International Civil Aviation Organization
CAR/SAM Regional Planning and Implementation Group (GREPECAS)
Seventh Meeting of the GREPECAS Aerodromes and Ground Aids/Aerodrome Operational Planning Subgroup (AGA/AOP/SG/7)
Buenos Aires, Argentina, 9 to 13 November 2009

Agenda Item 7 Other business

FEASIBILITY STUDY ON THE DEVELOPMENT OF PANS-AGA

(Presented by the Secretariat)

SUMMARY	
This Information Paper related to "Feasibility Study on the development of PANS-AGA", presented to the Air Navigation Commission by the Director of the Air Navigation Bureau.	
References: • AN-WP/8379 Air Navigation Commission • Annex 14, Volumes I and II • Annex 15, Aeronautical Information Services • Doc. 8168, PANS –OPS • Doc. 4444, PANS – ATM	
Strategic Objectives	*This working paper is related to Strategic Objectives A and D.*

1. Introduction

1.1 As it is acknowledge by the Meeting, Annex 14, Volume I contains Standards and Recommended Practices (SARPs) that prescribe the physical characteristics and obstacle limitation surfaces to be provided for at aerodromes, and certain facilities and technical services normally provided at an aerodrome. Although the Annex provides some general requirements on aerodrome operations such as aerodrome emergency planning, it is mainly used as a design document and does not sufficiently address aerodrome operational management which is equally important for aerodrome safety and efficiency.

1.2 Therefore there is increasingly a need to develop an ICAO document that addresses procedures for aerodrome operational management as many challenges that aerodromes face today are of an operational nature, particularly where larger aircraft need to be accommodated and/or the development of the aerodrome is constrained.

2. Need for PANS – AGA.

2.1 As a result of USOAP audits under the comprehensive systems approach, in 19 September 2008, there were 105 States audited. A summary of the audit results reveals that a large number of the States audited have not yet certified or established a process for the certification of aerodromes. Many States have neither developed nor issued guidance to regulatory staff and aerodrome operators on the use of aeronautical studies and their evaluation in relation to granting exemptions or exceptions to requirements. Most States have not ensured that aerodrome operators implement a safety management system (SMS) as part of their aerodrome certification process. The provisions relating to runway friction, runway end safety areas, pavement use and the periodic testing and review of aerodrome emergency plans show a lack of compliance by a high percentage of the audited States. Other high percentages of non-satisfactory questions stem from weaknesses in a State's surveillance programme, including a lack of formal inspection procedure used for the continuing surveillance of aerodrome certificate holders and a lack of expertise in highly specialized areas such as rescue and fire fighting and wildlife/bird hazard control. Furthermore, many States have not provided sufficient guidance to regulatory staff and aerodrome operators on obstacle control and management.

2.2 The above areas where the findings were identified in the audits of many States are more related to aerodrome operational management. Annex 14, Volume I includes SARPs in these areas providing, in most cases, only general requirements; however, there is a lack of global operational procedures that would assist States to achieve compliance with the SARPs.

2.3 For example, Annex 14, Volume I provide SARPs for obstacle limitation surfaces and general requirements for obstacle removal but not for procedures on how to manage and control obstacles in the vicinity of aerodromes. Regarding the certification of aerodromes, Annex 14, Volume I requires that aerodromes be certified in accordance with the specifications contained in the Annex as well as other relevant ICAO specifications through an appropriate regulatory framework. However, it does not address operational procedures dealing with existing aerodromes.

2.4 In reality, many existing aerodromes worldwide were not built to the full design standards specified in the existing Annex 14, Volume I and, in certain cases, it is impossible or impracticable for those aerodromes to render their infrastructure to be in accordance with the Annex design Standards. This mainly relates to physical characteristics of an aerodrome, including different separation distances.

2.5 In order to ensure safety and enhance aerodrome operational efficiency, operational procedures should be put in place and should be taken into consideration in the aerodrome certification process.

2.6 There might be a need to distinguish between the certification of newly-built aerodromes and that of existing aerodromes. Regarding the use of aeronautical studies there is a need to provide uniform requirements on procedures for conducting and reviewing aeronautical studies to ensure an acceptable level of safety in aerodrome operations.

3. Conclusion

3.1 The Meeting is invited to review the Working Paper AN-WP/8379, attached in the **Appendix** to this Information Paper, which was presented to the Air Navigation Commission on "*Feasibility study on the development of PANS-AGA.*"

— — — — — — — — — — —

APPENDIX / APÉNDICE
(Available only in English / Disponible en inglés únicamente)

AN-WP/8379
9/2/09

International Civil Aviation Organization

WORKING PAPER

AIR NAVIGATION COMMISSION

AN Programme No. A1-SMP-ACT: Manage hazards and risks
AN Programme No. D1-ANS-ADO: Aerodrome design and operations

FEASIBILITY STUDY ON THE DEVELOPMENT OF PANS-AGA

(Presented by the Director of the Air Navigation Bureau)

SUMMARY

This working paper presents a feasibility study on the development of PANS-AGA.

Action by the Air Navigation Commission is in paragraph 6.

COORDINATION

ACR, AIG, ATM, CNS/AIRS, FLS, ISM, LEB, MED, MET/AIM, SOA

REFERENCES

AN-WP/8222
DP No. 1 related to AN-WP/8322
∗DP No. 2 related to AN-WP/8322
∗AN Min. 179-4
∗AN Min. 178-10
Annex 4
Annex 14, Volumes I and II
Annex 15
Doc 8168, PANS-OPS
Doc 4444, PANS-ATM

This working paper relates to Strategic Objectives A and D.

∗Principal references

AN-WP/8379

1. INTRODUCTION

1.1 On 9 October 2008, the Air Navigation Commission (179-4) conducted its final review of the proposed amendments to Annex 14 — *Aerodromes*, Volume I — *Aerodrome Design and Operations* and Volume II — *Heliports* and consequential amendments to Annex 4 — *Aeronautical Charts* and Annex 15 — *Aeronautical Information Services* in light of comments from States and international organizations. During the discussion related to code letter F specifications in Annex 14, Volume I, it was recognized that review of the aerodrome design provisions in Annex 14, Volume I would not resolve all of the safety and efficiency challenges facing existing aerodromes worldwide in their day-to-day operations. Therefore, it was considered that it would be beneficial to develop a *Procedures for Air Navigation Services – Aerodrome Operations* (PANS-AGA) document to address aerodrome operational issues.

1.2 The Commission agreed that the Secretariat should further study the feasibility of developing a PANS-AGA, the structure of the document, and the way and timeframe of progressing the work, and report to the Commission in the 180th Session with a detailed proposal for a plan of action, taking into account the resource requirements.

1.3 Subsequently, the Secretariat conducted a feasibility study taking into account worldwide introduction of the new larger aircraft operations, e.g. Airbus A380, previous discussions on the subject and information on the audit results of the ICAO Universal Safety Oversight Audit Programme (USOAP) under the comprehensive systems approach. Consultation was also made through two working group meetings of the Aerodromes Panel (AP), i.e. the sixth meeting of the Aerodrome Design Working Group (ADWG/6, Paris, France, 21 to 24 October 2008) and the sixth meeting of the Aerodrome Operations and Services Working Group (AOSWG/6, Montreal, Canada, 18 to 21 November 2008).

2. NEED FOR PANS-AGA

2.1 Annex 14, Volume I contains Standards and Recommended Practices (SARPs) that prescribe the physical characteristics and obstacle limitation surfaces to be provided for at aerodromes, and certain facilities and technical services normally provided at an aerodrome. Although the Annex provides some general requirements on aerodrome operations such as aerodrome emergency planning, it is mainly used as a design document and does not sufficiently address aerodrome operational management which is equally important for aerodrome safety and efficiency. Therefore there is increasingly a need to develop an ICAO document that addresses procedures for aerodrome operational management as many challenges that aerodromes face today are of an operational nature, particularly where larger aircraft need to be accommodated and/or the development of the aerodrome is constrained.

2.2 As of 19 September 2008, 105 States had been audited through the USOAP under the comprehensive systems approach. A summary of the audit results reveals that a large number of the States audited have not yet certified or established a process for the certification of aerodromes. Many States have neither developed nor issued guidance to regulatory staff and aerodrome operators on the use of aeronautical studies and their evaluation in relation to granting exemptions or exceptions to requirements. Most States have not ensured that aerodrome operators implement a safety management system (SMS) as part of their aerodrome certification process. The provisions relating to runway friction, runway end safety areas, pavement use and the periodic testing and review of aerodrome emergency plans show a lack of compliance by a high percentage of the audited States. Other high percentages of non-satisfactory

questions stem from weaknesses in a State's surveillance programme, including a lack of formal inspection procedure used for the continuing surveillance of aerodrome certificate holders and a lack of expertise in highly specialized areas such as rescue and fire fighting and wildlife/bird hazard control. Furthermore, many States have not provided sufficient guidance to regulatory staff and aerodrome operators on obstacle control and management.

2.3 The above areas where the findings were identified in the audits of many States are more related to aerodrome operational management. Annex 14, Volume I includes SARPs in these areas providing, in most cases, only general requirements; however, there is a lack of global operational procedures that would assist States to achieve compliance with the SARPs.

2.4 For example, Annex 14, Volume I provides SARPs for obstacle limitation surfaces and general requirements for obstacle removal but not for procedures on how to manage and control obstacles in the vicinity of aerodromes. The USOAP audits indicate that at many aerodromes worldwide, there is a lack of procedures on how to inspect and identify obstacles in the vicinity of aerodromes, initiate action to deal with obstacle control, coordinate with different stakeholders and find resolutions for the sake of safety and efficiency. A similar situation exists in many other aspects of aerodrome operational management, including wildlife/bird hazard management, winter operations, work in progress at aerodromes, maintenance and aerodrome surveillance inspections.

2.5 Annex 14, Volume I specifies general requirements for certification of aerodromes. The Annex requires that aerodromes be certified in accordance with the specifications contained in the Annex as well as other relevant ICAO specifications through an appropriate regulatory framework. However, it does not address operational procedures dealing with existing aerodromes. In reality, many existing aerodromes worldwide were not built to the full design standards specified in the existing Annex 14, Volume I and, in certain cases, it is impossible or impracticable for those aerodromes to render their infrastructure to be in accordance with the Annex design Standards. This mainly relates to physical characteristics of an aerodrome, including different separation distances. This situation is highlighted by the introduction of the A380 operations at a number of existing aerodromes. In order to ensure safety and enhance aerodrome operational efficiency, operational procedures should be put in place and should be taken into consideration in the aerodrome certification process. There might be a need to distinguish between the certification of newly-built aerodromes and that of existing aerodromes.

2.6 Currently, Annex 14, Volume I specifically provides for aeronautical studies to be conducted in respect of taxiway minimum separation distances, certain parts of obstacle limitation requirements and visual aids for navigation and for obstacles. As reflected in the USOAP audit results, there is a need to provide uniform requirements on procedures for conducting and reviewing aeronautical studies to ensure an acceptable level of safety in aerodrome operations.

3. STATUS OF PANS-AGA

3.1 The status of a PANS document is described in the Foreword of *Procedures for Air Navigation Services — Air Traffic Management* (PANS-ATM, Doc 4444) and *Procedures for Air Navigation Services - Aircraft Operations* (PANS-OPS, Doc 8168). Based on the principles in these documents, PANS-AGA would be complementary to the SARPs contained in Annex 14, Volume I. PANS-AGA would be approved by the Council and recommended to Contracting States for worldwide application.

3.2 While PANS-AGA might contain material which may eventually become SARPs when it has reached the maturity and stability necessary for adoption, as such, it could also comprise material prepared as an amplification of the basic principles in the corresponding SARPs and designed particularly to assist the user in the application of those SARPs. PANS-AGA could present coverage of operational practices that are beyond the scope of SARPs but with respect to which a measure of international uniformity is desirable.

3.3 PANS do not carry the status afforded to Standards adopted by the Council and, therefore, do not fall under the obligation imposed by Article 38 of the Convention to notify differences in the event of non-implementation. The attention of States, however, should be drawn to the provision of Annex 15 and Assembly Resolution A36-13, Appendix D, Associated Practice 3, related to the publication in Aeronautical Information Publications of significant differences between national procedures and the related ICAO procedures.

3.4 It should be noted that, since SARPs and PANS are complementary and not contradictory, a need could arise in the development of PANS-AGA to amend certain provisions in Annex 14, Volume I. For example, new provisions might be needed in Annex 14, Volume I to allow for the application of operational procedures at existing aerodromes in the process of aerodrome certification. Similarly, a need might arise to transfer some detailed provisions from Annex 14, Volume I to PANS-AGA.

3.5 It is envisaged that part of the PANS-AGA would derive from material already in Annex 14, Volume I as well as the manuals. Since PANS-AGA would be of a higher status than guidance material contained in the manuals, there might be a need to amend/revise some of the existing AGA-related technical manuals, including the *Airport Planning Manual* (Doc 9184), *Aerodrome Design Manual* (Doc 9157) and *Airport Services Manual* (Doc 9137) in order to be consistent with the PANS-AGA.

4. SCOPE AND CONTENTS OF PANS-AGA

4.1 PANS-AGA would specify, in greater detail than in the SARPs, the operational procedures to be applied by aerodrome operators to ensure aerodrome operational safety and to enhance aerodrome operational efficiency. PANS-AGA would also specify procedures to be applied by both aerodrome regulators and operators for initial aerodrome certification and continuing aerodrome safety oversight.

4.2 Subject to further modifications, a draft Table of Contents of PANS-AGA is proposed in the appendix, which outlines the major areas that this document would address.

4.3 It should be noted that the PANS-AGA would be a living document. New contents would be added as operational issues arise in the future. The first edition of the document would focus on high-priority issues such as operational procedures at existing aerodromes, as well as other operational management issues where most States need guidance as revealed by the USOAP audits.

5. ORGANIZATION AND SCHEDULING OF WORK ON THE DEVELOPMENT OF PANS-AGA

5.1 It is proposed that a Study Group on PANS-AGA (PASG) be established by the Secretariat to carry out the work on the development of a PANS-AGA document.

5.2 The work could be divided into the following phases:

a) Phase I, establishment of the PASG (September 2009);

b) Phase II, first draft of the document (December 2011);

c) Phase III, review of the document by the Secretariat (June 2012);

d) Phase IV, review of the document by the Commission (December 2012);

e) Phase V, approval by the Council (March 2013); and

f) Phase VI, revision of selected manuals affected by PANS-AGA (2015).

5.3 Given the resources available in the AGA Section of the Secretariat and taking into account the work programme of the AP, it is proposed that certain items of the AP be deferred until the completion of the development of PANS-AGA. These would include the development of new SARPs and guidance material on aerodrome certification, as these provisions, especially those for the existing aerodromes, would also be addressed in the development of PANS-AGA.

6. ACTION BY THE AIR NAVIGATION COMMISSION

6.1 The Air Navigation Commission is invited to:

a) note the feasibility study on the development of PANS-AGA;

b) agree that a PANS-AGA document be developed to address procedures for aerodrome operational management;

c) agree that the PASG be established by the Secretariat to undertake the work on the development of PANS-AGA;

d) note the proposed scheduling of work on the development of PANS-AGA; and

e) agree that items in the work programme of the AP on aerodrome certification be deferred as a result of the scheduling of the work on the development of PANS-AGA.

— — — — — — — —

APPENDIX

DRAFT PANS-AGA TABLE OF CONTENTS

AN-WP/8379
Appendix

Chapter 3. Aerodrome Operational Management

3.1 Airside inspection
- 3.1.1 Inspection of movement area
- 3.1.2 Inspection of aprons
- 3.1.3 Inspection of visual aids
- 3.1.4 Inspection of electrical systems
- 3.1.5 Management of FODs
- …

3.2 Obstacle control and management
- 3.2.1 Criteria for Identification of obstacles
- 3.2.2 Procedures for controlling obstacles
- 3.2.2 Coordination with stakeholders
- 3.2.3 Action to be taken
- …

3.3 Wildlife hazard management
- 3.3.1 Wildlife hazard assessment
- 3.3.2 Wildlife hazard information collection and reports
- 3.3.3 Coordination with stakeholders
- 3.3.4 Actions to be taken
- …

3.4 Winter and adverse weather operations
- 3.4.1 Runway surface friction measuring and reporting
- 3.4.2 Snow and ice removal
- 3.4.3 De-icing and anti-icing
- 3.4.4 Low visibility conditions
- 3.4.5 Other adverse weather operations
- …

3.5 Work in progress at aerodromes
- 3.5.1 Promulgation of information about work in progress at aerodromes
- 3.5.2 Safety procedures for work in progress at aerodromes
- …

3.6 Aerodrome emergency planning
- 3.6.1 Purpose & responsibility
- 3.6.2 Coordination of agencies
- 3.6.3 Plans, maps & exercises
- …

3.7 Rescue and Fire Fighting

3.7.1 Determination of category
3.7.2 Deployment of services & personnel
3.7.3 Operational requirements
3.7.4 Training and human factors
…

3.8 Disabled aircraft removal
3.8.1 Plan for the removal of disabled aircraft
3.8.2 Coordination with stakeholders
3.8.3 Implementation of the plan for the removal of disabled aircraft
…

3.9 Apron management
3.9.1 Scope of apron management
3.9.2 Agencies involved in apron management
3.9.3 Procedures for apron management
3.9.4 Vehicles operating at aprons
…

3.10 Aerodrome vehicle operations
3.10.1 Procedures for the control of access to movement area
3.10.2 Use of visual aids
3.10.3 Requirements for driving on the movement area
3.10.4 Drivers training programme
…

3.11 Aerodrome maintenance
3.11.1 Aerodrome maintenance programme
3.11.2 Maintenance of pavements
3.11.3 Maintenance of runway surface conditions
3.11.4 Maintenance of visual aids
…

3.12 ILS/MLS critical/sensitive areas
3.12.1 General
3.12.2 Restricted areas
3.12.3 Control
…

3.13 Aerodrome accident/incident safety occurrence reporting
3.12.1 Criteria for safety occurrence reporting
3.12.2 Agencies involved in the reporting
…

Chapter 4. Operational Procedures at Existing Aerodromes

4.1 Principles of adopting operational procedures
4.2. Runways
4.3 Runway shoulders
4.4 Runway strip
4.5 Runway end safety area
4.6 Taxiways
4.7 Taxiway shoulders
4.8 Taxiway minimum separation distances
4.9 Declared distances
4.10 Pavements
4.11 Emergency planning and rescue and fire fighting
4.12 Others
…

Chapter 5. Aeronautical Studies

5.1 Scope and applicability of aeronautical studies
5.2 Basic considerations
5.3 Procedures for conducting aeronautical studies
5.4 Approval of an aeronautical study
5.5 Publication of information
…

Appendices

1. Check list of aerodrome certification process
2. Check list of initial aerodrome inspection
3. Examples of aeronautical studies
…

— END —