by the topographic and/or environmental situation of an aerodrome, improved track guidance during departure and/or approach by specific non-visual and/or visual aids should be provided even if such aids would not normally be required in accordance with the provisions.

2.4 Reduced runway declared distances for take-off

Note. — In the following operational requirements the term “intersection” is used to cover both intersection and junction concepts.

- i. The reduced runway declared distances for take-off should consist, as for full runway declared distances, of TORA, TODA and ASDA.
- ii. The datum-line from which the reduced runway declared distances for take-off should be determined is defined by the intersection of the downwind edge of the specific taxiway with the runway edge. The loss, if any, of runway length due to alignment of the aeroplane prior to take-off should be taken into account by the operators for the calculation of the aeroplane’s take-off weight.
- iii. Intersections used as intermediate take-off positions should be identified by the “taxiway designator” to which the datum-line of the associated reduced runway declared distance for take-off refers.
- iv. At each international aerodrome, specific minimum visibility for take-off should be established, regulating the use of intersection take-off positions. These minima should permit the appropriate ATC unit to maintain a permanent surveillance of the ground movement operations, and the flight crews to constantly secure their position on the manoeuvring area, so as to exclude any potential risk of confusion as to the identification of the aircraft and intersections used for take-off. The minima should be consistent with the surface movement guidance and control system (SMGCS) provided at the aerodrome concerned.
- v. The provision of marking and lighting aids together with signs should ensure the safe control and guidance of aircraft towards and at take-off intersections appropriate to the minimum visibility criteria retained. At the runway holding position of the associated intersection take-off position, such signs should indicate the runway heading and the remaining take-off run available (TORA) in metres.
- vi. At aerodromes regularly used by international commercial air transport, take-offs from runway/taxiway intersections may be justified for the following reasons:
 - a) runway capacity improvement;
 - b) taxi routes distances reduction;
 - c) noise alleviation; and
 - d) air pollution reduction.
- vii. To this end, the appropriate authorities should, upon prior consultation with aircraft operators, agree on the selection of suitable intermediate intersection take-off positions along the runway(s). Accordingly, authorities should determine the reduced runway declared distances for take-off associated with each selected intersection take-off position and establish the specific ATC rules and operational procedures/limitations. Such provisions should be published in the State AIP.

2.5 Aerodrome capacity Management

- i. As an integral part of the Air Navigation System, the aerodrome should provide the needed ground infrastructure including, *inter alia*, lighting; taxiways; runway, including exits; aprons and precise surface guidance to improve safety and to maximize aerodrome capacity in all weather conditions. The Air Navigation system will enable the efficient use of the capacity of the aerodrome airside infrastructure. The key conceptual changes include:
 - a) runway occupancy time will be reduced;
 - b) the capability to safely manoeuvre in all weather conditions whilst maintaining capacity;
 - c) precise surface guidance to and from a runway will be required in all conditions; and
 - d) the position (to an appropriate level of accuracy) and intent of all vehicles and aircraft operating on the movement area will be known and available to the appropriate ATM community members.
- ii. States should ensure that adequate consultation and, where appropriate, cooperation between airport authorities and users/other involved parties is executed at all international aerodromes to satisfy the provisions of aerodrome capacity assessment and requirement.
- iii. When international airports are reaching designed operational capacity, a better and more efficient utilization of existing runways, taxiways and aprons is required. Runway selection procedures and standard taxi routes at aerodromes should ensure an optimum flow of air traffic with a minimum of delay and a maximum use of available capacity. They should also, if possible, take account of the need to keep taxiing times for arriving and departing aircraft as well as apron occupancy time to a minimum. , The Airport Collaborative Decision Making (A-CDM) should be implemented to improve airport capacity as early as possible.

2.6 Aerodrome capacity assessment and requirement

- i. The declared capacity/demand condition at aerodromes should be periodically reviewed in terms of a qualitative analysis for each system component and, when applicable, the result of the qualitative assessment upon mutual agreement be used for information.
- ii. The future capacity/demand, based on a forecast for the next five years, should be agreed upon after close cooperation between airport authorities and affected users.
- iii. Operators should consult with aerodrome authorities when future plans indicate a significant increased requirement for capacity resulting in one of the elements reaching a limiting condition.
- iv. Aerodrome capacity should be assessed and declared by aerodrome authorities in consultation with the parties involved for each component (terminal/apron/aircraft operations) using agreed methods and criteria for level of delays.

- v. Where restrictions in aerodrome capacity are identified, a full range of options for their reduction or removal should be evaluated by the aerodrome authority, in close cooperation with the operators and other involved parties. Such options should include technical/operational/procedural and environmental improvements and facility expansion.
- vi. At many aerodromes, airspace capacity has influence on the aerodrome capacity. If the declared capacity of a specified airspace has influence on airport operations, this should be indicated and action undertaken to reach a capacity in this airspace corresponding to the airport capacity.
- vii. The possibility of overcoming capacity limitations should also take the use of other aerodromes in the vicinity into consideration.

2.7 Closure of regular aerodromes

When a regular aerodrome is to be closed, States should ensure that sufficient alternate aerodromes remain open to provide for the safety and efficiency of aircraft approaching the regular aerodrome that may be required to divert to an alternate.

2.8 Scheduling aerodrome maintenance

States, when planning major runway maintenance work that would affect the regularity of international aircraft operations, should consider the need to notify aircraft operators sufficiently in advance prior to undertaking the scheduled work.

3. SPECIFIC REGIONAL REQUIREMENTS

3.1. **TBD**

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