INTERNATIONAL CIVIL AVIATION ORGANIZATION

REPORT OF THE THIRD MEETING OF THE RUNWAY AND GROUND SAFETY WORKING GROUP

(RGS WG/3)

(Cairo, Egypt, 19 – 22 September 2016)

The views expressed in this Report should be taken as those of the MID Region Runway and Ground Safety Working Group (RGS WG) and not of the Organization. This Report will, however, be submitted to the RASG-MID and any formal action taken will be published in due course as a Supplement to the Report.

Approved by the Meeting
and published by authority of the Secretary General

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PART I – HISTORY OF THE MEETING

1. PLACE AND DURATION

1.1 The Third meeting of the Runway and Ground Safety Working Group (RGS WG/3) was held in the Meeting Room of the ICAO Middle East (MID) Regional Office, Cairo, Egypt, from 19 to 22 September 2016.

2. OPENING

2.1 The meeting was opened by Mr. Mohamed Smaoui, Deputy Regional Director, ICAO Middle East Office, Cairo. Mr. Smaoui welcomed all the participants to Cairo and wished them a successful and fruitful meeting.

2.2 Mr. Smaoui commended the achievement made by the RGS WG over the past years and highlighted the need to develop criteria for prioritization and implementation plans under the ICAO No Country Left Behind (NCLB) initiative.

2.3 Mr. Smaoui emphasized that States and stakeholders need to share experience and best practices in order to provide recommended actions related to the implementation of the Safety Enhancement Initiatives (SEIs). He also reiterated that the Runway Safety Go-Team is one of the effective initiatives to share experience and invited the MID States to benefit from this programme and request Go-Team Visits to enhance runway safety.

3. ATTENDANCE

3.1 The meeting was attended by a total of thirty eight (38) participants from seven (7) States (Egypt, Iran, Kuwait, Saudi Arabia, Sudan, UAE and USA) and one (1) International Organization (IATA). The list of participants is at **Attachment A**.

4. OFFICERS AND SECRETARIAT

4.1 The meeting was chaired by Mr. Mohammad Faisal Al Dossari, Director Air Navigation & Aerodromes Department, General Civil Aviation Authority, UAE.

4.2 Mr. Adel Ramlawi, Regional Officer, Aerodromes and Ground Aids (AGA) was the Secretary of the meeting, supported by Mr. Mohamed Smaoui, Deputy Regional Director (DEPRD).

5. LANGUAGE

5.1 Discussions were conducted in English and documentation was issued in English.

6. AGENDA

6.1 The following Agenda was adopted:

Agenda Item 1: Adoption of the Provisional Agenda

Agenda Item 2: Global and Regional Development related to RGS

Agenda Item 3: Implementation of Aerodrome Safety priorities and objectives in the MID Region

Agenda Item 4: Coordination between RASG-MID and MIDANPIRG in the area of Aerodromes

Agenda Item 5: AOP Air Navigation Deficiencies

Agenda Item 6: Future Work Programme

Agenda Item 7: Any other business

7. CONCLUSIONS AND DECISIONS – DEFINITION

7.1 All RASG-MID Sub-Groups and Task Forces record their actions in the form of Conclusions and Decisions with the following significance:

a) **Conclusions** deal with matters that, according to the Group's terms of reference, merit directly the attention of States and its stakeholders/partners, or on which further action will be initiated by the Secretary in accordance with established procedures; and

b) **Decisions** relate solely to matters dealing with the internal working arrangements of the Group and its subsidiary bodies.

8. LIST OF DRAFT CONCLUSIONS AND DRAFT DECISIONS

DRAFT CONCLUSION 3/1: *IMPLEMENTATION OF PANS–AERODROMES*

DRAFT CONCLUSION 3/2: *ADOPTION OF ISAGO AND IGOM FOR GROUND HANDLING OPERATIONS*

DRAFT CONCLUSION 3/3: *DEVELOPMENT OF ADDITIONAL GROUND HANDLING OPERATIONS PROVISIONS*

DRAFT CONCLUSION 3/4: *EXPANSION OF THE RSP SCOPE*

DRAFT CONCLUSION 3/5: *RGS SEI ON GROUND HANDLING OPERATIONS AND SAFETY*

DRAFT DECISION 3/6: *DEVELOPMENT OF RGS/7 DIP*

PART II: REPORT ON AGENDA ITEMS

REPORT ON AGENDA ITEM 1: ADOPTION OF THE PROVISIONAL AGENDA

1.1 The meeting reviewed and adopted the Agenda as at paragraph 6 of the History of the Meeting.

REPORT ON AGENDA ITEM 2: GLOBAL AND REGIONAL DEVELOPMENT RELATED TO RGS

Outcome of RASG-MID/5

2.1 The meeting was apprised of the outcome of RASG-MID/5 meeting (Doha, Qatar, 22-24 May 2016) and noted the RASG-MID/5 developed eighteen (18) Conclusions and Decisions as listed at **Appendix 2A**.

First Edition of the Procedures for the Air Navigation Services – Aerodromes (PANS-Aerodromes – Doc 9981)

2.2 The subject was addressed in WP/4 presented by the Secretariat. The meeting was apprised of the first edition of PANS-Aerodromes (Doc 9981) which was approved on 20 October 2014 by the President of the Council and will become applicable on 10 November 2016.

2.3 The first edition of PANS-Aerodromes addresses priority areas revealed by the Universal Safety Oversight Audit Programme (USOAP) in the areas of aerodrome certification, conduct of safety assessments, and compatibility studies. The PANS-Aerodromes provisions specify operational procedures in greater details than the Standards and Recommended Practices (SARPs) in Annex 14 – Aerodromes Volume I. These procedures are to be applied by both aerodrome regulators and operators in the priority areas to ensure aerodrome operational safety and to improve overall system capacity and efficiency in a globally harmonized manner.

2.4 The meeting urged States and service providers to implement the provisions of the PANS– Aerodromes and to publish up-to-date lists of significant differences from this document in their AIP by 10 November 2016. Accordingly, the meeting agreed to the following Draft Conclusion:

DRAFT CONCLUSION 3/1: IMPLEMENTATION OF PANS–AERODROMES

That, States that have not yet done so, be urged to:

a. update their national regulations for implementation of the provisions of the PANS-Aerodromes;

b. publish up to date lists of significant differences from this document in their AIP; and

*c. send feedback to the ICAO MID Office by **31 December 2016**.*

2.5 The meeting noted that some MID States have already taken steps toward implementation of the PANS-Aerodromes whereas others indicated the need for training on the new provisions and latest amendments to Annex 14 Vol I. Accordingly, the meeting agreed that a Workshop on the PANS-Aerodromes will be held back-to-back with the RGS WG/4 meeting. Experts from those who participated in the development of PANS-Aerodromes might be invited to the Workshop subject to availability of fund.

IATA Initiatives to Promote Safe and Efficient Ground Handling Operations

2.6 The subject was addressed in WP/3 presented by IATA. The meeting noted that IATA, in collaboration with the ground handling industry and other stakeholders, has taken the initiative to develop industry standards and systems that enhance the safety and increase the efficiency of ground handling operations. The initiative is also designed to achieve effective cost benefits through the sharing of information that eliminates the need to duplicate the audit of ground handling operations by airlines.

2.7 The meeting was apprised of IATA Integrated Solution for Ground Operations which includes IATA Safety Audit for Ground Operations (ISAGO) and IATA Ground Operations Manual (IGOM). It was highlighted that the IATA integrated solution establishes a system for the development and continuous improvement of industry provisions and oversight complementary to global regulations.

2.8 The meeting noted that ground handling operations are a source of significant personnel safety and aircraft/equipment damage concerns. The complexity of ground handling operations has increased with widespread airport development and traffic growth, corresponding to larger numbers and size of aircraft.

2.9 The meeting commended the initiatives made by IATA in the area of Ground Handling Operations and recommended adoption of these initiatives by MID States and service providers. Accordingly, the meeting agreed to the following Draft Conclusion:

DRAFT CONCLUSION 3/2: ADOPTION OF ISAGO AND IGOM FOR GROUND HANDLING OPERATIONS

That, MID States be invited to:

a) encourage airlines and aerodrome operators to implement the procedures contained in the IATA Ground Operations Manual (IGOM) for harmonization purpose and to improve safety of Ground Handling Operations; and

b) use the IATA Safety Audit for Ground Operations (ISAGO) as a source of safety data which provide complementary information for the safety oversight activities of ground handling operations services.

2.10 In the same vein, the meeting invited ICAO to develop additional provisions for Ground Handling Operations and agreed to the following Draft Conclusions:

DRAFT CONCLUSION 3/3: DEVELOPMENT OF ADDITIONAL GROUND HANDLING OPERATIONS PROVISIONS

That, ICAO be invited to consider the development of additional Ground Handling Operations provisions.

DRAFT CONCLUSION 3/4: EXPANSION OF THE RSP SCOPE

That, ICAO be invited to consider the expansion of the ICAO Runway Safety Programme (RSP) scope from the runway strip to the movement area (including aprons).

2.11 The meeting recognized the need to develop a RASG-MID Safety Enhancement Initiative (SEI) on Ground Operations and agreed to the following Draft Conclusion:

DRAFT CONCLUSION 3/5: RGS SEI ON GROUND HANDLING OPERATIONS AND SAFETY

That, an RGS SEIs (RGS/7) on Ground Handling Operations and Safety be developed.

2.12 IATA expressed interest to champion the above mentioned SEI in coordination with ICAO and MID States. It was highlighted that the SEI DIP may include RASG-MID Safety Advisory (RSA) and a Seminar on ground handling to be jointly organized by ICAO and IATA. The meeting noted with appreciation UAE's interest to host the Seminar. Accordingly, the meeting agreed to the following Draft Decision:

DRAFT DECISION 3/6: DEVELOPMENT OF RGS/7 DIP

That, IATA champion the SEI MID-RAST/RGS/7 on Ground Handling Operations and safety, and proceed with the development of the associated Detailed Implementation Plan (DIP) in coordination with the ICAO MID Regional Office and MID States.

REPORT ON AGENDA ITEM 3: IMPLEMENTATION OF AERODROME SAFETY PRIORITIES AND OBJECTIVES IN THE MID REGION

Update on Development and Implementation of SEIs & DIPs related to RGS

3.1 The subject was addressed in WP/5 presented by the RGS WG Chairperson. The meeting recalled that MID-RAST/RGS/1 related to Un-stabilized Approach has been transferred to be addressed under the CFIT DIPs and that the SEI related to Safety Management System (SMS) has been transferred to the Safety Support Team (SST).

MID-RAST/RGS/2

3.2 The meeting noted with appreciation that the DIP actions have been fully completed. It was recalled that the MID-RAST/RGS/2 focuses on the development of guidance material and training programmes to support the creation of action plans by the Runway Safety Team (RST) and that UAE is the Champion of this SEI. A summary of actions related to the MID-RAST/RGS/2 DIP is at **Appendix 3A.**

MID-RAST/RGS/3

3.3 The MID-RAST/RGS/3 focuses on the development of guidance material and training programmes to support Aerodrome Infrastructure and Maintenance Management. It was noted with appreciation that UAE, the Champion of this SEI, has completed four (4) out of the five (5) required actions of this DIP.

3.4 A summary of actions related to the MID-RAST/RGS/3 DIP is at **Appendix 3B**.

MID-RAST/RGS/4

3.5 The meeting recalled that MID-RAST/RGS/4 focuses on Aerodrome Safeguarding. Egypt is the Champion of this DIP with the support of UAE and Sudan. A summary of the planned actions related to the MID-RAST/RGS/4 DIP is at **Appendix 3C**.

3.6 The meeting reviewed a draft RASG-MID Safety Advisory (RSA) on Aerodrome Safeguarding as at **Appendix 3D**. The meeting appreciated the work achieved by the Aerodrome Safeguarding team composed of Eng. Angie Mostafa and Eng. Sahar Mostafa from Egypt with support from Mr. Mohammed Yousif from UAE and Mr. Fakhreldin Osman from Sudan. The meeting recommended endorsement of the RSA by the RSC.

3.7 As part of the RGS/4 DIP, Egypt offered to host the proposed Aerodrome Safeguarding Workshop in Sharm El Sheikh from 15 to 17 May 2017.

MID-RAST/RGS/5

3.8 The meeting recalled that MID-RAST/RGS/5 focuses on Wildlife Management and Controls. Sudan is the Champion of this DIP supported by Bahrain, Egypt, Oman, UAE and IFATCA. A summary of the planned actions related to the MID-RAST/RGS/5 DIP is at **Appendix 3E**.

3.9 The meeting reviewed a draft RASG-MID Safety Advisory (RSA) on Wildlife Management as at **Appendix 3F**. The meeting appreciated the work achieved by the Wildlife Management team composed of Mr. Fakhreldin Osman from Sudan, and Mr. Mohammed Yousif from UAE in addition to Eng. Ahmed Arafa, Dr. Waleed Elsagheer, and Mr. Usama Mohamed from

Egypt. The meeting recommended endorsement of the RSA by the RSC after circulation to the MID States for comments.

3.10 As part of the RGS/5 DIP, Sudan offered to host the proposed Wildlife Management Workshop during year 2018.

MID-RAST/RGS/6

3.11 The meeting recalled that MID-RAST/RGS/6 focuses on Laser Attacks. Egypt is the Champion of this DIP supported by Bahrain, Sudan and UAE. A summary of the planned actions related to the MID-RAST/RGS/6 DIP is at **Appendix 3G**.

3.12 The meeting reviewed draft RASG-MID Safety Advisory (RSA) and a case Study on Laser Attacks. The meeting appreciated the work achieved by RGS/6 team composed of Eng. Mahmoud Sharaf, Mr. Mohamed Mostafa from Egypt, Mr. Mohammed Yousef from UAE and Mr. Salah Alhumood from Bahrain. The meeting recommended endorsement of the RSA and the case Study by the RSC after circulation to MID States for comments. The meeting noted that the endorsement of the RSA by the RSC/5 meeting will conclude the successful completion of the MID-RAST/RGS/6 DIP.

Aerodrome Certification

3.13 The meeting reviewed the updated status of Aerodrome Certification in the MID Region as at **Appendix 3H**. It was highlighted that 32 out of 59 International Aerodromes (representing 54%) have been certified in the MID Region. It was highlighted that Sudan has certified El Obied International Airport (HSOB) on 31 July 2016 and plan to certify the last international aerodrome by end of 2016. The meeting commended the progress made by Sudan in the area of aerodrome certification and runway safety.

3.14 The meeting recalled that the AOP table of the MID ANP has been amended based on requests from Egypt, Iran and Sudan and now includes 59 International Aerodromes. It was highlighted that States need to notify the air carriers and aerodrome users of any change to aerodrome category or type of use.

3.15 Iran advised that Yazd International Airport (OIYY) has been recently certified and this will be confirmed by an official correspondence to the ICAO MID Regional Office. In addition, Saudi Arabia advised that Taief Airport, which is not in the MID ANP, has been certified. Accordingly, an official letter will be issued to the ICAO MID Regional Office requesting the inclusion of Taief airport in the MID ANP and confirming its certification.

3.16 In connection with the above, the meeting recalled that the AOP table of the MID ANP does not include some of the aerodromes that are required/used for international operations. Accordingly, the concerned States were invited to review the current ANP and send an updated list of international aerodromes to the ICAO MID Regional Office, taking into consideration the users' needs.

Fourth MID Annual Safety Report (MID-ASR)

3.17 The meeting reviewed the MID-ASR and recalled that the main Focus Areas in the MID Region are:

1- Runway Safety (RS);
2- Loss of Control In Flight (LOC-I); and
3- System Component Failure (SCF).

3.18 The MID-ASR showed a reduction of the Runway Safety related accidents from 3.98 per million departures for the period (2009-2013) to 2.68 for the period (2010-2014). However, this rate is higher than the global average of 2.05 for the same period.

3.19 The meeting highlighted the importance of accident and incidents reporting and implementation of the RASG-MID/5 Conclusion 5/3 that urged States to use ECCAIRS for the reporting of accidents and serious incidents; and send their feedback to the ICAO MID Office by 15 October 2016. In addition, the meeting recommended that records of Runway Safety related accidents, with contributing factors, should be submitted to ICAO MID Regional Office by end of each calendar year.

3.20 The meeting recognized the need for volunteers from the RGS WG members to review the ASR runway safety issues and provide suggestions to ASRT through ICAO MID Regional Office. Their main function will be to study trends, contributing factors, lessons learned and make recommendations. Eng. Atef Barakat, Mr. Ahmed Helmy, Mr. Mohamed Mostafa and Mr. Mohsen Mostafa from Egypt volunteered to play this role.

MID Region NCLB Strategy/Plan

3.21 The subject was addressed in WP/9 presented by the Secretariat. The meeting noted that the No Country Left Behind (NCLB) campaign highlights ICAO's efforts to assist States in implementing ICAO Standards and Recommended Practices (SARPs). The main goal of NCLB is to help ensure that SARP implementation is better harmonized globally so that all States have access to the significant socio-economic benefits of safe and reliable air transport.

3.22 The RASG-MID/5 meeting noted that the priorities identified by the RASG-MID and included in the MID Region Safety Strategy helped all stakeholders to work towards the achievement of the agreed safety targets and agreed that the implementation of the MID Region NCLB Strategy/Plan could provide means to overcome the regional challenges by collaboration of all stakeholders.

3.23 The meeting agreed that the following criteria should be considered for prioritization of required NCLB assistance in the aerodromes and RGS areas:

A

a) State's willingness to receive assistance;
b) Security and political stability;

B

c) USOAP-CMA overall Effective Implementation (EI);
d) USOAP-CMA EI in the aerodrome area;
e) percentage of aerodrome certification;
f) AOP air navigation deficiencies;
g) Aerodrome number, size, complexity and volume of traffic;

C

h) Type of operation and number of passengers;
i) runway safety related accidents/incidents;
j) establishment of Runway Safety Teams (RSTs); and
k) other safety related data (e.g. IATA, ACI, etc.).

3.24 The meeting agreed that the RGS action plans for NCLB will include assistance missions (to support aerodrome certification and improve USOAP EI), Runway Safety Go-Team Visits, Workshops and training programmes. NCLB target will include Egypt, Iran, Jordan, Lebanon and Sudan during 2016-2017 and tailored action plan will be prepared and implemented in coordination with each concerned State.

Follow-up and feedback on implementation of RSAs related to RGS

3.25 The subject was addressed in WP/11 presented by the Secretariat. The meeting noted that RASG-MID issued so far ten (10) RASG-MID Safety Advisories (RSAs), as part of the Safety Enhancement Initiatives (SEIs), out of them five (5) are developed by the RGS WG.

3.26 The meeting recalled that RASG-MID/5 meeting recognized the need to monitor the implementation of the RASG-MID Safety Advisories in the MID Region and tasked the different RASG-MID subsidiary bodies to follow-up with States and stakeholders the implementation of the published RSAs.

3.27 Egypt, Sudan and UAE confirmed using the RSAs which were found helpful in aerodrome certification, RST establishment and safety oversight.

3.28 The meeting recognized the need to promote the RSAs and agreed on the following initiatives:

a. Preparation of Questionnaire on States feedback related to the RSA's implementation. Champion: Eng. Angie, Egypt (Target date: November 2016).

b. Preparation of Power Point presentation to be delivered to Regional aviation events. Champion: Mr. Ahmed Helmy, Egypt. (Target date: January 2017.

c. Promotion on ICAO MID website (ICAO MID Regional Office).

d. Preparation of USB Tool kit including RSAs (to be sponsored by stakeholders).

e. Promotion Brochures. Champion: Ms. Michelle Soliman, UAE. (Target Date : February 2017).

Runway Safety Team and Go-Team

3.29 The meeting noted with appreciation that, as a follow-up to the RS Go-Team Visit to Khartoum, the UAE GCAA conducted a training course on Aerodrome Airside Operations in Khartoum, Sudan, 6 -10 September 2015. Also, the Egyptian Civil Aviation Authority conducted a training workshop on Aerodrome Safeguarding from 29 to 31 March 2016 to the Sudanese Civil Aviation Authority (SCAA).

3.30 Upon request from Kuwait Directorate General of Civil Aviation (DGCA), the second RS Go-Team visit was successfully conducted to Kuwait International Airport from 15 to 18 February 2016. In addition, the RS Go-Team conducted a visit to Jordan from 5 to 8 September 2016 to support RST establishment in Queen Alia International Airport. The Go-Team also provided training to the regulatory body on aerodrome certification.

3.31 Iran reported that RSTs have been established in Zahedan International Airport, Isfahan International Airport, and Yazd International Airport. Accordingly, the reported established RSTs became 25 as follows: Bahrain (1), Egypt (4), Iran (3), Kuwait (1), Saudi Arabia (4), Sudan (4) and UAE (8). This will raise the percentage of RST establishment to 42 % (the MID Safety Strategy target is 50% of the international aerodromes by 2020)

3.32 The meeting noted that ICAO in close collaboration with ACI has initiated a comprehensive Runway Safety Team study at the global level. As a first step an online survey will collect data on the location, setup and contact details of existing Runway Safety Teams. The survey is accessible via the ICAO RSP webpage: http://www.icao.int/safety/RunwaySafety/Pages/default.aspx

3.33 The meeting encouraged States to complete the RST online survey and reiterated that States should take necessary actions to ensure establishment of RST at international aerodromes and request RS Go-Team visit, as required.

Heliports

3.34 The meeting noted that the ICAO MID Regional Office has successfully conducted the ICAO Heliport Seminar (IHS), hosted by UAE, in Dubai from 8 to 10 December 2015. The Seminar highlighted the need for Heliport safety oversight and provided an overview of the operator's perspectives. The IHS Work Programme and outcomes are available at the ICAO MID Regional Office website: http://www.icao.int/MID/Pages/2015.aspx.

3.35 The outcomes of the IHS included the following recommendations:

1) encourage States to implement ICAO provisions related to Heliports (Annex 14 Volume II) through national Regulations and Safety Oversight. This should include implementation of adequate SMS;

2) encourage States to establish and maintain database for Heliports. This should include monitoring new Heliports construction;

3) invite ICAO to consider inclusion of core training elements (CAA inspectors & Heliport operator) as part of the Heliport Design and Services Manual; and

4) report the outcome of this Seminar to RASG-MID and share with the other RASGs.

3.36 The meeting noted the outcomes of the Fifth meeting of the MIDANPIRG Steering Group (MSG/5), held in Cairo, Egypt, 18-20 April 2016, related to the establishment of heliports database and urged MID States to implement the IHS recommendations.

The MID Region Safety Strategy related to RGS

3.37 The meeting reviewed the MID Region Safety Indicators status and Safety Targets related to RGS as detailed at **Appendix 3I**.

Aerodrome Emergency Plan and CAPSCA Programme

3.38 The subject was addressed in WP/14 presented by the Secretariat. The meeting recalled that the Aerodrome Emergency Plan (AEP) should include public health emergencies and that ICAO initiative which addresses public health is the Collaborative Arrangement for the Prevention and Management of Public Health Events in Civil Aviation (CAPSCA). CAPSCA

provides technical programmes, airport assistance visits, and training to support States, ANSPs and airport and aircraft operators' implementation of the public health related SARPs.\

3.39 The meeting noted that around 120 States joined CAPSCA programme and out of them 12 States are from the MID Region. The CAPSCA-MID member States are Bahrain, Egypt, Iran, Iraq, Jordan, Kuwait, Lebanon, Oman, Qatar, Saudi Arabia, Sudan and UAE.

3.40 The meeting was apprised of the outcomes of the Fifth CAPSCA Regional meeting (CAPSCA-MID/5) and Training Workshop which were hosted by Egypt in Cairo from 29 February to 3 March 2016. The CAPSCA-MID/5 Work Programme, presentations and report are available on the ICAO MID website: http://www.icao.int/MID/Pages/capsca-mid.aspx.

3.41 The meeting noted that CAPSCA-MID/6 meeting will be graciously hosted by Sudan in Khartoum from 20 to 22 February 2017 and encouraged MID States and International Organizations to actively participate.

3.42 It was highlighted that RASG-MID/5 meeting recognized the importance of CAPSCA programme to address public health issues and urged States that have not yet done so, to join the CAPSCA-MID project and request CAPSCA Assistance Visit. In addition, the meeting encouraged States to host and support future CAPSCA-MID events.

REPORT ON AGENDA ITEM 4: COORDINATION BETWEEN RASG-MID AND MIDANPIRG IN THE AREA OF AERODROME SAFETY

ASBU Implementation

4.1 The subject was addressed in WP/15 presented by the Secretariat. The meeting recalled that ASBU Modules B0-SURF and B0-ACDM, which have been identified by the MID Region Air Navigation Strategy as priority one, are directly related to aerodromes and need to be reviewed by the RGS WG.

B0-SURF

4.2 The meeting recalled that B0-SURF aims at enhancing safety and efficiency of surface operations through implementation of Advanced Surface Movement Guidance and Control System (A-SMGCS Level 1-2). In this respect, it was highlighted that Basic A-SMGCS provides surveillance and alerting of movements of both aircraft and vehicles on the aerodrome thus improving runway/aerodrome safety.

4.3 The Advanced Surface Movement Guidance and Control Systems (A-SMGCS) is an expansion of the Surface Movement Guidance and Control Systems (SMGCS) to improve capacity and safety by making use of modern technologies and a higher level of integration between the various functionalities.

4.4 A-SMGCS Levels 1-2 related to B0-SURF are to be implemented by a number of agreed international airports as included in the MID Region Air Navigation Strategy. Name of the applicable airports and implementation Performance Indicators/Supporting Metrics and Targets are included in Volume III of the MID eANP.

B0-ACDM

4.5 The meeting recalled that B0-ACDM aims at Improved Airport Operation through Airport Collaborative Decision Making (A-CDM). It was highlighted that A-CDM implementation will enhance surface operations and safety by making airspace users, ATC and airport operators better aware of their respective situation and actions on a given flight.

4.6 In order to support the implementation of B0-ACDM, the MID Regional Office has successfully conducted a Seminar on A-CDM in Bahrain from 11 to 13 October 2015. The Seminar was graciously hosted by Bahrain Civil Aviation Affairs and sponsored by Bahrain Airport Company (BAC).

4.7 The A-CDM Seminar was attended by a total of sixty five (65) participants from four (4) MID States (Bahrain, Qatar, Sudan, and United Arab Emirates) and seven (7) Organizations/Industries (ACI, Airbus, CANSO, Deutsche Flugsicherung (DFS), Eurocontrol, IATA and IFATCA).

4.8 The Work Programme and the presentations delivered during the Seminar are available at the ICAO MID Regional Office website: http://www.icao.int/MID/Pages/2015/A-CDM%20Seminar.aspx.

4.9 The outcomes of the A-CDM Seminar included the following Recommendations:

1) MID States and stakeholders to consider the establishment of A-CDM Committee to foster the implementation of A-CDM at the airports identified by the MID Air Navigation Strategy and request assistance from ICAO MID Regional Office, if needed.

2) Terminal congestion, particularly in adverse weather conditions, should be considered as part of the A-CDM.

3) Roles and responsibilities of regulators, aerodromes, air operators, ground handling agents and ATC should be clearly defined for A-CDM implementation.

4) ICAO to consider the above elements in drafting the A-CDM manual.

4.10 Based on the above, the MSG/5 meeting (Cairo, Egypt, 18-20 April 2016) agreed on the following Draft Conclusion:

DRAFT CONCLUSION 5/1: ACTION PLAN FOR A-CDM IMPLEMENTATION

That, MID States be urged to develop their action plan for A-CDM implementation in line with the MID Air Navigation Strategy.

4.11 The meeting reviewed the agreed targets and updated the status of implementation of the ASBU Modules B0-SURF and B0-ACDM as reflected at **Appendix 4A**.

4.12 The meeting highlighted that B0-ACDM implementation progress is below expectation and some States requested additional training and workshop to have a better understanding and support implementation by airports. It was agreed that a State Letter will be issued by the ICAO MID Regional Office requesting MID States to provide status of A-CDM implementation progress, challenges, and action plan.

4.13 The meeting noted that ICAO will organize ATFM Seminar to be hosted by UAE in Dubai from 13 to 15 December 2016 and encouraged MID States to actively participate.

REPORT ON AGENDA ITEM 5: AOP AIR NAVIGATION DEFICIENCIES

Review of the AOP Air Navigation Deficiencies

5.1 The subject was addressed in WP/16 presented by the Secretariat. The meeting recalled that MIDANPIRG/15 (Bahrain, 8 – 11 June 2015) re-iterated that the identification and reporting of Air Navigation Deficiencies by User-Organizations contribute significantly to the enhancement of air navigation safety in the MID Region. Nevertheless, the meeting noted with concern that the use of the MID Air Navigation Deficiency Database (MANDD) is far below expectations.

5.2 MIDANPIRG/15 urged States and authorized Users to use the MANDD for the submission of requests for addition, update, and elimination of Air Navigation Deficiencies and accordingly, agreed to the following Conclusion:

CONCLUSION 15/35: AIR NAVIGATION DEFICIENCIES

That, States be urged to:

a) use the MID Air Navigation Deficiency Database (MANDD) for the submission of requests for addition, update, and elimination of Air Navigation Deficiencies, including the submission of a specific Corrective Action Plan (CAP) for each deficiency; and

b) submit a Formal Letter to the ICAO MID Regional Office containing the evidence(s) that mitigation measures have been implemented for the elimination of deficiency(ies) when requesting the elimination of deficiency(ies) from the MANDD.

5.3 The meeting noted that, as a follow-up action to MIDANPIRG Conclusion 15/35, the ICAO MID Regional Office issued State Letter Ref.: AN 2/2-15/351 dated 29 December 2015 requesting States to take all necessary measures to send their feedback on the actions taken to the ICAO MID Regional Office, not later than 31 January 2016.

5.4 The meeting reviewed and updated List of Deficiencies in the AOP field as at **Appendix 5A**.

5.5 In addition, the meeting noted that IFALPA reported to ICAO MID Regional Office their updated Annex 29 sheets (October 2015) for the MID Region as at **Appendix** 5**B**. The concerned States were invited to review the reported deficiencies and provide the ICAO MID Regional Office with their feedback and action plans in order to update the MID List of AOP Air Navigation Deficiencies.

REPORT ON AGENDA ITEM 6: FUTURE WORK PROGRAMME

6.1 The subject was addressed in WP/17 presented by the Secretariat. Taking into consideration the expected dates for the RASG-MID/6, it was agreed that the RGS WG/4 meeting be planned for the fourth quarter of 2017. Accordingly, the meeting agreed on the following tentative schedule for 2017:

- Aerodrome Safeguarding Workshop: 15-17 May 2017
- RGS WG/4: 5-7 November 2017
- PANS-Aerodromes Workshop: 8-9 November 2017
- ICAO-IATA Ground Handling Seminar: Fourth quarter 2017 or first quarter 2018)

6.2 The meeting noted with appreciation the interest of Egypt to host the Aerodrome Safeguarding in Sharm El Sheikh and also to host the RGS WG/4 together with the PANS-Aerodromes Workshop in Hurgada. In addition, the meeting noted with appreciation the offer from UAE to host the ICAO-IATA Seminar. These plans will be coordinated and confirmed by official communications with the ICAO MID Regional Office.

REPORT ON AGENDA ITEM 7: ANY OTHER BUSINESS

7.1 Nothing has been discussed under this Agenda Item.

APPENDICES

APPENDIX 2A

RASG-MID/5 CONCLUSIONS AND DECISIONS

CONCLUSIONS AND DECISIONS
CONCLUSION 5/1: ICAO USOAP-CMA IMPLEMENTATION *That, States:* *a) be urged to prioritise and take action as needed to improve their safety oversight system, with particular attention to:* *i. the implementation of Corrective Action Plans (CAP) and reporting the progress on the On-line Framework (OLF); and* *ii. the completion of the self-assessments and uploading of the relevant evidences on the OLF;* b) *are encouraged to request assistance from ICAO, as required.*
CONCLUSION 5/2: IATA-IOSA PROGRAMME *That, States be encouraged to use all sources of safety data for the conduct of their safety oversight activities, including the IATA IOSA results, which provide complementary information for the safety oversight activities; and send their feedback to the ICAO MID Office by **15 October 2016**.*
CONCLUSION 5/3: USE OF ECCAIRS *That, States that have not yet done so, be urged to use ECCAIRS for the reporting of accidents and serious incidents; and send their feedback to the ICAO MID Office by **15 October 2016**.*
DECISION 5/4: FOURTH MID ANNUAL SAFETY REPORT *That, the Fourth Edition of the MID Annual Safety Report (ASR) is endorsed and be published on the ICAO MID website.*
DECISION 5/5: ESTABLISHMENT OF AIA WG CORE TEAM *That, the AIA WG Core Team composed of the following experts, is established to advance the work of the AIA WG between the face-to-face meetings:* – *Mr. Adnan Mohamed Malak from Saudi Arabia (Chairman);* – *Ms. Leena Ahmed Al Koohej from Bahrain;* – *Mr. Amr Mokhtar from Egypt;* – *Mr. Hassan Rezaeifar from Iran;* – *Dr. Abdallah Falah Suleiman Al-Samarat from Jordan;* – *Mr. Kamil Ahmed Mohamed from Sudan;* – *Ms. Rose Al Osta from IATA;* – *Capt. Fadi Khalil from IFALPA;and* – *Mr. Mashhor Alblowi from ICAO.*

CONCLUSIONS AND DECISIONS
DECISION 5/6: iSTARS ADREP OCCURRENCE DATA FORM *That, the AIA WG Core Team:* *a. further review and finalize the iSTARS ADREP Occurrence Data Form;* *b. develop guidelines for the use of the Form;* *c. establish a validation process of data provided; and* *d. develop standard and limited lists of main root causes and contributing factors to be included in the Form.*
CONCLUSION 5/7: PROVISION OF SAFETY DATA USING iSTARS APPLICATION *That, States be urged to allow their regulators and service providers (ANSPs, Aerodrome Operators, Airlines, etc.) to provide/share available data related to safety occurrences using the dedicated iSTARS application.*
DECISION 5/8: RASG-MID SAFETY ADVISORY: PERIODIC SURVEILLANCE AUDIT OF AERODROME INFRASTRUCTURE AND MAINTENANCE *That, the RASG-MID Safety Advisory at **Appendix 3E** is endorsed and be published by the ICAO MID Office.*
DECISION 5/9: AIRPLANE STATE AWARENESS (ASA)-LOW AIRSPEED ALERTING *That, the RASG-MID Safety Advisory related to Airplane State Awareness (ASA)-Low Airspeed Alerting at **Appendix 3K** is endorsed and be published by the ICAO MID Office.*
DECISION 5/10: STANDARD OPERATING PROCEDURES EFFECTIVENESS AND ADHERENCE *That, the RASG-MID Safety Advisory related to Standard Operating Procedures effectiveness and adherence at **Appendix 3L** is endorsed and be published by the ICAO MID Office.*
DECISION 5/11: AIRPLANE STATES AWARENESS (ASA) -TRAINING FLIGHT CREW TRAINING (APPROACH TO STALL & UPSET RECOVERY) VERIFICATION AND VALIDATION *That, the RASG-MID Safety Advisory related to the Airplane States Awareness (ASA) -Training –Flight Crew Training (Approach to Stall & Up set recovery) Verification and Validation at **Appendix 3M** is endorsed and be published by the ICAO MID Office.*
DECISION 5/12: SST REVISED TERMS OF REFERENCE (TORS) *That, the Terms of Reference of the SST be revised as at **Appendix 3O**.*

CONCLUSIONS AND DECISIONS
CONCLUSION 5/13: ACAC/ICAO AIG WORKSHOP *That,* *a) a joint ACAC/ICAO AIG Workshop be organized in 2017;* *b) the Strategy for the establishment of a Middle East RAIO be finalized by the Workshop, for final endorsement by RASG-MID and the ACAC Executive Council; and* *c) States are encouraged to attend and support the Workshop.*
DECISION 5/14: REVISED MID REGION SAFETY STRATEGY *That, the revised version of the MID Region Safety Strategy (Revision 4, May 2016) at **Appendix 3R** is endorsed.*
DECISION 5/15: ENDORSEMENT OF RASG-MID PROCEDURAL HANDBOOK-THIRD EDITION *That, the RASG-MID Procedural Handbook-Third Edition at **Appendix 4A** is endorsed.*
DECISION 5/16: RSC TERMS OF REFERENCE (TORS) *That,* *a) the RSC* is delegated the authority to approve on behalf of the RASG-MID: *1) the MID Annual Safety Reports;* *2) the RASG-MID Safety Advisories; and* *3) those Draft Conclusions/Decisions emanating from the subsidiary bodies, which necessitate urgent follow-up action(s).* *b) the RSC TORs should be updated to reflect the above.*
CONCLUSION 5/17: REVISION OF THE RASGS TERMS OF REFERENCE *That, ICAO consider the revision of the RASGs Terms of Reference (TORs) taking into consideration the latest developments including the outcomes of the HLSC 2015 and ICAO NCLB Initiative.*
CONCLUSION 5/18: REMOTELY PILOTED AIRCRAFT SYSTEM (RPAS) OCCURRENCES *That, States be urged to report any safety occurrence related to RPA operations to the ICAO MID Regional Office on regular basis, for review and analysis by the Accident and Incident Analysis Working Group (AIA WG).*

APPENDIX 3A

DIP Tracking for MID-RAST/RGS/2

Development guidance material and training programmes to support the creation of action plans by local aerodrome Runway Safety Teams (RST)

RGS/2 DIP Deliverable	Target Date	Status	Comments
✓ Develop and issue Stop Bar guidance documentation for consideration of LRSTs	End April 2014	Completed	RASG-MID Safety Advisory (RSA-01) circulated to States on 2 November 2014 (Ref: ME 4-14/253)
✓ Organise a Workshop for Regional RST Go-Teams	End June 2014	Completed	3 June 2014 – see *RASG-MID/4 WP/7 - Outcome of MID-RRSS/2* for details
✓ Develop and issue regulatory framework supporting establishment of LRSTs	End September 2014	Completed	RASG-MID Safety Advisory (RSA-02) circulated to States on 20 January 2015 (Ref: ME 4-15/014)
✓ Develop and issue a model checklist for LRSTs	End December 2014	Completed	RASG-MID Safety Advisory (RSA-03) circulated to States on 16 March 2015 (Ref: ME 4-15/078)

APPENDIX 3B

DIP Tracking for MID-RAST/RGS/3

Development guidance material and training programmes to support Aerodrome Infrastructure and Maintenance Management

RGS/3 DIP Deliverable	Target Date	Status	Comments
✓ Conduct a MID-Regional Runway Safety Seminar	End June 2014	Completed	4 June 2014 – see *RASG-MID/4 WP/7 - Outcome of MID-RRSS/2* for details
✓ Organise a Regional Aerodrome Certification Workshop	End June 2014	Completed	4 June 2014 - see *RASG-MID/4 WP/7 - Outcome of MID-RRSS/2* and *RASG-MID/4 WP/8 - Runway Safety Related Issues*
✓ Develop a MID-Region Aerodrome Certification toolkit for States.	End March 2015	Completed	RASG-MID Safety Advisory (RSA-05) published on 10 September 2015 (Ref: ME 4-15/261)
✓ Develop and issue guidance material on periodic surveillance audits of Aerodrome Infrastructure and Maintenance	End March 2016	Completed	RASG-MID Safety Advisory (RSA-10) published August 2016 (Ref: ME 4-16/232)
Develop and issue guidance material on proactive oversight of Aerodrome Infrastructure Development	End November 2016	In Progress	

APPENDIX 3C

DIP Tracking for MID-RAST/RGS/4

Aerodrome Safeguarding

RGS/4 DIP Deliverable	Target Date	Status	Comments
✓ Safeguarding Guidance Toolkit	April 2016	In Progress	Draft RASG-MID Safety Advisory (RSA-xx) circulated to MID States and in final stage
Regional Workshop	May 2017	Not started	

APPENDIX 3D

MID-Region Aerodrome Safeguarding Toolkit

Appendix A

These guidelines are developed by the Runway and Ground Safety Working Group (RGS WG), as part of MID-RAST/RGS/3 DIP deliverables, based on the work of the Egyptian Civil Aviation Authority in collaboration with the ICAO MID Regional Office within the framework of RASG-MID the Regional Aviation Safety Group - Middle East (RASG-MID).

Disclaimer

This document is intended to provide guidance for civil aviation regulators, aerodrome operators and other stakeholders involved in aerodromes infrastructure and maintenance.

The document has been compiled by members of the aviation industry to enhance aviation safety. It is not intended to supersede or replace existing materials produced by the State or in ICAO SARPs. The distribution or publication of this document does not prejudice the State's ability to enforce existing National regulations. To the extent of any inconsistency between this document and the National/International regulations, standards, recommendations or advisory publications, the content of the National/International regulations, standards, recommendations and advisory publications shall prevail.

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ADVICE NOTE 1

INTRODUCTION

1. BACKGROUND

1.1 Safeguarding has been identified by the MID Region Annual Safety Report Team (RAST) as one of three main risk areas (Focus Areas) to be addressed under the MID Region Aviation Safety Group (RASG-MID) framework.

1.2 The MID-RAST RGS has undertaken a Safety Enhancement Initiative (SEI) to develop guidance material and training programs to support creation of action plans for Safeguarding.

1.3 The Detailed Implementation Plan (DIP) for the SEI included the action to develop and issue regulatory framework supporting establishment of Safeguarding teams.

2. PURPOSE

The purpose of this circular is to propose a regulatory framework to support the creation and success of a national Safeguarding System supported by the following elements:

(Chapter 1)

1- Primary Regulationsto be included in the national regulations that are relevant to Safeguarding stakeholders who hold primary responsibility for Safeguarding of aerodromes. Ministerial decrees that may have been or are to be issued to promote aerodrome safeguarding (e.g. providing for coordination between Aviation and local planning authorities, establishment of a national aerodrome safeguarding committee, establishment of aerodrome safeguarding areas underlying the OLS, PANS-OPS, OAS surfaces and other critical areas that must be safeguarded so as to ensure safe operations of aircraft and national aerodromes) are to be also included. In the model framework this has been identified as the Civil Aviation Authority and Aerodrome Operator,

(Chapter 2)

2- Supporting Regulations to be included in the national regulations relevant to other Authorities who have not been identified as primarily responsible for safeguarding of aerodromes.

(Chapter 3)

3- Guidance Material to be developed in support of the regulations and to provide details regarding the conduct of the Safeguarding entity. This is to be considered in conjunction with ICAO annex 14 and related documents as well as PANS-OPS and related documents.

(Chapter 4)

4- Oversight Material to be developed and added to the existing safety oversight procedures of national regulators. This material can also be used by the Safeguarding stakeholders for their internal safety assurance processes.

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USING THIS CIRCULAR

The Table of Contents provides key points of the regulatory framework supporting the creation of a nation aerodrome Safeguarding management system.

The reader will go through the steps of building its own safeguarding management system and could make any changes to any part the way it suite their needs and assure the implementation of acceptable level of aerodrome safeguarding.

1.4

This circular as it serves to further empower national authorities in their efforts to support establishment of Safeguarding system through model national regulation, guidance materials.

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Chapter 1

Primary Regulation

1.1 Application

It is recommended the below model regulation be included in the national regulation relevant to the stakeholder primarily responsible for aerodrome safeguarding in order to support the development of a national aerodrome safeguarding management system. In this example those stakeholder are the CAA and Aerodrome Operator.
The regulation is high level, noting it is aligned with aerodrome certification and safety management system principles. The regulation also provides a positive requirement for the CAA and aerodrome operator to ensure participation of all relevant stakeholders

1.2 Model Regulation

Aerodrome Safeguarding Management System

1.2.1 The ECAA Should:

1.2.1.1 Ensure that rights are established in the national law and relevant regulations, for Safeguarding of all aerodromes according to ICAO requirements including control of human activity within safeguarding areas, with definition of the word human activities (construction; lights; material used; change of land use; laser; …….) and clear statement on the Local Planning Authorities' mandatory duty to report any existing and proposed human activity within aerodrome safeguarding areas to the CAA for assessment;

1.2.1.2 Review and endorse:

- Safeguarding requirements for each aerodrome and,
- Safeguarding management system that has been put in place by the aerodrome operator;

1.2.1.3 Audit aerodromes operators to ensure efficient implementation of the aerodrome safeguarding management system;

1.2.1.4 Carry out safeguarding regular inspections;

1.2.1.5 Ensure that CAA safeguarding personnel are invested with judicial officer's right to access to such places as may be necessary to carry out the safeguarding inspections and audits and testing;

1.2.1.6 Define the entities invested with the power to impose the national law penalties in the event of detection of aerodrome safeguarding violations

1.2.2 **The Aerodrome Operator should**:

1.2.2.1 Establish safeguarding management system acceptable to CAA that, as a minimum complies with the requirements of the national safeguarding regulation and includes requirements such as:

a. Establishment of safe guarding team with clear organizational structure;
b. Establishment of obstacles' monitoring system and procedures.
c. Ways of identifying obstacle and Dealing with them
d. Procedures and documentations needed to contact CAA for assessment of new development around aerodromes; and
e. Land use roles and restrictions.
f. Terrain and obstacles data collection, according to QMS

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1.2.2.2 Comply with the requirements stipulated in the CAA National Regulations and related laws regarding Safeguarding;

1.2.2.3 Establish, lead and implement Safeguardingrequirement to promote safety and the exchange of safety-relevant information; and

- Put in place Safeguarding monitoring system, and procedures for implementation
- Require the organisations operating or providing services at the aerodrome to be involved in such system.

1.2.3 Supporting Ministerial Decree(s) should include:

1.2.3.1 Definitions/ description and purpose of OLS and other protection surfaces which define distances and slopes needed for Runway, Radar and Navigation Aids in addition to any other restriction needed.

1.2.3.2 Establishment of Safeguarding committee. The Committee shall convene regularly, identify and review national aerodrome safeguarding issues, review and decide on permit applications referred thereto concerning existing or proposed constructions located within the areas underlying the aerodrome safeguarding areas, examine possible solutions and needs for action. Minutes of such meetings, should be kept for reference and information as required. .

1.2.3.3 Recommended Composition of the National Safeguarding Committee includes, but not limited to, representatives of:

a. Civil Aviation Authority
b. Aerodrome Operator;
c. Radar and Air Navigation Service Providers (ILS, VOR, , MICOWAVE….);
d. Operational representative; and
e. Other Stakeholders as needed.

It is also recommended to include the herein below listed provisitions in the Primary regulation provisions related to the following:

a. Definitions Obstacle Limitation Surfaces Obstacle Limitation Requirements
b. Terrain and Obstacle Data Collection
c. Obstacles Restriction and Removal
d. Inspection
e. Assessment
f. Exemption
g. Shielding Principle
h. Objects outside OLS
i. Other Objects
j. Land Use Hazard
k. Enforcement

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CHAPTER 2

2.1 Supporting regulation

2.1.1 It is recommended the following model regulation be included in the national regulation relevant to the stakeholder who are critical to the success of the Safeguarding Management system, but are not primarily responsible for the establishment of the system.

2.1.2 The critical stakeholders are:

a. Local Planning Authority
b. Any land Owner (personnel or organization)
c. Communication and Advertising Companies

2.2 Model Regulation

2.2.1 **Local Planning Authority (Housing Law) should** :

a. Ensure that issued building permits for constructions within the aerodrome safeguarding areas do not have adverse impacts on safety of aircraft operation;
b. Ensure that safeguarding violations are removed or reduced as monitored.
c. Effect continuous coordination with Civil Aviation Authorities before any:
   - change of Land Use
   - planning of new Urban areas
d. Ensure that the property owner shall be responsible compliance with the maximum d height and other conditions, if any, stipulated in the Aviation permit issued, using the right tools of measurements.

2.2.2 **Land owners (personnel or organizations) should**:

a. Notify CAA, sufficiently in advance, prior to commencement of any procedures for type of development on their land if such is located in the vicinity of an aerodrome. The said notification should include, inter alia, detailed particulars of the land (boundaries, elevation of highest point) and details of the proposed development..
b. Comply with CAA's conditions or restrictions on the proposed development, if any.

2.2.3 **Communication and Advertising Companies should** :

a. Notify CAA, sufficiently in advance, prior to commencement of any procedures for carrying out any installations within areas underlying the aerodrome safeguarding protection surfaces. The said notification should include, inter alia, detailed particulars of the proposed installation, as appropriate (e.g. location, elevation of highest point, frequencies..etc.).
b. Comply with CAA's conditions or restrictions on the proposed installation , if any.

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Chapter 3

GUIDANCE MATERIAL

3.1 Application

The following guidance is recommended to be adopted to support the model regulation for the aerodrome safeguarding stakeholder. In this example that stakeholder is the Aerodrome Operator.

3-2 Model Guidance for Aerodrome Safeguarding Management System

.

Aerodrome Safeguarding Management System

3.2.1**The Aerodrome Operator should**:

a. Develop charts of the OLS, PANS OPS and other protection surfaces within and outside the aerodrom on charts as per ICAO requirements (national regulation requirements) and seek endorsement thereof by CAA;
b. Coordinate with Local Planning Authority and other authorities to improve safety outside aerodrome
c. Establish an adequately staffed and equipped aerodromesafeguarding entity.
d. Organize, coordinate and implement aerodrome safeguarding programs to ensure protection of the airspace essential to the safe operation of aircraft at and around the aerodrome.
e. Coordinate and promote the exchange of information and the joint inspections of areas underlying the aerodrome safeguarding surface , with the aerodrome safety management team as well as businesses and communities in the vicinity of the aerodrome, as appropriate;
f. Ensure the aerodrome safeguarding entity is supported by a Policy and Procedures manual including clear details of the organizational structure, job descriptions, procedures for inspection, reporting of inspection results, dealing with existing and potential obstructions..etc.
g. Identify existing removable and non-removable obstacles at the aerodrome and outside the aerodrome (location, height, nature and use), and undertake the mandatory reporting actions, as appropriate;
h. Implement suitable strategies and procedures to remove hazardous obstacles or when this is not immediately possible, to undertake the necessary actions to manage and mitigate the risk, including publication Aeronautical Information Publication.

Note: The criteria used to establish and chart the several types of the aerodrome safeguarding surfaces are contained in ICAO Annex 14, ICAO PANS OPS document ICAO Annex 4 — Aeronautical Charts, and related documents thereof .

3.2.2. CAA should :

a) Establish and implement national safeguarding system to promote safety inside or outside all aerodromes; which include but not limited to:

1. Develop the Aviation law and regulations of safeguarding foundation and enforcement according to ICAO annex 14 and related documentations and State rules.

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2. Assign Safeguarding team/division in charge of safeguarding and auditing of the aerodromes.
3. Support technical and audit operator's safeguarding team/departments
4. Review and approve aerodromes' OLS maps according to national regulations
5. Have Obstacles assessment system policy and procedures.

b) Arrange with Local Planning Authority, concerned ministries and all other parties on aerodrome safeguarding as follows:
1. Provide formal notifications of safeguarding protection area on maps for each aerodrome to the relevant Local Planning Authority
2. Review all urban future development within State level .to ensure that none may adversely affect aerodrome future development.
3. Review and approve different land use locations (industrial, commercial in addition to any wind-farms, electricity poles, communication antennas and advertising high masts)
4. Review all new roads and bridges including light poles and traffic patterns in area adjacent to aerodromes.
5. Other information as may be necessary, for example, landscaping details to enable the birdstrike potential to be assessed, or the types of cladding materials proposed so that the potential for radar reflection can be modeled.
6. As part of the Aerodrome Certificate, CAA has to review/ accept all Obstacles data and the relevant aeronautical studies and make sure that publication in the AIP is made as per the relevant regulations.
7. Audit and support operator's safeguarding Monitoring system to take necessary actions when needed;
8. Taking all measures to ensure that obstacles are removed, lowered, marked or lit
9. Apply law enforcement in case of violations;
10. liaise with appropriate planning authorities and companies that erect tall structures, to determine potential infringements. Every effort should be made to implement the OLS standards and limit the introduction of new obstacles. However, when a new obstacle is detected, the aerodrome operator must ensure that the information is passed on to pilots, through NOTAM, in accordance with the standards for aerodrome reporting procedures set out in the relevant regulations

3.2.3Aerodrome Safeguarding Division should:

Have Specialized training to ensure:

a) Understanding safeguarding management and obstacles assessment.

b) Familiarization of safeguarding duties; responsibilities and data collection.

c) Good use of safeguarding tools.

d) Accurate obstacle data collection and reporting.

e) Put in place and implement an effective plan for monitoring including contingency monitor.

f) Development and implementation of safeguarding filing system.

g) Detection of changes in the obstacle environment, marking and lighting and in human activities or land use on the aerodrome and the

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areas around the aerodrome, as defined in coordination with the competent authority

h) Take the necessary actions to report to the procedure any changes of the status of the existing critical obstacles and any proposed development that is likely to be higher than the critical obstacles within the area depicted by the procedure designer.

i) Immediately report to CAA any violation or potential obstacle or new buildings, navigation aid equipment's or changes of use to any building within the aerodrome fence.

j) Conduct an obstacle survey by competent surveyor to establish the initial coordinates and details of obstacles and conduct periodic surveys thereafter.

k) Ensure that the runway and taxiway strip areas are free from obstacles or objects which are considered hazardous to aircraft operations unless required to be there for air navigation purposes.

l) Mitigate the risks associated with changes on aerodrome and its surroundings identified with the monitoring procedures.

m) Define the scope, limits, tasks and responsibilities for the monitoring in coordination with the relevant local authorities and air traffic services providers, and other relevant authorities

n) Assess and mitigate the risks caused by human activities and land use which shall include but not limited to the following:

- Obstacles and the possibility of induced turbulence;
- Use of hazardous, confusing, and misleading lights;
- Dazzling caused by large and highly reflective surfaces;
- Sources of non-visible radiation, or the presence of moving, or fixed objects which may interfere with, or adversely affect, the performance of aeronautical communications, navigation and surveillance systems; and
- Non-aeronautical ground light near an aerodrome which may endanger the safety of aircraft and which should be extinguished, screened, or otherwise modified so as to eliminate the source of danger.

o) Protect area around the aerodrome visual aid outside aerodrome boundary all means of land acquisition (leasing, purchasing etc) or preventing new developments or extensions to existing structures from infringing the OLS.

p) Report to CAA any infringement or potential infringement of the OLS .of nature and location of obstacles, and any subsequent addition, or removal of obstacles for action as necessary, including amendment of the AIS publications,

q) Take necessary measures to assess the risks resulting from an infringement of OLS to identify whether or not the object creates an unacceptable risk or not, and carry out the necessary actions to remove the obstacle or mitigate the risk as appropriate to protect aircraft using the aerodrome

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r) Publish and mark, when needed and where necessary, and make visible by means of lights any remaining obstacles.

s) Provide electronic obstacle data for all obstacles in Area 2 (the part within the aerodrome boundary) that are assessed as being hazardous to air navigation.

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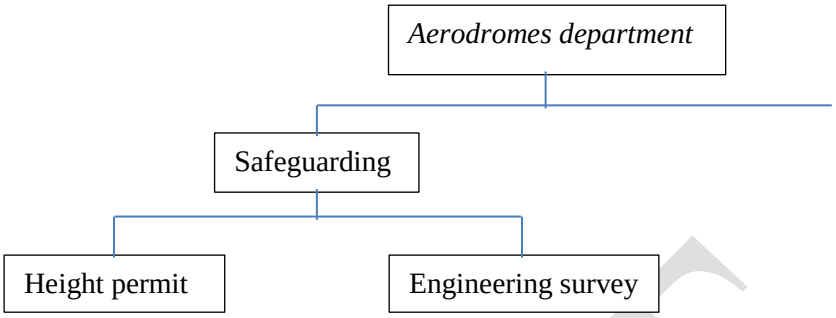
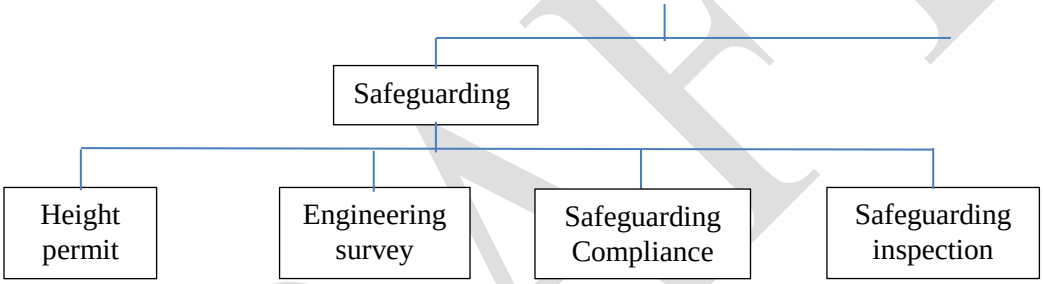
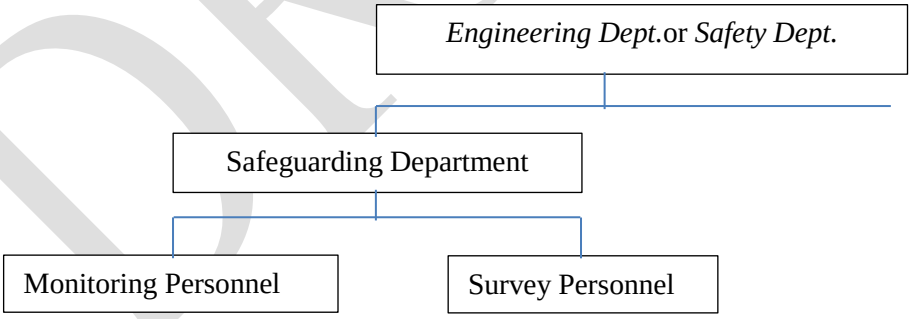
Examples of Typical Organizational Structure of Aerodrome Safety Management System



CAA Safeguarding Structure (Basic)



CAA Safeguarding Structure (Advanced)



Operator's Safeguarding Structure

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Chapter 4

OVERSIGHT MATERIAL

4.1 Application

It is recommended the below questions are incorporated in existing safety oversight processes of national regulators in order to oversight the implementation and effectiveness of the model primary and supporting regulations.

The materials in section 4.2 may also be used by the aerodrome safeguarding prim stakeholder who holds primary responsibility for aerodrome safeguarding as part of their internal assurance audit processes.

The below checklists elements are recommended for aerodrome safeguarding activities.

4.2 Model Oversight Checklists

Model Checklist : Elements for Safeguarding Management System (within each of CAA and Aerodrome Operator)

Model Checklist : Elements for Aerodrome Safeguarding Division Terms of Reference

Model Checklist: Elements for Aerodrome Safeguarding Division Composition

Model Checklist: Elements for Composition of CAA Committee for Aerodrome Safeguarding

Model Checklist : Scope of Works of Aerodrome Safeguarding entity at the Aerodrome

Model Checklist : Scope of Works of Aerodrome Safeguarding entity at CAA

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Appendix B

MID-Region

Safeguarding Of Aerodromes

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Date of Issue:	April 2016
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Document Ref. No.:	RASG-MID/MIDRAST/RGS/SEI/04-1
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These guidelines are developed by the Runway and Ground Safety Working Group (RGS WG), as part of MID-RAST/RGS/4 DIP deliverables, based on the work of the Egyptian Civil Aviation Authority in collaboration with the ICAO MID Regional Office within the framework of RASG-MID the Regional Aviation Safety Group - Middle East (RASG-MID).

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INTRODUCTION

Safeguarding - An Overview

1. The Purpose of this Advice Note

The purpose of this Safety Advisory is to provide guidance on the Safeguarding of aerodromes by controlling proposed developments in areas surrounding aerodromes.

This publication explains the process; duties and responsibilities that will be adopted by the civil aviation regulators, service providers and concerned stakeholders.

2. Background

In the early days of aviation, the rights of property owners were considered to extend from the surface downward to the centre of the earth and upward to infinity. Accordingly, the owner was free to erect structures on his land to unlimited heights and any encroachment in the airspace by others constituted a trespass. This meant that aircraft could not fly over private property at any altitude without permission of each property owner. Obviously, that policy could have prevented the development of civil aviation and scheduled air transportation. So, legislatures modified the ownership doctrine to specify that a property owner has exclusive rights to the airspace over his land only to the greatest height which he might reasonably be expected to use, with a right of free public transit through the air above such height.

When buildings encroach on the airspace needed for aircraft operations, restrictions limiting the aircraft operations should be established in the interest of safety. Such restrictions could seriously affect orderly and efficient air transportation to an airport and adversely affect the economy of the communities served by the airport.

Control of obstacles in the vicinity of airports is, therefore, a matter of interest and concern to national governments, local communities, property owners, and airport operators as well as civil aviation authorities (CAA). There are severe legal, economic, social and political limitations to what can be achieved by any of these interests with respect to an existing airport where obstacles already exist.

3. What is Safeguarding?

The word “Safeguard” means, according to the Concise Oxford Dictionary, “a proviso, stipulation, quality or circumstance, that tends to prevent something undesirable”, while “Aerodrome” is a defined area where aircraft can land, take-off, taxi or park, and includes airfields, airports, heliports, etc.

4. Purpose of Safeguarding

Thus, the purpose of Aerodrome Safeguarding is to take the measures necessary to ensure the safety of aircraft, and thereby the passengers and crews aboard them, while taking-off or landing, or while flying in the vicinity of an aerodrome.

Safeguarding is achieved by a process of checking proposed developments so as to:

- protect the blocks of air through which aircraft fly, by preventing penetration of surfaces created to identify their lower limits (the minimum obstacle clearance altitude (MOCA);
- protect the integrity of radar and other electronic aids to air navigation, by Preventing reflections and diffractions of the radio signals involved;

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- protect visual aids, such as Approach and Runway lighting, by preventing them from being obscured, or preventing the installation of other lights which could be confused for them; and
- avoid any increase in the risk to aircraft of a bird strike by preventing any land use that may cause increase in hazardous bird species in the vicinity of the aerodrome and, whenever the opportunity arises, to reduce the level of risk.

Safeguarding of Aerodromes is implemented by establishing a series of protection imaginary surfaces around each aerodrome as follows:

5. Safeguarding Protection Types

5.1 Obstacle Limitation Surfaces (OLS):

a. Obstacle Limitation Surfaces (OLS) represent the lower limit of the blocks of protected airspace around an aerodrome. They take the form of a complex set of 3-Dimensional surfaces, which extend upwards and outwards from the runway(s).

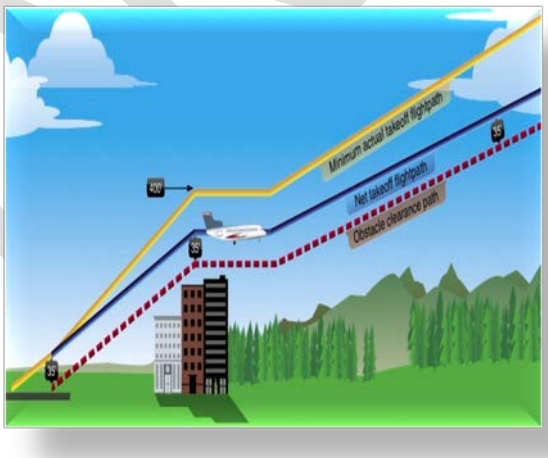
b. The OLS completely surround the aerodrome, but those surfaces aligned with the runway(s) used to protect aircraft landing or taking-off can be more limiting than those surrounding the rest of the aerodrome, particularly as you get closer to the aerodrome. Details of the OLS found in Appendix A.

5.2 PANS-OPS :

a. Surfaces established by designers of Procedures for Air Navigation Services and Aircraft Operations (PANS-OPS) are intended to safeguard an aeroplane from collision with obstacles when flying on instruments.

b. PANS-OPS specify the size and dimensions of the obstacle-free airspace needed for the approach, for the missed approach initiated at or above the OCA/H and for the visual maneuvering (circling) procedure.

c. Visual maneuvering (circling procedures) described in PANS-OPS, is a visual extension of an instrument approach procedure. The size of the area for a visual maneuvering (circling) varies with the flight speed.



d. It is permissible to eliminate from consideration a particular sector where a prominent non-removable obstacle exists by- establishing appropriate operational procedures.

a. In many cases, the size of the area will be considerably larger than that covered by the Annex 14 inner horizontal surface (as shown in figure below). Therefore circling altitudes/height calculated according to PANS-OPS for actual operations

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may be higher than those based only on obstacles penetrating the inner horizontal surface area (Appendix B)

(more information in Annex 6)

5.3 **Basic ILS surfaces:**

"The basic ILS surfaces" defined in PANS-OPS represent the simplest form of protection for ILS operations. These surfaces are extensions of certain Annex 14 surfaces, referenced to runway threshold level throughout and modified after threshold to protect the instrument missed approach.

The airspace bounded by the basic ILS surfaces is however usually too conservative and therefore another set of surfaces, "obstacle assessment surfaces", is specified in PANS-OPS. (Appendix C)

5.4 **Obstacle Assessment Surfaces (OAS):**

Obstacle Assessment Surfaces (OAS) establish a volume of airspace, inside which it is assumed the flight paths of aeroplanes making ILS approaches and subsequent missed approaches will be contained with sufficiently high probability.

5.5 **Radar and other Electronic Aide to Air Navigation:**

In low visibility conditions pilots are entirely dependent on the accuracy of the information displayed on the instruments in the cockpit to navigate and land their aircraft. Similarly, air traffic controllers rely on the accuracy of the information displayed on the radar screens in front of them to maintain safe separation between aircraft. It is essential, therefore, that this information has not been distorted by interference to the radio signals involved used in the operation of the navigation aids.
All effort has to be done to safeguard Navigation aid's protection area needed for each of (radar / VOR / Microwave line…..), by:

a. Contacting the Manufacturer company to provide all information about dimensions and slops of protection area for each electronic aids and any restriction needed
b. Minimizing the effect of sources of non-visible radiation, or the presence of moving, or fixed objects that may interfere with, or adversely affect, the performance of aeronautical communications, navigation and surveillance systems.

5.6 **Visual Aids:**

Visual aids, consisting primarily of aeronautical ground lighting, assist pilots to line up the aircraft with the runway when approaching to land. These have to be protected by:

- preventing them from being obscured;
- preventing the installation and display of other lights, particularly street lighting, in a pattern or color which could be mistaken for visual aids;
- preventing a high level of background lighting which could diminish their effectiveness;
- Preventing other lights which could dazzle pilots.

5.7 **Control Tower:**

Aerodrome operator should do all effort needed to provide protection needed to keep control tower line of sight clear form any obstacles.

6. Duties and Responsibilities:

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A regulatory frame should be in place supported by law and includes clear duties and responsibilities for each of CAA, aerodrome operators and any other entity related to the implementation of aerodrome safeguarding management system. Full description of all types of protection surfaces including OLS should be included therein.
Provisions depicting the roles of enforcement against any violation; and relation between aviation authority and other authorities should be incorporated in the national law. Such provisions should include, but not limited to the following:

6.1 State/Regulator should:

a. Develop the Aviation law and regulations of safeguarding foundation and enforcement according to ICAO annex 14 and related documentations without any conflict to state's other laws and regulations.
b. Assign Safeguarding team/division in charge of safeguarding and auditing of the aerodromes.
c. Support technical and audit operator's safeguarding team/departments
d. Review and approve aerodromes' OLS maps according to national regulations
e. Have Obstacles assessment system and procedures in place.
f. Arrange with Operators and Local Planning Authority (LPA), concerned ministries and all other parties involved in aerodrome safeguarding protection area as follows:
    - Provide formal notifications of safeguarding protection area attached to maps of protection surfaces for each aerodrome in the state to LPA
    - Review all urban future development within State level to assure that none may affect aerodrome future development.
    - Review and approve different land use locations (industrial, commercial in addition to any wind-farms, electricity poles, communication antennas and advertising high masts
    - Review all new roads and bridges with its light poles in area adjacent to aerodromes.
    - Other information as may be necessary, for example, landscaping details to enable the birdstrike potential to be assessed, or the types of cladding materials proposed so that the potential for radar reflection can be modeled.
g. As part of the Aerodrome Certificate, CAA has to review/ accept all Obstacles' data and its aeronautical studies and make sure that all are published in AIP.
h. Audit and support operator's safeguarding Monitoring system to take necessary actions when needed.
i. Taking all measures to insure that obstacles are removed, lowered; marked or lit.
j. Apply law enforcement in case of violation.

6.2 Aerodrome Operator

Each aerodrome operator shall:

a. Observe the National Laws, Regulations and Advice Notes related to Aerodromes including all guidance materials issued by the competent authority on Safeguarding.
b. Establish and implement aerodrome safeguarding protection applicable to the aerodrome on a map to be reviewed and certified by CAA.
c. Designate members of the Aerodrome staff as an official team / department to be responsible for aerodrome safeguarding and furnish them with proper equipment and training to carry out their duties efficiently,
d. Establish procedures to:

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1. monitor all human activities and developments within areas underlying the OLS.
2. identify the critical obstacles associated with the Non Precision Approach (NPA) procedures and have them recorded in the Aerodrome Manual.
3. report to the procedure designer any changes of the status of the existing critical obstacles and any proposed development that is likely to be higher than the critical obstacles within the area depicted by the procedure designer
4. monitor changes in the obstacle environment, marking and lighting
5. monitor land use activities on the aerodrome and the areas surrounding the aerodrome, as specified in the relevant regulations, in coordination with the competent authorities
6. immediately report to CAA any violations, potential obstacles or new buildings, changes of navigation aid equipment or changes of use of any building within the aerodrome fence.
7. conduct an obstacle survey by competent surveyor to establish the initial coordinates and details of obstacles and conduct periodic surveys thereafter.
8. ensure that the runway and taxiway strip areas are free from obstacles or objects which are considered hazardous to aircraft operations unless required to be there for air navigation purposes.
9. mitigate the risks associated with changes on aerodrome and its surroundings identified by the monitoring procedures.

e. Define the scope, limits, tasks and responsibilities for the monitoring process, in coordination with the local authorities and air traffic services providers, and other relevant authorities
f. Assess the risks caused by human activities and land use, determine the tolerability thereof and define the mitigation measures required. Risks to be assess should include but not limited to:
    1. Obstacles and the possibility of induced turbulence;
    2. Use of hazardous, confusing, and misleading lights;
    3. Dazzling caused by large and highly reflective surfaces;
    4. Sources of non-visible radiation, or the presence of moving, or fixed objects which may interfere with, or adversely affect, the performance of aeronautical communications, navigation and surveillance systems; and
    5. Non-aeronautical ground light near an aerodrome which may endanger the safety of aircraft and which must be extinguished, screened, or otherwise modified so as to eliminate the source of danger.
g. Protect area around aerodrome visual aid located outside aerodrome boundaries by all means of land acquisition (leasing, purchasing etc) or by preventing new developments or extensions to existing structures from infringing the aerodrome safeguarding protection surfaces;
h. Notify CAA of any infringement or potential infringement of the aerodrome safeguarding protection surfaces providing the nature and location of obstacles, and report any subsequent addition, or removal of obstacles for action as necessary , including amendment of the AIS publications,
i. Take necessary measures to assess the risks resulting from an infringement of OLS to identify whether or not the object creates an unacceptable risk or not, and carry out the necessary actions to remove the obstacle or mitigate the risk as appropriate to protect aircraft using the aerodrome.
j. Publish and mark, when needed and where necessary, and make visible by means of lights any remaining obstacles.
k. Provide electronic obstacle data for all obstacles in Area 2 (the part within the aerodrome boundary) that are assessed as hazardous to air navigation.

Note: Aerodrome operators need to liaise with appropriate planning authorities and companies that erect tall structures, to determine potential infringements. Every effort

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should be made to implement the OLS standards and limit the introduction of new obstacles.

When a new obstacle is detected, the aerodrome operator must ensure that the information is passed on to pilots, through NOTAM, in accordance with the standards for aerodrome reporting procedures set out in the relevant Regulations.

7. Obstacle's Mechanism

7.1 Planning Phase:

a. Safeguarding Process should be included in the LPAs legislation as an integral part of the planning procedure.
b. LPAs are advised by law to contact CAA before issuance of any building certificate, or define any land use.
c. The LPAs then refer to CAA/defined party of any new urban Planning within OLS area, to insure it meets certain criteria relating the height; location and type of use or any other restriction.
d. In addition, any proposed developments with bird attractant properties or any wind farms within 30km of an aerodrome will also be referred for consultation.

Who should apply:

- Any property owner / investors
- Local national Planning authority (LNPA)
- Aerodrome operator

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7.2 **Documents Assessment Phase:**

To enable accurate assessment of a proposed development, CAA should require certain information to be provided by LPA/Owner as followed:

a. Position: an accurate map reference from a 1:50,000 scale ordnance survey map so that the exact position may be plotted OR
b. Grid Reference (to at least 6 figures for each of easting and northing);
c. The ground elevation of the proposed location referred to mean sea level(MSL) [to an accuracy of ± 0.25m];
d. Application showing the following information:
    - Responsibility: Owner's name and address(for legal action in case the need to apply enforcement)
    - Height: required height referenced to MSL measured from the highest point of the building- or above ground level (where exact figures are not available, to the nearest 5 feet).
    - Type of use (industrial, commercial, poles, electricity towers …..ect……any additional clarification could help the processing of the application)
    - Other information may be necessary, as for example: landscaping details to enable the birdstrike potential to be assessed, or the types of cladding materials proposed so that the potential for radar reflection can be modelled.

7.3 **Processing Phase:**

It is recommended to have a committee of relevant specialists to review and process application regarding to its impact on:

a. Aerodrome OLS
b. Obstacle Assessment Surfaces which protect Visual and Instrument Flight Paths;
c. Visual and Electronic Aids, including Radar, to Air Navigation;
d. Type of land use

7.4 **Following Assessment:**

The reply from the aerodrome(s)/CAA to the LPA will be any of the following:

- Aviation permit (no objection);
- Aviation conditioned permit [no objection subject to certain stated condition(s)];
- Aviation Objection letter (with reasons given).

7.5 **Duration and Renewal of Permit:**

a. CAA should define validation date to Aviation permits issued thereby taking into account normal time line of construction according to related law and
b. CAA should set rules for renewal of the permit, unless permit is surrendered by the permit is holder or revoked by the CAA in accordance with national regulation.

7.6 **Amendment of Permit:**

Provided that the requirements of OLS been met, CAA may amend a permit upon:

c. Formal request of the owner providing reasons.
d. Changes in the basic information due to inaccurate data/type of use formerly provided.
e. Changes related to regulation;
f. Change in the boundaries or component of the aerodrome (new runway or closure/extension of runway); or change of location or height of an aerodrome Navigation Aids.

7.7 **Interim Permit:**

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CAA may issue an interim height permit only for:

a. new urban areas to provide guidance on permitted type of use and permitted heights.
b. guidance for design/land evaluation purposes only

7.8 **Data Needed:**

a. Coordinates of highest point (or shown in a map) and;
b. Proposed type of use
c. Proposed height. (Above ground level)

7.9 **Compliance with Height Permits:**

a. Each aerodrome operator / property owner or local authority in areas cotangent to aerodromes should undertake the necessary arrangements to apply at CAA for compliance letter after completion of all construction work.
b. If survey process shows violation to the permitted height/use a letter should be issued to the owner to rectify the violation, and If no action is taken by the owner during the grace period specified therein , CAA/aerodrome operator should undertake all the necessary enforcement actions against such violation as prescribed by the relevant law and regulations.

7.10 **Exemption:**

a. An applicant or a permit holder may submit to the CAA petition to be exempted from compliance with a condition stipulated in the permit issued to him or from a requirement of the relevant Regulation as the case may be. The petition must be accompanied with a statement depicting the reasons of such petition and all the details and particulars that may be of support thereto. CAA should conduct an aeronautical study of the case to identify the associated hazards and analyze the consequent risks. Based on the study and analysis results, CAA may grant an exemption after identifying the appropriate practical measures that must be undertaken and whereby an equivalent level of safety can be attained, with bearing in mind the safety objective of regulations and the applicable standards so that the intent of the regulations is not circumvented
b. Exemption may be, only, given in cases defined as for public interests or if the object which constitutes the subject matter of the exemption petition is shielded by non-removable obstacle.
c. If exemption is granted for an object located within the areas underlying the safeguarding surfaces, especially the approach area of OFZ, the AIS should be notified of the exempted object location and all other details needed for publication as per the relevant Aviation Regulations. .

7.11 **Cancellation / Provoke of a Permit:**

A permit should be cancelled or provoked in case of:

a. non-compliance with requirements/restrictions cited therein
b. safety reasons;
c. new development of aerodrome and/or
d. new navigation aid.

A permit cancellation notification should be served upon the concerned parties (LPA, permit holder…) indicating the reasons for such cancellation

7.12 **Shielding Principle:**

CAA should set rules for applying the shielding principle to an obstacle shielded by and existing obstacle that does not adversely affect safety of civil aviation; depending on the location of such obstacle:

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a. Approach / take-off surface;
b. Runway sides; and
c. near navigation Aid protection area.

7.13 **Follow-up Phase:**
CAA should establish rules for following up implementation of and compliance with the issued aviation permit through aerodrome operator,

8. Objects outside the obstacle limitation surfaces:

8.1 Arrangements should be made to enable the CAA to be consulted concerning proposed construction beyond the limits of the obstacle limitation surfaces that :
a. extend to a defined height (for example 45m or more) above local ground level / or higher than the general tree height in the area
b. any communication antenna/ electricity poles/advertisement boards or poles……..etc.
c. wind farms, chimneys or any object that has outcome that could affect airspace safety,

8.2 In areas beyond the limits of the OLS, at least those objects which extend to a (defined height or) 120m or more above ground elevation should be regarded as obstacles, unless a special aeronautical study indicates that they do not constitute a hazard to aero planes.

Note: This study may have regard to the nature of operations concerned and may distinguish between day and night operations.

9. Other Objects:

9.1 Objects which do not project through the approach surface but which would nevertheless adversely affect the optimum sitting or performance of visual or non-visual aids should, as far as practicable,
a. be removed.
b. Marked and/or lit

9.2 Anything which may, in the opinion of the CAA after aeronautical study, endanger aeroplanes on the movement area or in the air within the limits of the inner horizontal and conical surfaces should be regarded as an obstacle and should be removed in so far as practicable.

Note: In certain circumstances, objects that do not project above any of the surfaces enumerated in national regulation may constitute a hazard to aeroplanes as, for example, where there are one or more isolated objects in the vicinity of an aerodrome.

9.3 Temporary and transient obstacles. Temporary obstacles as cranes and transient (mobile) obstacles, such as road / vehicles / rail carriages or ships, in close proximity to the aerodrome and which penetrate the OLS for a short duration, must be referred to CAA CASA to determine whether they will be a hazard to aircraft operations.

9.4 Fences or levee banks. A fence or levee bank that penetrates the OLS must be treated as an obstacle.

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10. Reporting:

Several countries have enacted Legislation or adopted regulations designed to assign responsibility for reporting new construction projects. The obligation to report such construction may rest with local agencies such as planning bodies or construction licensing authorities or with the developer himself. In some cases, height limits have been specified; these are generally consistent with the criteria of Annex 14, Chapter 4, below which local authorities may authorize a project without higher review.

If any part of a proposed development appears to penetrate an obstacle Limitation surface, then the project should be referred to CAA for review. This review would examine the effect of the envisaged construction on air navigating in general and on operation procedures in use in particular if the conclusion of the above study is that the proposed construction can be permitted under some conditions, these should also be identified, e.g. display of obstacle marking and lighting, Compliance with other appropriate measures for continued safety of air navigation, etc.

Finally, all concerned should be notified oh of the new construction through charts (in accordance with Annex 4 - Aeronautical Charts) and through Notices to Airmen (NOTAM) or Aeronautical Information Publications; (AIP) pursuant to Annex 15

11. Other Requirement should be included in Regulation:

11.1 Protection form Light or Laser emission

Each person proposing to operate a light or laser should notify the CAA in accordance to Law;

a. Because of its glare or effect on a pilot's vision, the light or laser is liable to endanger aircraft; or

b. for a laser, it would produce exposures in navigable air space exceeding the maximum permissible exposure defined for that laser; or it is likely to endanger aircraft by being mistaken for:

I. a light or part of a system of lights established or approved for display at or near an aerodrome; or

II. a light marking a hazard in navigable airspace.

11.2 Notice of use of weapons

Each person or each person representing an organization, proposing to use weapons that will fire or launch a projectile that will have a trajectory higher than 60 m should notify the CAA in accordance with related national regulation.

11.3 Notice of use of pyrotechnics

Each person proposing to stage a pyrotechnics display that will involve the firing or launching of a projectile that will have a trajectory higher than 60m shall notify the CAA in accordance with law.

11.4 Notice requirements.

a. Each person required by national regulation to provide notice to the CAA should complete related CAA form and submit it to the Director CAA at least 90 days prior to the proposed date of commencement of construction, alteration, or use.

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b. In the case of an emergency involving essential public services, public health, or public safety, that requires immediate construction or alteration of a structure, or use of a structure, lights, lasers, weapons, or pyrotechnics—
   - the notice requirements in previous paragraph should not apply;
   - the person responsible for the construction, alteration, or use should complete related CAA form and submit it to the Director within 5 days after the use, construction, or alteration

c. A person proposing to use lights, lasers, weapons, or pyrotechnics, in a control zone prescribed in national regulation during times when the appropriate ATS is on watch—
   I. is not required to provide notice under paragraph (a) and
   II. should complete related CAA form and submit it to the CAA at least 14 working days prior to the commencement of the use.

12. Land Use Hazard

12.1 **Wildlife:**

a. Birdstrikes collisions between birds and aircraft cost the aviation industry millions per year in damage and delays to aircraft and are a major hazard. Over 80% of birdstrikes occur on or close to aerodromes and their operators are required to take necessary steps to ensure that the birdstrike risk is reduced to the lowest practicable level.

b. The risk to aircraft arises from birds that move into the path of aircraft, either because they are on the aerodrome itself, or because they are crossing the airfield or its approaches as they move between sites which may be many kilometers outside the aerodrome. Aircraft are particularly vulnerable to collisions with large birds such as swans and flocks of small, medium and large birds such as Starlings, gulls and geese.

c. Birds are attracted to the vicinity of an aerodrome by various types of development, including water features, landfill sites, nature reserves, gravel extraction and landscaping.

d. The objective of the safeguarding process is to prevent any increase in, and where possible reduce, the birdstrike risk at an aerodrome. This may be possible by altering planning proposals to remove bird attractive features or, failing this, to object outright to those that cannot be adequately redesigned.

e. When determining whether a planning application will increase the birdstrike risk at an aerodrome the following factors will be taken into account:
   1. what types of development are attractive to which species of bird;
   2. whether birds will move from existing sites to the proposed one and, in the process, cross aircraft flight paths near to the aerodrome, or indeed move onto the aerodrome itself.
   3. where an LPA is consulted by a developer regarding the exercise of a permitted development right under these regulations, the LPA should refer the developer direct to the aerodrome operator for safeguarding advice.

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12.2 **Radiation Interference:**

The safeguarding process is used to protect Radar and other Electronic Navigational Aids from radio frequency interference from other sources of radio emissions; radio signal reflections or diffractions caused by physical objects.

- A recent and less obvious source of radio frequency interference is the wind-driven generator.
- Therefore, proposed wind farms within 30km of aerodromes need to be considered in the safeguarding process.

12.3 **Construction Concerns (activities / ….):**

- Safeguarding aspects of a proposed development do not end with the grant of Aviation Permit.
- The methods and equipment to be employed during construction may also need to be agreed, particularly if cranes or other tall construction equipment will be involved as these tend to be taller than the proposed structure.
- For a project close to the aerodrome or under the approaches, the Developers must apply for a permit before operating carnage within a 6km circle of the airfield. The application for the permit must indicate the herein below listed information:
- exact location of the crane marked on a map showing OS Grid.
- maximum operating height of crane Above Ground Level (AGL) plus ground in AOD.
- type of crane/equipment (e.g. Tower, Crane, Mobile Crane etc.)
- radius of the jib/boom of a fixed crane/the area of operation of a mobile crane.
- intended dates and times of operation.
- Applicant's name and address.
- Once these details have been studied by CAA it will be determined whether the operation can proceed and whether restrictions will apply and a relevant Permit should be issued by CAA setting out any restrictions as required to ensure aircraft operation safety.

12.4 **Roads and Railways near Safeguarded Aerodromes:**

12.4.1 Roads and rail vehicles are potential obstructions to aircraft. The internationally agreed safety criteria recognize this by considering a road to be a mobile obstruction of 4.8 meters and a railway to be a mobile obstruction of 5.4 meters.

12.4.2 The CAA should adopt these provisions as part of its safeguarding practice. If a road or a railway forms part of a planning application, the LPA should regard it as development of a height of 4.8 or 5.4 meters, as the case may be, and consult in accordance with the color coding on the safeguarding map provided by CAA thereto.

12.4.3 Lighting columns and other street furniture, and signal gantries and power lines, should also be the subject of consultation appropriate to their height, in accordance with the color coding on the safeguarding maps.

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12.5 **Non-aeronautical Ground Lights:**

A non-aeronautical ground light which, by reason of its intensity, configuration or color, might prevent, or cause confusion in, the clear interpretation of aeronautical ground light should be extinguished, screened or otherwise modified so as to eliminate such a possibility. A detailed assessment should be conducted.

13. Recommendations

13.1 Prior to a formal Planning Application being made, the aerodrome concerned may be prepared to offer informal advice on how to comply with the safeguarding requirement. The aerodrome advice will depend on the level of detail provided, but it is likely to be limited to lighting, landscaping and height limits. If it believes a detailed study is required in relation to specialist aspects such as the Bird Hazard or Navigational Aid installations, it may just advise that a suitable consultant be engaged so that their report(s) can be included with any subsequent Planning Application.

13.2 Any advice would be informal and without prejudice to detailed consideration of any future Planning Application(s).

13.3 The absence of any safeguarding concerns should not be construed as support for any proposed development(s).

13.4 It must be stressed that a runway protected only by the obstacle limitation surfaces of Annex 14 will not necessarily allow the achievement of the lowest possible operational minima if it does not, at the same time, satisfy the provisions of the PANS-OPS Consequently, consideration needs to be given to objects which penetrate the PANS-OPS surfaces, regardless of whether or not they penetrating Annex 14 obstacles limitation surface, and such obstacles may result in an operational penalty,

In conclusion the foregoing should be taken into account, together with all the other responses, when the LPA determines the outcome of the Planning Application.

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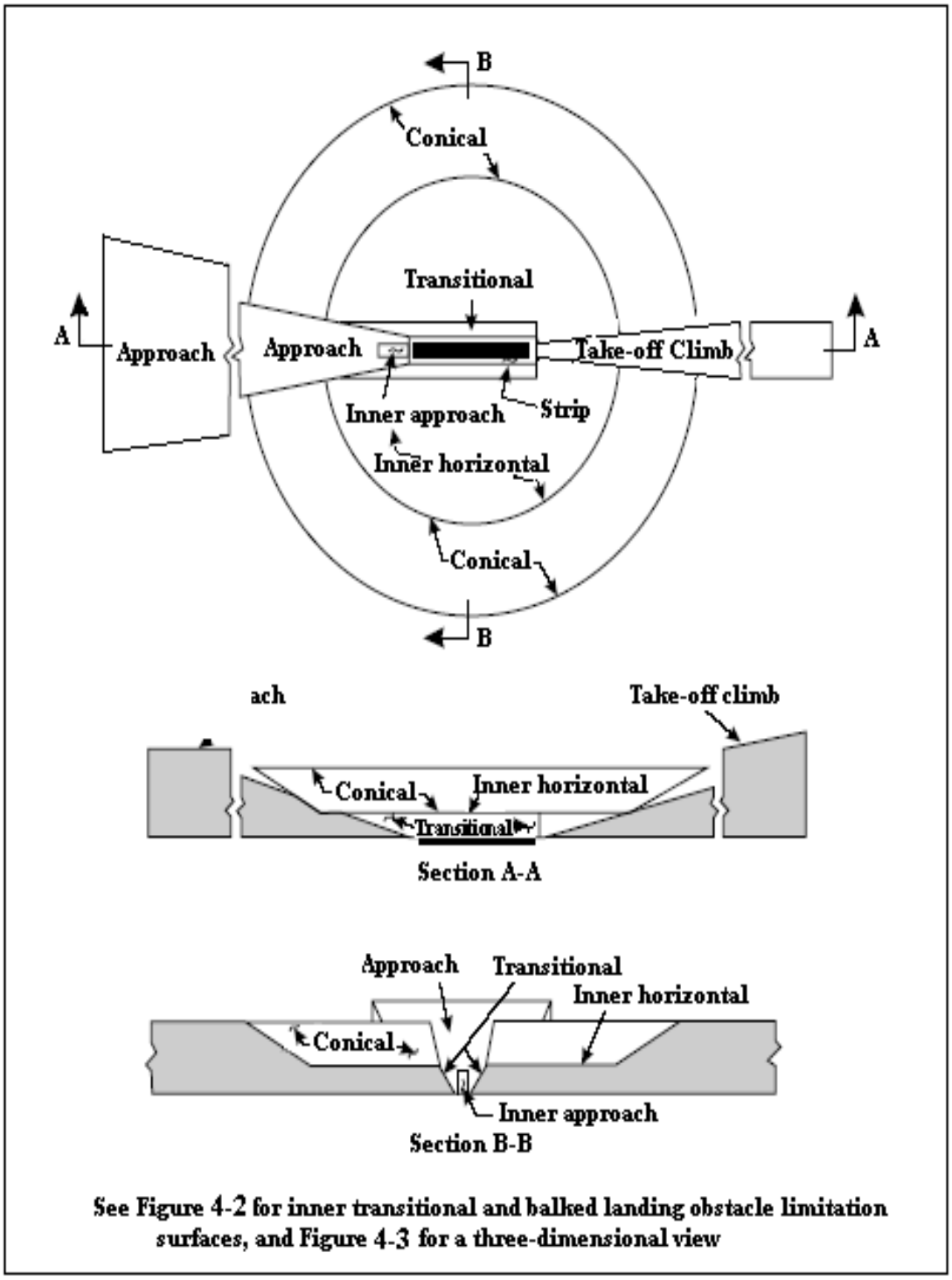
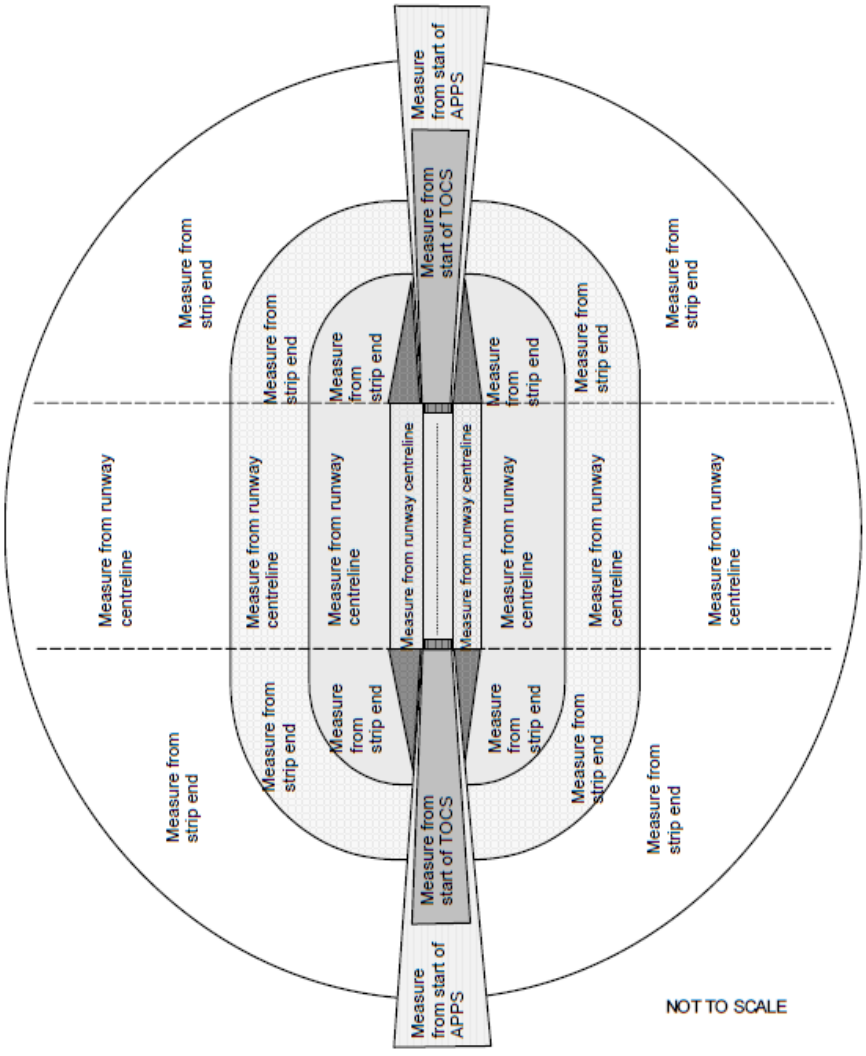
APPENDIX A



Obstacle's Limitation Surfaces (Type 1)



NOTE: May not apply in all cases.

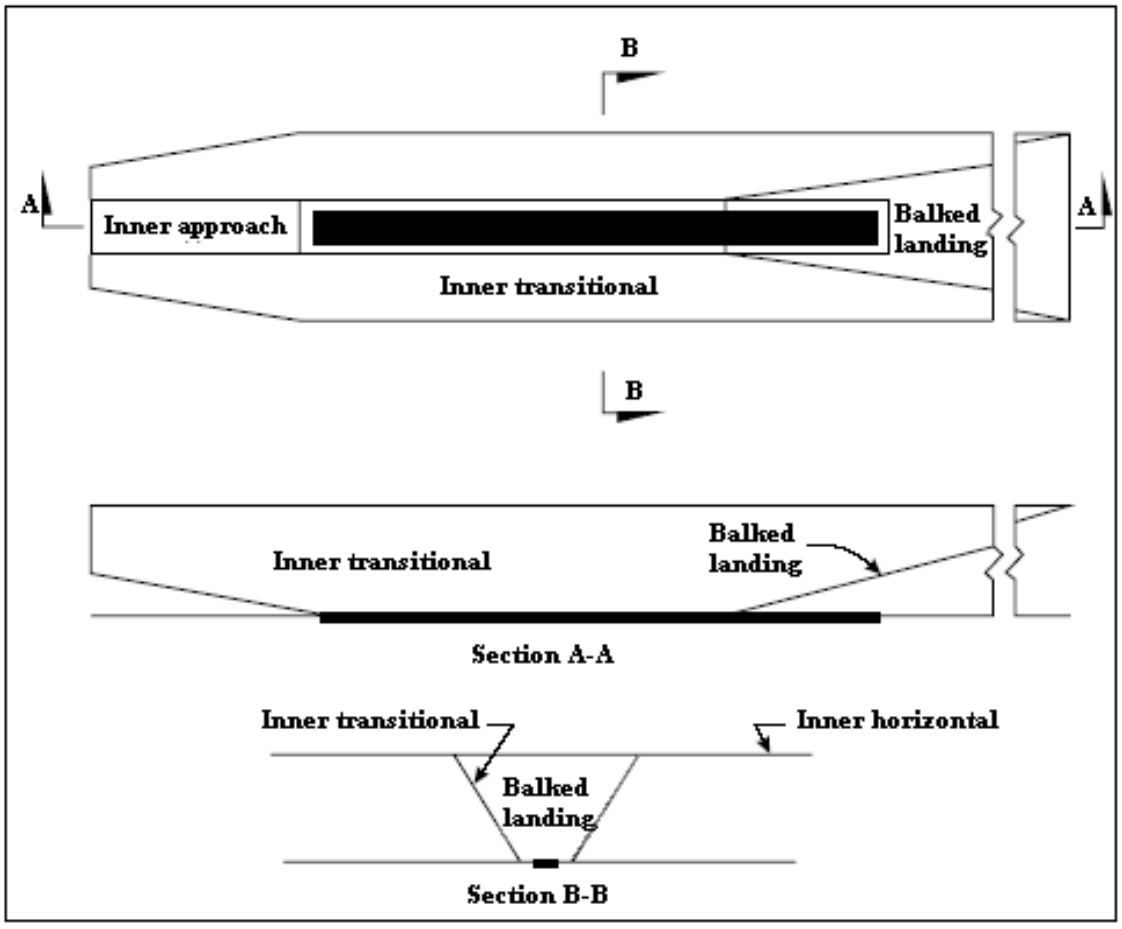
KEY

- **Inner Horizontal Surface (IHS)**
- **Conical Surface**
- **Outer Horizontal Surface (OHS)**
- **Take-off Climb Surface (TOCS)**
- **Approach Surface (APPS)**
- **Transitional Surface**

See CAP 168 (Chapter 4, paragraph 4.4)

Figure 3 Guidance on the Measurement of the Location of a Proposed Development in Relation to the Aerodrome and its Obstacle Limitation Surfaces, Where the Longest Runway is Greater Than 1800 m in Length

Obstacle’s Limitation Surfaces (Type 2)



Obstacle’s Free Zones

APPENDIX B

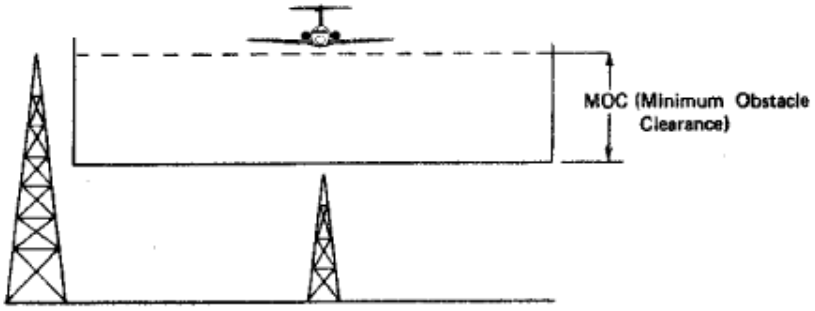


Figure 1-4.

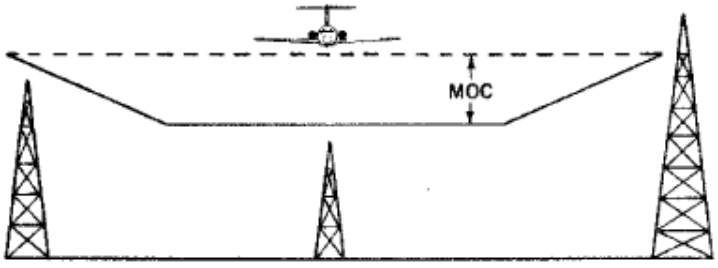
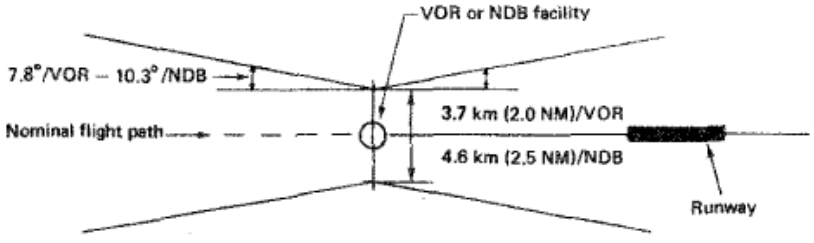
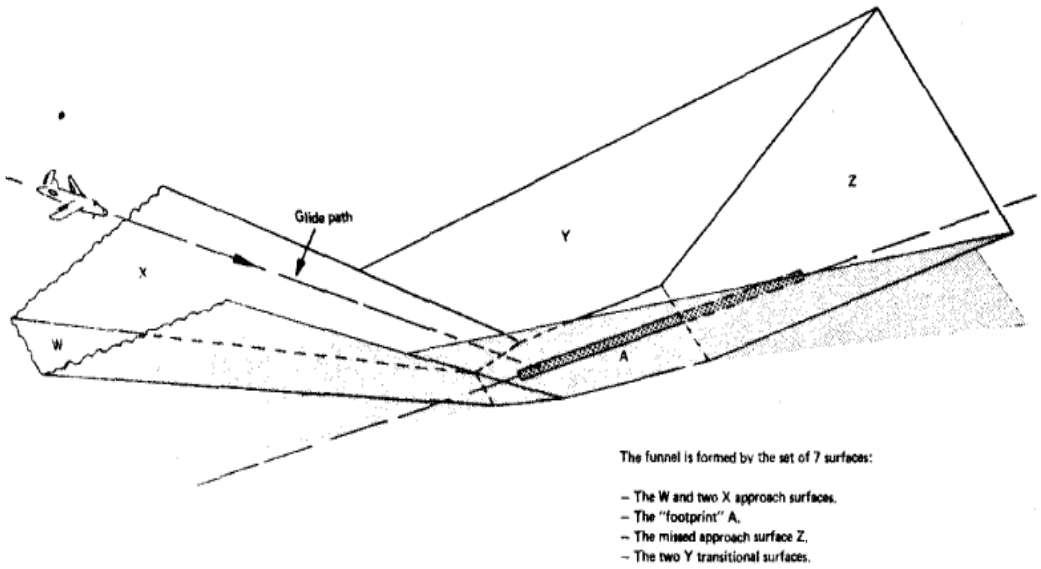


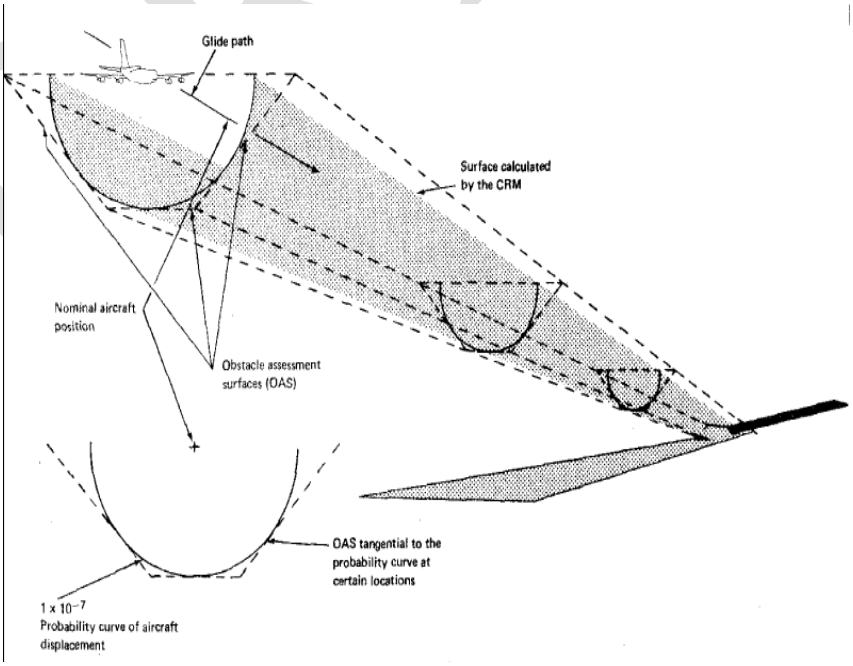
Figure 1-5.



APPENDIX C



The approach Funnel (OAS)



The approaches funnel (CRM)

APPENDIX D

Safeguarding Checklists

INTRODUCTION

- **The following checklists are developed to give guidance for the purpose of:**
  - **Starting Safeguarding System, or**
  - **As guidance for implementation and Obstacle Monitoring.**

- **These checklists are result of Egypt's best Practice in Safeguarding with support of UAE, and England experience.**

- **It's up to each State to adjust the checklists to suit their national regulation and their view of implementation as long as keeping main line.**

- **<u>List of references:</u>**
  1. **Annex 14 V.I**
  2. **Annex 15 (e.TOD)**
  3. **Annex 4 (Aeronautical Charts)**
  4. **Doc. 9137 Part 6**
  5. **Doc. 9774**
  6. **WGS-84 Manual9674**
  7. **Doc. 9981 ICAO PANS Aerodromes**

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Appendix (E)

A. Establish new Safeguarding System

Model 1.1

Questions for Building up Safeguarding System:

insert CAA Name and Logo) **CHECKLIST ON ……** **(Insert Checklist Number)**			
	Yes	**No**	**Comment**
Are you aware by Annex14? docs 9137 "part 6"? and Related documentation			
Do you have an updated data about your civil airports: • **Number.** • **Type of each Aerodrome** • **Operation (Hours, Season...).** • **No. and code of Runways.** • **Type and number of Navigation Aids**			
Does state/airport operator has a development plan for the next 20 to 30 years with respect to : • **New aerodromes.** • **New Runways.** • **Changing Aerodrome Reference Code.** • **Installing / uninstalling or upgrading Nav. Aid equipment.**			
Clear definition of "Obstacles Limitation Surfaces" and guidance material for each aerodrome : • **Type of definition and guidance material (law, decree, national regulation, maps, electronic data…….)** • **Type of map used (contour, tourism, Cadastral…)** • **Scale of used map (if applicable)** • **Surfaces according to Annex 14 or different? list of differences?**			
Is there in place "Obstacle Assessment System" reflecting Annex 14 requirements and related documentation? • **In which type? (Digital, CAD, Paper...)?** • **Last update?** • **Degree of Accuracy?** **Metadata?**			
Do you have division/department in-charge of Safeguarding?			
Do you have restrictions to control / monitor type of construction materials in the area around the aerodromes?			
Do you have defined land use control? **Do you have procedures for bird-strike control within a circle of (13km)diameter?**			

Do you have a field survey (Footprint\Elevation) for the near-by buildings & high objects around the civil aerodromes? • **Area** • **Description.** • **Type of object/buildings?** • **Accuracy of Footprint?** • **Accuracy of Elevation?**			
Do you have procedures for implementing eTOD requirement? • **Areas of implementation** • **Degree of implementation** • **Degree of accuracy**			

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Can you determine the amount of penetration for buildings/objects within the OLS & OAS? • **Do you have technical tool for checking amount of penetration? (required for high density urban area)** • **Way of performing analysis? (required for low density urban)**			

REMARK:	

Aerodrome personnel	Position	Signature / date

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Model 1.2 (System's input-output)

Expected inputs, output expected and coordination needed for building Safeguarding system.

insert CAA Name and Logo) **CHECKLIST ON ……** **(Insert Checklist Number)**			
	Yes	**No**	**Comment**
Expected "Urban Extension" around each civil aerodrome?			
Arrangements with other authorities / parties regarding urban extension			
Establishment of monitoring system (new/change in land use that might result of the expected urban extension)			
Database system for land-use in place which may develop bird attractant/hazard to pilots (close coordination with planning authorities to prevent landscaping / water features / land-fill sites). This may also involve the listing of trees, bushes, berries as know bird attractants			
Policy and assessment for areas used for wind farms and solar panels including, with roles for performing aeronautical study about its impact on nav. Aids.			
Regulations includs how to deal with any type of violations (height/type of material/land use….)?			
Is the current civil aviation law implemented? **Is your aviation regulation reflected in the aviation law?**			
Responsibility for issuance/define max allowable height permissions / monitoring new buildings / objects in the area around the civil aerodromes? • **The Aerodrome Operator? or** • **The Civil Aviation Authority? or** • **The Urban Planning Authority?**			
Coordination between the authorities in charge of issuance the max allowable height for buildings / objects & the Civil Aviation Authority or vice versa? • **What is the mechanism of data exchange?** • **Does the other entities'' Law/regulation reflect the civil aviation authority regulations?** • **Are you informed regularly with each new building\object allowable height? Can you review its license?**			
Remarks			
Assigned personnel name:	Position		Signature / date

A. Existing Safeguarding System
Model 2.1

This checklist is used for checking system compliance level with legislation'srequirements.

insert CAA Name and Logo) **CHECKLIST ON ……** **(Insert Checklist Number)**				
		Yes	**No**	**Comment**
Procedures for issuance aviation permits/permission to building/object within OLS area? And special cases outside it?				
Is there any permission fees?				
Work plan (work cycle) to monitor buildings\objects' compliance with their max allowable heights within safeguarded area around the civil airports?				
Is there a clear steps\Phases toaccurate measurement of height violation? • **Steps for a building / object that already has a permitted height? (legal Case)** • **Steps for buildings / objects that has no max height permit? (illegal Case)**				
Defined range for accepted level of violationproviding that it doesn't affect safety?				
Are there clear responsibilities and procedures for assessing the violation impact on safety and issue required permission?				
For urban areas around the civil aerodromes:				
Manual inspection	• **Procedures for field visits to inspect / monitor objects / buildings around the aerodrome?** • **Do you have arrangements in place with other department regarding Field Survey procedures for objects / buildings? Or** • **Do you have your field surveyor's team?** • **Do you have the tools for previous task? –** o **Ordinary tools (levelling-total station) Or** o **High technology tools (GPS) for fast and accurate results?** • **Do you have manual DEM? Area?**			
Digital inspection	• **Do you have an access to recent Satellite images for OLS area?** • **What is the horizontal / vertical accuracy of the satellite images?** • **Can the objects / features in these images be extracted & converted to digital form by any way?** • **Do you have another tool to verify the Satellite images digital output (extracted features)?**			
What is the operator's role in the monitoring process? Is it approved by the concerned department in the CAA? **Description of data flow?** **Does the result of that process been forwarded to CAA ?**				
REMARK:				
Assigned personnel name:	Position			Signature / date

Model 2.2

This checklist is used for checking the aerodrome manual compliance with safeguarding requirement.

insert CAA Name and Logo) **CHECKLIST ON ……** **(Insert Checklist Number)**			
	Name of Aerodrome/Aerodrome:		
	Address:		
	Name of Operator:		
	Name of Aerodrome Manager:		
	Head of Safeguarding Department:		
	Operational Hours:		
	E-mail Address:		
	Telephone Numbers:		
	Reference: Regulation…… MOS..... Advisory Circular.....		
Activity and objective	Regulatory /standards reference	Status C/NC/O/ N/A	Comments
Aerodrome Manual			
Does the manual contain synopsis of system to control and removal of obstacles at the aerodrome and its environs (off the aerodrome) including:			
• Establishing OLS for the aerodrome in accordance with ICAO requirement and methodology for obstacle assessment?			
• Reasonable measures to monitor the OLS including restriction to different areas? And			
• Establishment of system to Obstacle removal system			
• Establishing bird-strike monitor system to control a surface of (13km) in diameter?			
• Continuous monitoring system for area in the vicinity of the aerodrome to control new obstacles			
• Procedures for quick ddetection of new obstacles? Including objects, buildings, and structures • Procedure for CAA notification about new obstacles or additional removed obstacles?			
• Procedures for dealing with Wind farms / solar panels and electricity poles assessment?			

• Monitoring the Type A chart take-off surfaces for obstacles?			
• System to obtain and report data of obstacles in each surface with full details? With a process for amending the AIS publications regarding obstacles?			
• Monitoring building developments (to ensure compliance with allowed height ,nonstructural material and shape) within the horizontal limit of the obstacle limitation surfaces?			
• if the aerodrome has instrument approach procedures, is there procedures for monitoring new objects or building developments in any other areas nominated by the instrument procedure designers?			
• Arrangements between CAA and local planning authorities and other relevant organizations in relation to the approval of building developments that may infringe the obstacle limitation surfaces?			
• Arrangements and procedures for controlling and monitoring non-aeronautical lights / laser beams and fireworks			
• Arrangements between aerodromes' operators and any crane operator works within safeguarding area or outside it for heights more than 30m above ground level or more than 150m above runway threshold			
• Arrangement with CAA to assess proposed obstacles? (If applicable to the aerodrome)			
• Reporting obstacles by NOTAM including amended declared distances?			
• Procedures for conducting OLS survey requirement? How frequent? Degree of accuracy?			
• Names, telephone numbers and roles of the persons responsible for planning and implementing obstacle control?			
Protection of Radar and Navigation Sites :			
Procedures for protection, operations and maintenance of radar and radio navigation aids			
• Number and Description of aerodrome's navigation aids			
• Definition and description of protection surfaces needed for each equipment supported by Document			
• Maps reflecting protection area for each equipment.			
• Name and Details of persons responsible			
Record Keeping			
List of documents checked.			

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List of Obstacles inside and outside aerodrome with all details			
Forms used to assess or report obstacles			
Is the operator maintaining records in accordance with the aerodrome manual? (Check OLS survey data, Inspection logbooks, Obstacle control reporting (NOTAM)etc.)			
Facilities			
Are adequate and suitable staff and resources available?			
Are adequate and suitable equipment, training and resources available?			
Are OLS surveys conducted by an appropriately trained or qualified person?			
Activity and objective	**Regulatory**	**Status**	**Comments**
	/standards reference	**C/NC/O/ N/A**	
Procedures			
Is the OLS monitored in accordance with themanual?			
Is type A surfaces monitored in accordance with the manual?			
Are NPA areas monitored in accordance with the manual?			
Does monitoring conducted includes temporary and permanent structures?			
And for gaseous fluxes?			
Are the procedures for liaising with other authorities being followed?			
Is the staff aware of safety requirements related to obstacles?			
Are any conditions or exemptions complied with?			
Product Check			
Is OLS plan prepared in accordance with national regulation according to ICAO requirement?			
Do survey records agree with published information?			
Does field condition appear to reflect survey data and published information?			
Does obstacle related NOTAMs reflect field condition?			
Feedback			
Are obstacle control incidents noted, reported and followed up?			

INSPECTOR'S REMARK:		
Inspectors Name	Position	Signature / date

B. Obstacle's Assessment Checklist
Model 3.1

This checklist is used obstacle assessment to be to measure its impact on safety.

insert CAA Name and Logo) **CHECKLIST ON ……** **(Insert Checklist Number)**		
	Name of Aerodrome/Aerodrome	
	Name of Operator:	
	Name of Aerodrome Manager:	
	Head of Safeguarding Department:	
	Reference: Regulation…… MOS..... Advisory Circular.....	
Obstacle Assessment		
The nature of the obstacle and its location relative to the surface origin, to the extended centre line of the runway or normal approach and departure paths and to existing obstructions		
The location of the obstacle relative to Air Navigation surfaces		
The amount by which the surface is infringed		
The gradient presented by the obstacle to the surface origin		
The type of air traffic at the aerodrome; and		
Type of building materials		
Shape of Obstacle		
Nature and height of surroundings		
Is it shielded by another reported fixed obstacle		
The instrument approach procedures published for the aerodrome		
Safety Measures could be as follows:		
Promulgation in the AIP appropriate information		
Marking and /or lighting of the obstacle		
Variation of the runway distances declared as available		
Limitation of the use of the runway to visual approaches only		
Possibility of inducing turbulence, or defragment/reflection of navigation aid radiation		
Restriction on the type of traffic		
Database of land-use sites that may be in place or planned which may develop into a bird attractant/hazard to pilots (close coordination with planning authorities to prevent landscaping / water features / land-fill sites). This may also involve the listing of trees, bushes, berries as know bird attractants		

In addition to the requirements above it may be necessary to call for the other restrictions to development on and in the vicinity of the aerodrome in order to protect the performance of visual and electronic aids to navigation and to ensure that such development does not adversely affect instrument approach procedures and the associated obstacle clearance limits.		
INSPECTOR'S REMARK:		
Inspectors Name	Position	Signature / date

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C. Safeguarding Monitoring System Checklist

I. Pre-visit Checklists:

This checklist is used by CAA for pre-inspection visit, when the airport's operator has a system and procedures in place for obstacle's monitoring and control:

Model 4.1

Personal Personnel & equipment

insert CAA Name and Logo) **CHECKLIST ON ……** **(Insert Checklist Number)**					
Monitoring Implementation					
	Name of Aerodrome/Aerodrome:				
	Address:				
	Name of Operator:				
	Name of Aerodrome Manager:				
	Head of Safeguarding Department:				
	Operational Hours:				
	E-mail Address:				
	Telephone Numbers:				
	Reference: Regulation…… MOS..... Advisory Circular.....				
In Office :	**Date of Inspection:**				
	Name		**Response**	**Cooperation**	**Remark**
Aerodrome Operator					
Obstacle Manager					
Obstacle Staff					
Obstacles Map"		Date of last Issuance:	Scale:	Comments	
• Cadastral map	☐				
• Subdivisions map	☐				
• Aerodrome Layout	☐				
Obstacle's Data Base Table	☐	Comments:			
Notifications	☐				
Correspondence	☐				
Aviation Permits Follow-Up	☐				
List of Airport's Buildings	☐				
Safeguarding Cadastral Map	Has all surfaces	Show all Obstacles		Comment	
Rules Listed	ICAO Standards				
Any for Archiving					
INSPECTOR'S REMARK:					
Inspectors Name		Position		Signature / date	

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Model 4.2

insert CAA Name and Logo) **CHECKLIST ON ……** **(Insert Checklist Number)**					
Equipment and guidance material					
	Name of Aerodrome/Aerodrome:				
	Address:				
	Name of Operator:				
	Name of Aerodrome Manager:				
	Head of Safeguarding Department:				
	Operational Hours:				
	E-mail Address:				
	Telephone Numbers:				
	Reference: Regulation…… MOS..... Advisory Circular.....				
In Office :	**Date of Inspection:**				
	Name		**Response**	**Cooperation**	**Remark**
Aerodrome Operator					
Obstacle Manager					
Obstacle Staff					
Maps		**Yes**	**No**	**N/A**	
Aerodrome -Map	Aerodrome buildings Layout				
	Obstacles Layout				
Safeguarding Map	Safeguarding Limits surfaces				
	Out Aerodrome Obstacle (Survey map)				
Forms:					
			Yes	No	Remarks
Periodic Work Plan		Buildings			
		Permits			
Follow Up	Inside aerodrome	Buildings			
		Others			
	Outside aerodrome	Notifications			
		buildings			
Office Inspection		Subsidiary			
		location			
		Supporting equipment			
Technical Equipment		G P S			
		Printer			
		Tel./ Fax.			
		Scanner			
		Car			
Training		Equipment			

	Technical: • Basic Safeguarding • Obstacle's Assessment and Management • Obstacle's monitoring system • Other required training			
Personnel	Habitat			
	2 Week			
	Number			
	Qualification			
INSPECTOR'S REMARK:				

Inspectors Name	Position	Signature / date

This checklist is used before visit to review all available and tool needed:

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II. Sit visit Checklists:

Office visit

Model 4.3.1

This checklist is used in the site visit to inspect the implementation level of procedures listed in the aerodrome's manual

	insert CAA Name and Logo) **CHECKLIST ON ……** **(Insert Checklist Number)**
	Name of Aerodrome/Aerodrome:
	Address:
	Name of Operator:
	Name of Aerodrome Manager:
	Head of Safeguarding Department:
	Operational Hours:
	E-mail Address:
	Telephone Numbers:
	Reference: Regulation…… MOS..... Advisory Circular.....

	Yes	No	Comment
Is there work plan (work cycle) to monitor construction work (buildings\objects) in area around the civil airport?			
Procedures for (work cycle) observing any aviation violated in areas around civil airport?			
Steps\Phase for monitoring level of compliance with max allowed height? • **Steps for monitoring a buildings\objects that already has Aviation permit? (if applicable)** • **Steps for a monitoring buildings\objects that has no Aviation permit? (illegal Case)**			
Process for Defining the exact amount of penetration.			
Field survey: • **Through operators surveyors department** • **Through Coordination with other department** • **Have needed tools for this task** o **Leveling/total station or** o **(GPS) for the required accuracy**			
Procedures of periodic survey of OLS surfaces? And Repetition?			

Type of data available for urban area around the civil aerodromes: • **DEM :** o **Manual** o **Digital** • **Satellite imagery :** o **Up to date** o **Archival** o **Accuracy** o **Ways to extract data**			
Procedures to notify CAA about monitored Obstacles for AIS or Notam issuance			
Procedures to remove obstacles,			

INSPECTOR'S REMARK:	

Inspectors Name	Position	Signature / date

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Model 4.3.2

This checklist is used to assess the office and equipment and its compliance with what is listed in aerodrome's manual:

insert CAA Name and Logo) **CHECKLIST ON ……** **(Insert Checklist Number)**				
GENERALINFORMATION:				
	Name of Aerodrome/Aerodrome:			
	Address:			
	Name of Operator:			
	Name of Aerodrome Manager:			
	Head of Safeguarding Department:			
	Operational Hours:			
	E-mail Address:			
	Telephone Numbers:			
	Reference: Regulation…… MOS..... Advisory Circular.....			
S/N	**IT**	**YES**	**NO**	**N/A**
1	Does the inspector possess basic qualifications to carry out assigned responsibilities?			
2	Does the inspector have the required knowledge and experience on the job (OJT) to perform the responsibility at the expected level of competence?			
3	Does the inspector have the required tools and equipment to carry out the operation in line with			
4	Does the inspector as clear job description that aware of?			
5	Is there a personnel roster that indicates satisfactory workload for each inspector?			
6	Are the inspector's adequately and regularly trained to discharge the			
7	In demonstrating operations and maintenance competence, is the knowledge, skills and experience required to inspect aerodrome's obstacle limitation surface, obstacle's marking and lights, for conducting or supervising aerodrome works, and completing the NOTAM forms displayed?.			
8	Are the inspector refresher trainings at such duration/interval to guarantee currency on the job?			
9	Does the inspector have adequate knowledge of the working documents available for the performance of			
INSPECTOR'SREMARK:				

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Model 4.4.1

This checklist is used on site to monitor the aerodrome implementation of Safeguarding roles:

insert CAA Name and Logo) **CHECKLIST ON ……** **(Insert Checklist Number)**							
Site Inspection							
	Name of Aerodrome/Aerodrome:						
	Address:						
	Name of Operator:						
	Name of Aerodrome Manager:						
	Head of Safeguarding Department:						
	Operational Hours:						
	E-mail Address:						
	Telephone Numbers:						
	Reference: Regulation…… MOS..... Advisory Circular.....						
Inspection Date:			Inspector's Name:				Remarks
Day Inspection	Inside Aerodrome	**Area 1**	Surface Affected		Building		
					Antennas/masts/poles		
		(strip/inner transitional/transitional)			Obstacles (marking.)		
					Others (land use…)		
		Area 2	Surface Affected		Building		
					Antennas/masts/poles		
		(Inner Approach/Approach/Take-Off)			Obstacles (description / lighting / marking)		
					Others (land use…)		
		Area 3	Surface Affected		Building		
					Antennas/masts/poles		
		(Inner Horizontal / Conical/ Outer Horizontal)			Obstacles (description / lighting / marking)		
					Others (land use…)		
		Area 4	Affected Nav. Aid		Markers		
					Singe		
		Nav. Aids protection area			Material of surrounded buildings		
	Outside Aerodrome	**Area 1**	Surface Affected		Building		
					Antennas/masts/poles		
		(strip/inner transitional/transitional)			Obstacles (description / lighting / marking)		
					Others (land use…)		
		Area 2	Surface Affected		Building		
					Antennas/masts/poles		
		(Inner Approach/Approach/Take-Off)			Obstacles (description / lighting / marking)		
					Others (land use…)		
		Area 3)	Surface Affected		Building		
					Antennas/masts/poles		
		(Inner Horizontal / Conical/ Outer Horizontal)			Obstacles (description / lighting / marking)		
					Others (land use…)		

		Area 4 (f Applicable)	Affected Nav. Aid		Markers		
					Singe		
		Nav. Aids protection area			Material of surrounded buildings		
	General	Surface Affected			Is there any Cranes detected		
Night Inspection	Inside Aerodrome	**Area 1**	Surface Affected		Building		
					Antennas/masts/poles		
		(strip/inner transitional/transitional)			Obstacles (description / lighting / marking)		
					Others (land use…)		
		Area 2	Surface Affected		Building		
					Antennas/masts/poles		
		(Inner Approach/Approach/Take-Off)			Obstacles (description / lighting / marking)		
					Others (land use…)		
		Area 3)	Surface Affected		Building		
					Antennas/masts/poles		
		(Inner Horizontal / Conical/ Outer Horizontal)			Obstacles		
					Others (land use…)		
		Area 4	Affected Nav. Aid		Lighting		
					Singe		
		Nav. Aids protection area			Material of surrounded buildings		
	Outside Aerodrome	**Area 1**	Surface Affected		Building		
					Antennas/masts/poles		
		(strip/inner transitional/transitional)			Obstacles (description/ lighting / marking)		
					Others (land use…)		
		Area 2	Surface Affected		Building		
					Antennas/masts/poles		
		(Inner Approach/Approach/Take-Off)			Obstacles (description/ lighting / marking)		
					Others (land use…)		
		Area 3)	Surface Affected		Building		
					Antennas/masts/poles		
		(Inner Horizontal / Conical/ Outer Horizontal)			Obstacles (description/ lighting / marking)		
					Others (land use…)		
		Area 4(f Applicable)	Affected Nav. Aid		Lighting		
					Singe		
		Nav. Aids protection area			Material of surrounded buildings		
INSPECTOR'S REMARK:							

Inspectors Name	Position	Signature / date

APPENDIX F

STUDY CASE

An Example of

Note - This material is prepared as an example "case scenario" only not intended to serve as standard for how study should be conducted. Procedure used by safeguarding personnel is dependent on the needs, capabilities, and complexities of the participating organizations

a. Discovery of the case

    1. Authority listed in aviation law reviews allaviation permits issued with all details of location and allowed height showed in a map or in geographical coordinate's format.

    2. Aerodrome operator shall monitor OLS area and report it to the authority any building/object that was done without approval or violating the allowed limits /restriction

    3. When an obstacle is monitored then,

b. Dealing with identified case in-house:

    1. The airport's Safeguarding team reports the case to the concerned authority with all details collected on site.

    2. Concerned authority shall study the case according to the details and in relation to OLS and ensure the penetrates or the surfaces,

    3. If the study shows the violation of the case a higher level group/committee (includes member of operation / Navigation Aids/Radar…..…..)to carry on the study

c. Committee:

    1. Each member of the committee will review all details in relation to their specialist.

    2. If the violation might has an impact on the safety of any Nav. Aid, a recommendation of a site visit to do engineering survey and collect accurate data about surroundings (buildings' heights , type and material in certain area around the violated object).

d. Site visit:

    1. A technical committee form airport Safeguarding personnel and survey engineers will make a sitevisit with needed equipment.

    2. A technical report showing details of all buildings within the specified area supported with photos (distance form each runway/navigation aids….) actual height related to mean see level (MSL), height of the highest objects around related to MSL.

e. Decision:

    1. The technical committee will review the report and find if the object is shielded by any other object/s and actual height in this area

    2. If the study shows:

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a. The object is standing alone, then a review of the design procedures done to find if the object's height affect the height minima or not:
    i. if not, no action will be taken against that object and data collected to be saved in the obstacle's data base,
    ii. But if it affects the safety, then action has to be done to reduce height or removal of that object according to aviation law.

b. The object is shielded by other existing permanent object/s, then a revision of the design procedures to find the relation between the obstacle and the shielded building, then if:
    i. the object is shielded by a higher object.
    ii. no action will be done against that object and data collected to be saved in the obstacle's data base,

c. If the object's height is higher than the shielding object a study should be done to study the effect of the difference of height on the defined minima , then,
    i. if it doesn't has effect on safety, no action will be taken against that object and data collected to be saved in the obstacle's data base,
    ii. But if it affects the safety, then action has to be done to reduce height /removal of that object. Or increase the minima.

3. In the case of obstacle's removal an agreement should be done with the owner to reduce height or an legal action should be done if no response found, and a demolish note will be issued with name of the owner and any other parties listed in related Law.

4. Legal department should be involved to follow up with the note and take all action needed.

- END -

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APPENDIX 3E

DIP Tracking for MID-RAST/RGS/5

Wildlife Management Control

	RGS/5 DIP Deliverable	Target Date	Status	Comments
✓	RSA for Regulatory Framework & Guidance Materials	December 2015	In Progress	Draft materials provided to ICAO MID and under review –
	Templates on WHMP	September 2016	In Progress	
	Wildlife Management Control Workshop	September 2018	Not started	

RASG-MID SAFETY ADVISORY – 0x (RSA-0x)

Sep 2016

Guidance on Regulatory Framework Supporting Establishment of Wildlife Management

Date of Issue:	May 2016
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Disclaimer

These guidelines are developed by the Runway and Ground Safety Working Group (RGS WG), as part of MID-RAST/RGS/3 DIP deliverables, based expertise and experience of the Sudanese Civil Aviation Authority, the United Arab Emirates Civil Aviation Authority and the Egyptian Civil Aviation Authority as an integral part of their joint commitment to enhancing safety through the creation of aerodrome wildlife management and control. In doing so, there is one single concern: safety. Within the framework of RASG-MID the Regional Aviation Safety Group - Middle East (RASG-MID).

These guidelines are based on the This circular as it serves to further empower national authorities in their efforts to support wildlife management and control programmes through model national regulation, guidance materials.

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I
INTRODUCTION

BACKGROUND

Wild Life Management and Control had been identified by the MID Region Annual Safety Report Team (ASRT) as part of one of three main risk areas (Focus Areas) to be addressed under the MID Region Aviation Safety Group (RASG-MID) framework.

The MID-RAST RGS has undertaken a Safety Enhancement Initiative (SEI) to develop guidance material and training programs to support creation of action plans for Wild Life Management and Control. The Detailed Implementation Plan (DIP) for the SEI included the action to develop and issue regulatory framework supporting establishment of Wild Life Management and Control Teams.

PURPOSE

The purpose of this circular seeks to propose a regulatory framework to support the creation and success of local Wild Life Management and Control entity consisting of the following elements:

(Chapter 1)

Model Regulation including articles related to Wildlife Management and Control that clarify main responsibilities of Civil Aviation Authority (CAA) and Aerodrome Operator and their relation with other national entities regarding wildlife management and control roles and enforcement.

(Chapter 2)

Guidance Material provides detailed instructions on the implementation of the requirements contained in the State's National Civil Aviation Regulations regarding the control of wildlife in the vicinity of an aerodrome. It sets the regulatory framework applicable in each State for wildlife hazard assessment, the recording and reporting of wildlife strikes to aircraft as required by ICAO. These materials should be considered in conjunction with the ICAO PANS Aerodrome. This chapter includes requirements for the evaluation of the wildlife hazard by airport operators as well as the development and implementation of wildlife control measures to minimize the likelihood of collisions between wildlife and aircraft.

(Chapter 3)

Model Guidance for Development of Wildlife Hazard Management Programs at Airports provides guidance to evaluate the Ecological Study (Wildlife Hazard Assessment) and Wildlife Hazard Management Plan (WHMP) submitted by Aerodrome Operators. These materials are developed by the Aerodrome Operator and may be evaluated as part of Aerodrome Certification, during periodic surveillance audits or during the change management process. The evaluation may be conducted by the Aerodrome Operator or the CAA depending on the responsibilities as established by the State.

USING THIS CIRCULAR

The Table of Contents provides key points of the regulatory framework supporting the creation of Wildlife Management and Control Teams.

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The reader will choose the depth at which the circular will be used at any given time. Reading may range from using the Table of Contents or elements of the model regulation as a benchmark for gap analysis – to adopting and/or adapting the content of the proposed model regulation and guidance/oversight materials as part of a national regulatory framework.

CHAPTER 1
MODEL REGULATION IN SUPPORT OF AERODROME WILDLIFE MANAGEMENT & CONTROL

1.1 Application

Each State should publish applicable National Civil Aviation Regulation which include requirements for Wildlife Management at and in the vicinity of aerodromes. The following paragraphs contain articles, in support of this objective, which should be assessed by each CAA

1.2 Preface to Model Regulation

The following provides a model order summarising the links between the National Civil Aviation Law, the Civil Aviation Authority (CAA), National Civil Aviation Regulation and the Aerodrome Manual by way of example. The specifics of these relationships will vary from State to States however the obligations of of the CAA and Aerodrome Operator should always be clear.

Model Order entitled Wildlife Control (example)

- The National Civil Aviation Law gives the CAA the powers to set aerodromes standards.
- The aerodromes standards have been further specified in National Civil Aviation Regulation and include the requirements for wildlife strike hazard reduction in the vicinity of aerodromes.
- National Civil Aviation Regulation requires an Aerodrome Operator to evaluate the wildlife hazard in the vicinity of the aerodrome and adopt measures to minimize the likelihood of collisions between wildlife and aircraft.
- National Civil Aviation Regulation requires the development and implementation of a procedure for recording and reporting wildlife strikes to aircraft as well as wildlife hazard assessment and control measures which are included in the Aerodrome Manual.

1.3 Model Regulation

1.3.1 Wildlife Strike Hazard Reduction

1.3.1.2 The wildlife strike hazard on, or in the vicinity of, an aerodrome should be assessed through:

a) the procedure for recording and reporting wildlife strikes to aircraft prescribed;

b) the collection of information from aircraft operators, airport personnel, and other sources, on the presence of wildlife on or around the aerodrome constituting a potential hazard to aircraft operations; and

c) an ongoing evaluation of the wildlife hazard by the airport operators.

1.3.1.3 The wildlife hazard assessment should be documented in the Aerodrome Manual.

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1.3.1.4 The aerodrome operator should forward wildlife strike reports to the CAA for onward transmission to the ICAO Bird Strike Information System (IBIS) database.

1.3.1.5 Action should be taken to decrease the risk to aircraft operations by adopting measures to minimize the likelihood of collisions between wildlife and aircraft. The wildlife control measures should be documented in the Aerodrome Manual.

1.3.2 Roles & Responsibilities

1.3.2.1 Civil Aviation Authority (CAA)

1.3.2.1.1 The CAA is responsible for the development and issuance of the regulatory and guidance material applicable to aerodromes design and operations.

1.3.2.1.2 The CAA evaluates the Aerodrome Manual submitted by an Aerodrome Operator including the wildlife hazard assessment and the wildlife control measures to determine whether it complies with National Regulation and indicate whether the applicant will be able to operate and maintain the aerodrome properly.

1.3.2.1.3 The CAA collects, through its reporting systems, information from aircraft operators, airport personnel, and other sources, on the presence of wildlife on or around the aerodrome constituting a potential hazard to aircraft operations.

1.3.2.1.4 Finally, the CAA submits Wildlife Strike Reports to the ICAO Bird Strike Information System (IBIS) database.

1.3.2.2 Aerodrome Operator

1.3.2.2.1 The Aerodrome Operator is responsible for the conduct of a wildlife hazard assessment in the vicinity of the airport.

1.3.2.2.2 The Aerodrome Operator is also required to include in the aerodrome manual, the wildlife hazard assessment and the measures adopted to control the identified hazards and minimize the likelihood of collisions between wildlife and aircraft.

1.3.3 Wildlife Hazard Assessment

1.3.3.1 **Initial Assessment:** An Aerodrome Operator must conduct for each aerodrome an initial assessment of the existence and level of hazard posed or likely to be posed by wildlife in the vicinity of the aerodrome.

1.3.3.2 The initial Wildlife Hazard Assessment must be conducted by wildlife specialists, with proven knowledge of the types and behaviours of the wildlife specifies present or likely to be present in the area where the aerodrome is located.

1.3.3.3 The initial Wildlife Hazard Assessment should:

a) identify the wildlife species that have access to the airport, in accordance with 1.3.3.5 cross

b) describe the features that may attract wildlife, in accordance with 1.3.3.6,
c) assess the wildlife hazards or potential hazards to aircraft operating to or from the aerodrome, in terms of :
    i. the likelihood of occurrence of a wildlife strike, and,
    ii. its impact on the flight, and
d) recommend actions for reducing identified wildlife hazards to aircraft operating to or from the aerodrome, using one or more of the control measures prescribed in Chapter 3.

1.3.3.4 The methodology used for the identification of wildlife species must be documented in a standardized procedure. As a minimum, it should include the number and location of the survey points established, the duration of the observation, and how the selected duration allows for adequate assessment of the wildlife species and seasonal patterns.

1.3.3.5 For each type of wildlife species, the following information must be provided:

a) methodology used for observation;
b) its scientific and local name;
c) estimated numbers and locations,
d) local movements, daily and seasonal occurrences.

1.3.3.6 Potential wildlife attractants may include:

a) waste disposal,
b) water management facilities,
c) wetlands,
d) confined disposal facilities,
e) agricultural activities (livestock, aquaculture, farming ..etc),
f) landscaping, or
g) any other specific land-use activities that may attract wildlife.

1.3.3.7 The description of the potential wildlife attractants should include:

a) name,
b) distance from the aerodrome reference point,
c) direction from nearest approach / take-off path,
d) dimensions,
e) type of activities,
f) seasonality (if applicable), and
g) wildlife species that may be attracted to it.

1.3.3.8 The wildlife hazards or potential hazards can be categorized on the basis of their probability and severity.

1.3.3.9 An example of classification of the hazards is given in appendix c, table's appendix c -1 to appendix c-3 indicating the probability of occurrence, its severity if it occurs and the combination of probability/severity.

1.3.3.10 A colour coding may be used to indicate what is intolerable (Red – unacceptable under the existing circumstances), tolerable (Yellow – acceptable based on mitigation measures to control wildlife) or acceptable (Green – acceptable).

1.3.3.11 **Continuous Assessment:** The Aerodrome Operator should establish a procedure for continuous assessment of the wildlife hazard.

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1.3.3.12 **Periodicity:** The Wildlife Hazard Assessment should be reviewed :

a) at least once a year, or
b) after a wildlife occurrence.

1.3.3.13 **Nature and Level of the Hazards:** The review of the wildlife hazard assessment should identify any changes in:

a) wildlife species,
b) the features that may attract wildlife on, or in the vicinity of the aerodrome, or
c) the assessment of the wildlife hazards or potential hazards to aircraft operating to or from the aerodrome.

1.3.3.14 **Effectiveness of the Control Measures:** The review of the wildlife hazard assessment should identify:

a) new wildlife control measures that may be required of address newly identified hazards,
b) existing wildlife control measures that may need to be reinforced, and/or wildlife control measures to be discontinued because they are no longer required or are ineffective.
c)

1.3.4 Wildlife Control

1.3.4.1 **General:** The aerodrome operator should demonstrate that the proposed wildlife control measures are adequate to reduce the risk posed by wildlife to aircraft operating to or from the aerodrome as identified in the wildlife hazard assessment or its subsequent review. Examples of wildlife control measures are provided in 1.3.4.2 to 1.3.4.6.

1.3.4.2 **Description of the Control Measures:** The description of the selected control measures should include:

a) type of control measures selected;
b) wildlife species;
c) potential wildlife attractants;
d) actions to be implemented;
e) periodicity, or season(s) where applicable;
f) equipment to be used, where applicable; and
g) personnel involved and the training requirements where applicable.

1.3.4.3 **Habitat Modification and Exclusion:** Habitat modification means changing the environment to make it less attractive or inaccessible to the problem wildlife identified during the wildlife hazard assessment. It can be achieved through the reduction, elimination, or exclusion of one or more of the elements that attract wildlife such as:

a) food,
b) water, or
c) shelter.

1.3.4.4 **Wildlife Removal:** if legally allowed for the species being considered , wildlife removal may include:

a) capturing,
b) destroying eggs and nests,
c) shooting,
d) oral or contact toxicants,
e) fumigants, or
f) lethal traps.

1.3.4.5 **Repellent and Harassment Techniques:** Repellent and harassment techniques may be used to keep hazardous wildlife away from specific areas on or near an airport by affecting the animal's senses through chemical, auditory or visual means. Repellent and harassment techniques may include:

a) patrols of airside areas to disperse birds and other hazardous wildlife;
b) chemical repellents legally allowed for use in Sudan by the relevant national authorities;
c) audio repellents appropriate to the type of bird or mammal; or
d) visual repellents appropriate to the type of bird or mammal.

1.3.4.6 **Aircraft Schedule Modification:** The flight schedules of some aircraft may be adjusted to minimize the chance of a strike with a wildlife species that has a predictable pattern of movement.

1.3.5 Recording and Reporting Wildlife Strikes

1.3.5.1 **Recording:** Aerodrome Operators should maintain a log of wildlife strikes containing the date, types and numbers of birds or animals, and aircraft involved. The procedure for recording the wildlife strikes must be documented in the Aerodrome Manual.

1.3.5.2 **Reporting:** A Wildlife Strike Reporting Form is made available to aircraft operators, airport personnel and air traffic controllers to report wildlife strikes.

Note: The guidelines for such reporting are provided in the [Operational Policy – Aviation Safety Reporting System].

1.3.5.3 **Submission of Wildlife Strike reports to ICAO:** Upon receiving a wildlife strike reporting form, the CAA transmits the information to ICAO for incorporation into the IBIS database.

Note: Detailed instructions for processing wildlife strike reports and transmission to ICAO are contained in the [Manual for Aviation Safety Reporting System and the Aerodromes Inspector Handbook].

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CHAPTER 2 MODEL PROCESS FOR ASSESSMENT OF WILDLIFE HAZARD MANAGEMENT

2.1 Purpose

To provide guidance to personnel appointed to evaluate of Ecological Study (Wildlife Hazard Assessment) and Wildlife Hazard Management Plan (WHMP) submitted by Aerodrome Operators. These materials are developed by the Aerodrome Operator and may be evaluated as part of Aerodrome Certification, during periodic surveillance audits or during the change management process. The evaluation may be conducted by the Aerodrome Operator or the CAA depending on the responsibilities as established by the State.

The model process below is based on requirement for the Aerodrome Operator to submit the Ecological Study (Wildlife Hazard Assessment) and WHMP directly to the CAA for evaluation and acceptance.

2.2 Applicability

This model Operating Procedure is applicable to the assessment of Ecological Study (Wildlife Hazard Assessment) and WHMP.

2.3 Regulatory System

a. Civil Aviation Law […..]
b. [Caa Regulation]
c. [Advisory Circular]
d. [Inspector Handbook/ …]
e. […]

2.4 Responsibilities

a. The Ecological Study (Wildlife Hazard Assessment) may be evaluated by specialist (third party contract / competent inspectors).
b. The WHMP shall be evaluated by the [xxxx] appointed by [xxxx].
c. The Team Leader is responsible for conducting and reporting the evaluation process.
d. The WHMP are approved by the [xxxxx].

2.5 Procedure

2.5.1 Introduction

It is required that aerodromes exposed to wildlife hazards analyse the level of risk posed by the existing hazards to enable a determination of the need for a WHMP. It is not anticipated that such a determination can always be reached before the commencement of initial operations at the aerodrome. Data collection on wildlife activity in the vicinity of the aerodrome and subsequent analysis may take some time after aerodrome operations begin before a meaningful conclusions can be drawn concerning the Wildlife Management Program to be implemented, where applicable. However it is anticipated that a procedure for monitoring bird activity and of recording and reporting bird strike be established and incorporated in the Aerodrome Manual before approval of the Manual by the CAA.

2.5.2 Application of Ecological Study

Aerodrome Operators are required to submit all the documents needed to demonstrate the level of risk posed by the existing hazards to enable a determination of the need for a WHMP.

The application should be accompanied by the following documentation at least

1. Hazard Analysis of the event which prompted the study.
2. Identification of the species, numbers, locations, local movements, and daily and seasonal occurrences of wildlife observed.
3. Identification and location of features on and near the airport that attract wildlife.
4. Description of the wildlife hazard to air carrier operations.
5. Form provided in Attachment 1, signed by the Accountable Manager and by the Safety Manager,
6. Any other document deemed useful by the aerodrome operator or requested by CAA.

2.5.3 Approval/Acceptance of Ecological Study

Step 1: Upon receipt of an application, the [assign Team] should conduct a preliminary check in order to establish if it is compliant with the relevant provisions of Regulation - and if all the documents have been submitted.

Step2: After the preliminary check, the [Team] should evaluate the content of the submitted application, in order to establish if the proposed study can be accepted, taking into account the potential impact of the wildlife hazard on aircraft operation

Step3: [DASS] (or equivalent directorate) should communicate in writing to the concerned Operator the - positive or negative - result of evaluation or the request for further explanations, within the applicable timeframe (ref. [Law…]).

Step 4: Once accepted [DASS] (or equivalent directorate) request from the concerned Operator to submitted the Wildlife Hazard Management Plan.

2.5.4 Approval of Wildlife Hazard Management Plan (WHMP)

Step 1: Upon receipt of an application, the [assigned Team] should conduct a preliminary check in order to establish if it is compliant with the relevant provisions of the National Civil Aviation Regulation.

Step 2:

- After the preliminary check, the [assigned Team] should evaluate the content of the submitted application, in order to establish if the proposed procedure and hazard mitigation can be accepted.

- The assessment can be obtained by using different methods, use form no. 1 (the aim is to demonstrate that the proposed solution ensures the safety of the aircraft operation). By ensuring the following:
    1) Its effectiveness in dealing with the wildlife hazard.
    2) Indications that the existence of the wildlife hazard, described in the ecological survey, should be re-evaluated.
    3) Procedures outlined in the Plan, such as inspections prior to air carrier operations, are carried out.
    4) The reporting system are clear and applicable related to size of the aerodrome and the traffic density
    5) Procedure to deal with the habitat modification projects or changes in land us identified in the Plan
    6) Procedures are established by the Aerodrome Operator for the conduct of a wild life risk assessment
    7) Implementation Plan (timeline) be prioritized and respect the mitigation measure

For the purposes of the assessment* - in addition to examining the submitted documents - [CAA] may require to conduct audits or inspections as well as to participate in demonstrations or tests carried out by the operator, as deemed appropriate.

**may use (form 1) and (Model Aerodrome Pre-Audit Assessment Form appendix D RASG-MID SAFETY ADVISORY – 05 (MID-Region Aerodromes Certification Toolkit)*

Step 3**:** The [assigned Team] should verify if the Aerodrome Operator has reported the related information in the appropriate sections of the Aerodrome Manual and has arranged with the AIS Provider for publishing the relevant data on the AIP (if it needs to demonstrate the hazard to air carrier).

2.6 Records

In order to comply with National Civil Aviation Regulation the [Team Leader] is responsible for ensuring that all the relevant documents relating to wildlife management plan (as listed in the preceding paragraphs) are properly maintained in the [Aerodrome File], providing for adequate storage, accessibility, traceability of data.

The above mentioned documents are maintained in the Aerodrome file for the lifespan of the Certificate.

2.7 Forms

Appendix A - Wildlife Hazard Management Assessment Checklist

CHAPTER 3
MODEL GUIDANCE FOR DEVELOPMENT OF WILDLIFE HAZARD MANAGEMENT PROGRAMS AT AIRPORTS

3.1 Introduction

The extent of a wildlife hazard at particular airport locations is widely variable. Many solutions are available but none are likely to be useful at any one airport, the most important action, upon which any risk management strategy must be founded, is knowing the nature of the hazard; this may vary by time of day and seasonally and must be related to the likely pattern of aircraft movements. For that Aerodrome Operators are required to establish all the documents needed to demonstrate the level of risk posed by the existing hazards of the wildlife hazard to enable them to establish the effective criteria for mitigate the hazard of the wildlife

3.1.1 Phase I: Wildlife Hazard Assessment /Ecological Study

Starting with a Wildlife Hazard Assessment Study is highly recommended which is starting with collecting data (information, records, etc…) (INPUTS), then analyses all these data to identify the hazard which will affect to aircraft operation.

Step 1: Data Collection

1- All the previous events and bird strikes records and statistics.
2- Analysis of the event which prompted the study.
3- All the records of damaging collisions with wildlife other than birds.
4- Observed wildlife species.
5- Observed wildlife numbers and sizes.
6- Observed wildlife locations and local movements.
7- Observed wildlife daily and seasonal occurrences.
8- Identification and location of wildlife attractants on and near the airport.

*Note: An Airport Operator may use the form in **Appendix B - Data Collection Template for Observed Wildlife** to describe the observed wildlife related to the number, location and wildlife movement period - Otherwise an Airport Operator may establish maps including details about habitats, major topographical features, wildlife movements, etc. (Highlighting the wildlife that are pertinent to the objectives) / Maps over the course of several seasons so as to account for changes in wildlife and habitat. List in details the resources, habitats, and wildlife present on your land. Include details about size of species, movements of animals, seasonal change, etc…*

Step 2: Data Analysis

Analysis all collected data of the wildlife hazard to air carrier operations.

Step 3-4: Document Preparation: The study describe in above paragraph should be introduced to CAA to determine whether or not there is a need for a Wildlife Hazard Management Plan (WHMP) taking into consideration some important parameters refer to (Chapter 2 in this manual)

3.1.2 Phase II: Establish Wildlife Hazard Management Plan (WHMP)

The goal of this Wildlife Hazard Management Plan (WHMP) is to promote aviation safety for passengers and flight crews by reducing wildlife hazards and associated risks to aircraft and airport operations caused by wildlife activities on and in the airport vicinity. A wildlife management plan is a document used by airport operator to outline and implement steps for preserving, altering, or exploiting wildlife on /off airport, a management plan usually contains maps, descriptive documents,

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The WHMP should be establish based on the ecological study (Wildlife Hazard Assessment) and should contain at least the following:

1- Foreword
2- Glossary
3- Definitions
4- Objective
5- Duties & Responsibilities
6- Wildlife Hazard identification and Assessment
- (a) All the previous events and bird strikes records and statistics.
  - i. The most significant wildlife hazard that induces events.
  - ii. The most potential time and date of events occurrences.
- (b) All the records of damaging collisions with wildlife other than birds.
- (c) Observed wildlife species.
  - i. Basic information about the wildlife at the airport region.
  - ii. The airport region relevant biodiversity.
  - iii. The most significant wildlife species behavior.
  - iv. The main reasons for such wildlife species existence or flying over.
  - v. Migratory flyway (If it is migratory bird species).
  - vi. Flyway altitude.
  - vii. Determination of the altitudes and geographical sites of interference between aircrafts pathway and the migratory birds' flyway.
- (d) Observed wildlife numbers and sizes.
- (e) Observed wildlife locations and local movements.
  - i. The most significant bird flocks gathering points and geographical distribution at the airport region (on or within the airport vicinity).
  - ii. The local movement of bird flocks determination.
- (f) Observed wildlife daily and seasonal occurrences.
- (g) Identification and location of wildlife attractants on/in the vicinity of aerodromes.

On Airport	**Airport Vicinity**
i. Solid waste transfer stations	i. Landfills
ii. Water treatment facilities	ii. Waste water oxidation ponds
iii. Maintenance hangers	iii. Forestry
iv. Landscapes	iv. Agricultural activities
v. Recycling stations	v. Landscapes
vi. Wetlands	vi. Golf courses
vii. Agricultural activities	
viii. Others	

7- Description of the wildlife hazard to air carrier operations.
8- Wildlife Control
- (a) Monitoring
  - i. Daily Wildlife Management Log
  - ii. Monthly Summary

9- Establishment of Performance Indicators and Self-Assessment
10- Recording and Reporting Wildlife Strikes

3.2 WHMP Implementation Phases

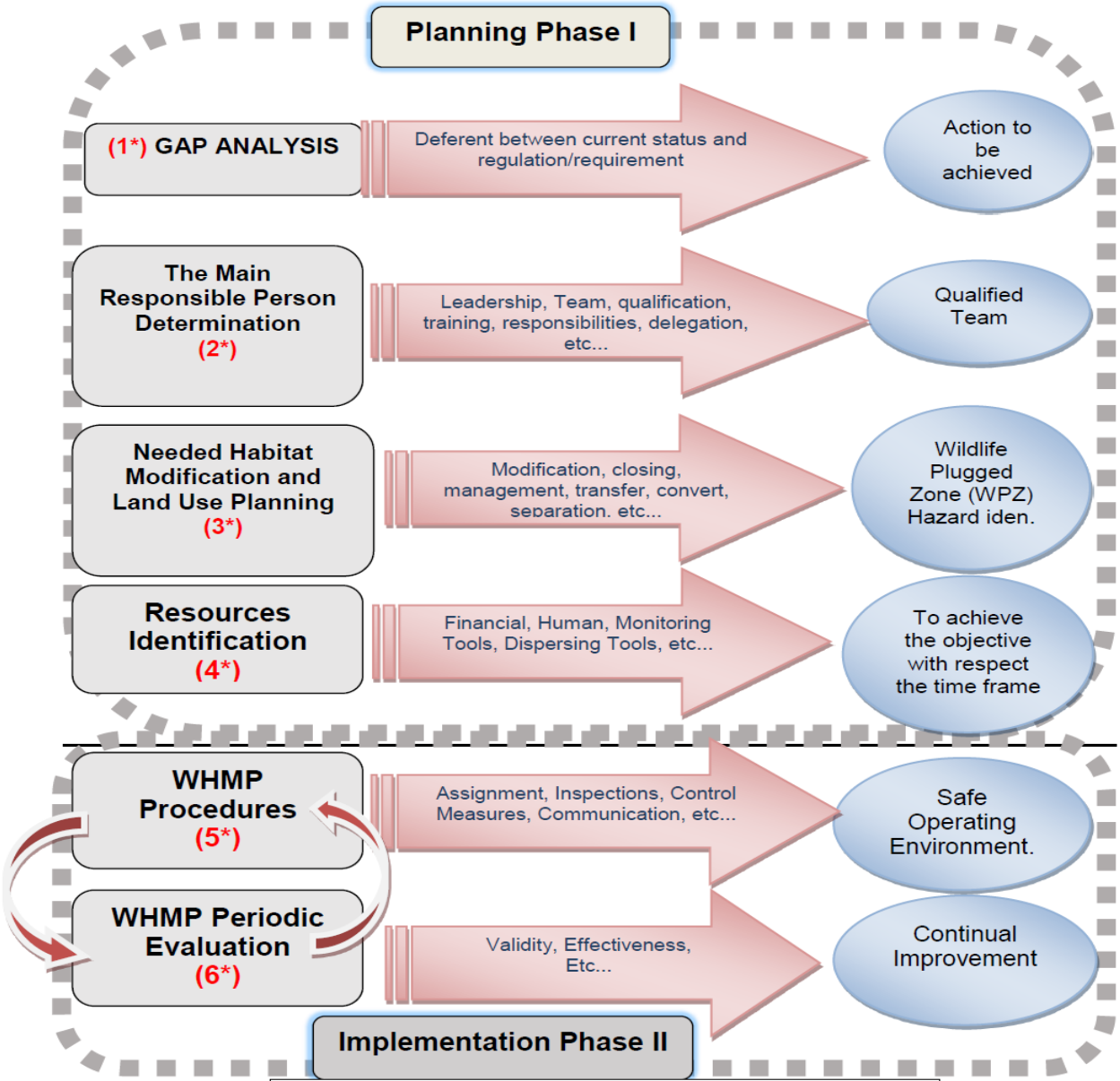
3.2.1 The purpose of this Section is to establish a criteria for implement the WHMP by the following components:

1- Phase I : Planning Phase

(a) Conduct Gap Analyses
(b) Resource Allocation
(c) Responsibility Identification
(d) Hazard Identification

2- Phase II : implementation phase
(a) WHMP Implementation Procedures
(b) Periodic Evaluating

Note: see Figure 1 *– WHMP implementation phases*



WHMP IMPLEMENTATION PHASES

Process #	Task Title	Process	Deliverable

Phase I: Planning Phase			
1*	Gap Analysis	Current situation vs objectives	Requirements needed to be fulfilled
2*	Resource Identification	Human, financial, tools, etc…	Allocated all needed resource for Suitable work environment
3*	Responsible Person Determination	Team assignment and training	Qualified team
4*	Habitat Modification	Management, closing, transfer, etc…	Passively created considerable safe operating environment
Phase II: Implementation Phase			
5*	WHMP Implementation Procedures	Inspection, wildlife dispersing, recording, analysis, etc…	Actively created considerable safe operating environment
6*	Periodic Evaluating	WHMP Validity and effectiveness verification	Verified and audited plan which includes continual improvement

Figure -1 WHMP implementation phases

3.2.2 Phase I: Planning Phase

Step 1*: Gap Analysis (Where Are You? And What Should You Be?

A gap analysis is a method of assessing the differences in performance between a current situation (present state) and standard situation (the target state) to determine whether requirements are being met and, if not, what steps should be taken to ensure they are met successfully. Gap refers to the space between "where we are" (the present state) and "where we want to be".

The first step in conducting a gap analysis is to establish specific target objectives by looking at the strategic goals and improvement objectives which is stated in WHMP.

The next step is to analyze current state processes by collecting relevant data on performance levels and how resources are presently allocated to these processes. This data can be collected from a variety of sources depending on what's being analyzed, such as by looking at documentation and observing current activities. Lastly, after an airport compares its target goals against its current state, it can then draw up a comprehensive implementation plan to fulfill the gap between its current and future states, and reach its objectives level

Note:
C - Risk Analysis *may be used to conduct gap analysis*

Step 2*: Resources Allocation:

Airport Operator responsible for allocate the resources to implement the appropriate wildlife hazard management techniques these resource is define as:

Human Resources Identification: assign key person from the following department (the Wildlife Hazards Control Team) and other contributing airport personnel for implementing each phase of the plan

a. Environmental Department
b. Safety Department
c. Operations Department
d. Maintenance Department
e. Security Department
f. Air Traffic Control (ATC)
g. Planning Department
h. Financing Department
i. Wildlife Controller (Coordinator): (To oversee the daily activities and analyze the collected data and carry out risk assessments in order to develop and implement the WHMP)

Financial Resources Identification: In coordinating with Planning and Financing Departments, the Airport Operator should determine the most appropriate wildlife monitoring and dispersing tools to be purchased and the training to be provided.

Step3*: Responsibility Determination:

- The Airport Operator's responsibilities should be borne by the senior manager role and this should be specified in the aerodrome Safety Management System (SMS). The Wildlife Control Coordinator is in charge of the implementation of the WHMP. The Wildlife Control Operators carry out the required tasks and field work. A Wildlife Committee will ensure that all stakeholders are engaged in the WHMP.

- The assignment of actual roles, titles and tasks will vary from airport to airport. At smaller airports the roles might be divided or merged to just 1 or 2 levels. Larger airports will require larger, possibly dedicated teams. Some tasks or roles may be contracted to an external company or organization.

  *Note: see **Figure 2 – Organisation Chart** ((this organization chart may be differ from one State to another).*

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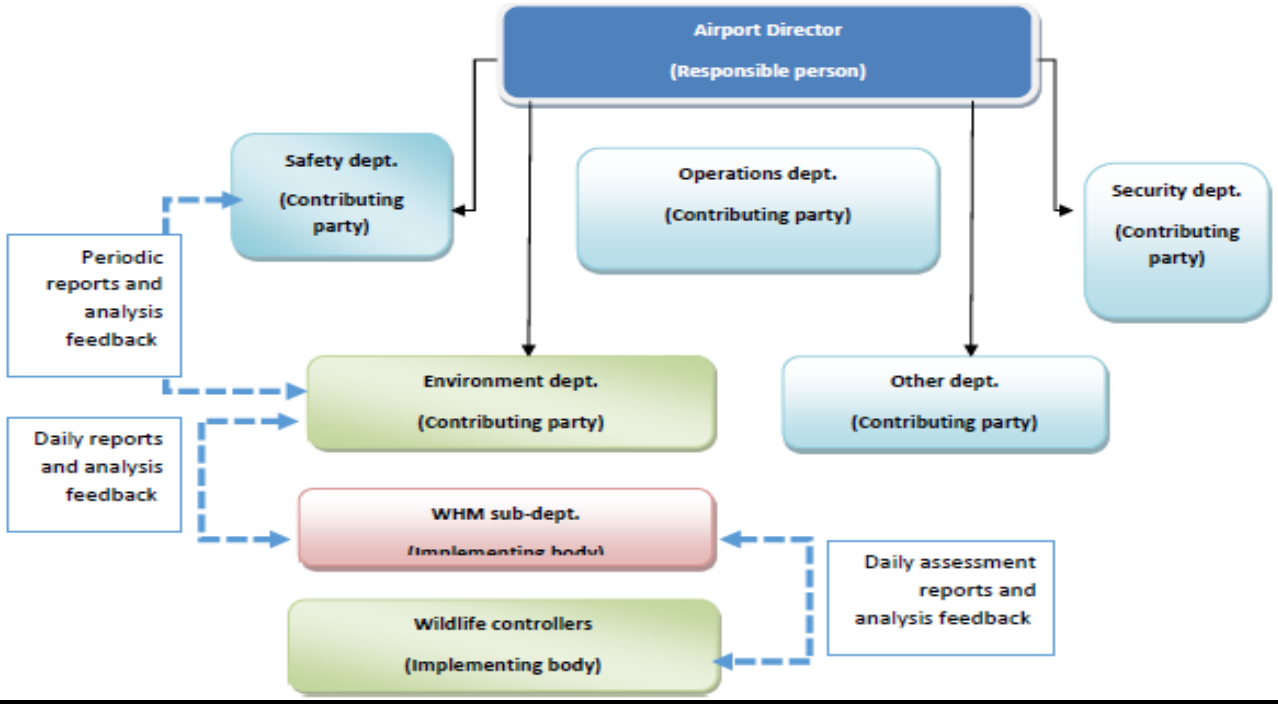
Figure 2
Organisational Chart



Roles & Responsibilities of Wildlife Hazard Management (Coordinator) and Relevant Team (Front-Line Personnel (Wildlife Controllers)):

1. Monitoring birds local movements area on/in the airport vicinity using one of the monitoring tools from the highest point at airport (as much as possible) especially the airport movement area with the aim of quick intervention in case of presence of such wildlife hazards to prevent the likelihood of bird strikes or any other damaging collisions.
2. Daily inspections and patrolling of the airport movement area to verify wildlife hazard and/or wildlife hazard attractants absence.
3. Periodical inspection of the wildlife hazards attractants on/in the aerodrome vicinity.
4. Wildlife hazard management and control relevant records and checklist filling out and keeping.
5. Raising up weekly and monthly reports conveying the current situation of his activities, performance, and any other relevant duties.
6. Keeping in contact with quick reaction with the ATC department in case of any emergency notifications regarding wildlife existence.
7. Coordinate the activities of the WHMP with air traffic control (ATC) and other stakeholders and contributors (as mentioned in the following flowchart).
8. Bird/wildlife observations, control and reporting.
9. Review strike reports, monitor daily activity records and maintenance reports to determine the requirements for short- and long-term management plans, and this information should be passed to managers accountable for safety on a regular basis at least on monthly basis (Ref: ICAO Service manual part 3).
10. Regular coordinating with WHMP other contributing parties and informing them with their roles and responsibilities in WHMP implementation.

Note: ***Appendix E Key Roles And Responsibilities*** *provides a guide for the key roles and responsibility, for further information can be found: ICAO Airport Service Manual, part 3, Wildlife Control and Reduction, 3.3 Role of the Airport Operator and 3.4 Role of Bird/ Wildlife Strike Control Coordinator and ACI Wildlife Hazard Management Handbook Section 2*

Step 4*: Needed for Habitat Modification and Land Use Planning:
Hazards attractants recognizing (description of wildlife habitats and resources): Habitat management is the heart of airport's Bird/Wildlife Hazard Management Program because it offers ecologically based, long-term measures for reducing the number of hazardous birds/wildlife at the airport. Before undertaking activities to manage the environment, it is important to first carry out an Ecological Survey (refer to item (3.1.2) of the airport and surrounding area to identify sources of food, water and shelter attractive to wildlife on and in the vicinity of the airport.
Categorized the hazard as the following:

- **1st Landscape Category** which is the airport itself, where habitats and the wildlife using them will be described in detail. This will rely on site-specific field work and standard techniques for describing vegetation communities (e.g., Ecological Land Classification) and wildlife communities, their use patterns and seasonal variations that have been observed or that might be expected.

- **2nd Landscape Category** which is the nearby lands that are not under direct control of the airport. The physical area included in this category generally includes lands up to 8 km from the airport reference point, which should include an area of sufficient size to provide an adequate picture of wildlife movements through the airspace identified later in this document. This assessment is largely based on existing information and remotely sensed habitat analysis rather than site-specific field work. It will describe the location of moderately hazardous land use practices such as wastewater discharge plants and sewage lagoons, crop production, recreational sites and managed or created wildlife habitats. There is no requirement under the regulation to manage these lands however it is important to be aware of potentially hazardous off airport land uses.

- **3rd Landscape Category** which is the determination of the presence of extremely hazardous land use practices that may be many kilometers from the airport. At a minimum, food waste disposal sites, outdoor composting and commercial fish plants will be mapped when they occur within 15 km of the airport reference point. Such features may be mapped at greater distances where wildlife associated with them may become a hazard to aircraft using the airport.

3.2.3 Phase II: Implementation Phase

Step 5*: WHMP Operational Process:
The Wildlife Hazard Implementation Process should have formal mechanism to ensure that the Wildlife Hazard Management Plan (refer to item 3.1.2 in Establishment Phase) will be implemented effectively for that's the following procedures should be followed (Figure 3):

1st Administrative Mechanism

2nd Control Wildlife Mechanism including:

a. Habitat (wildlife hazard attractants) management mechanism on/in the airport vicinity.
b. Using most suitable and effective dispersing tools (removing hazardous wildlife).

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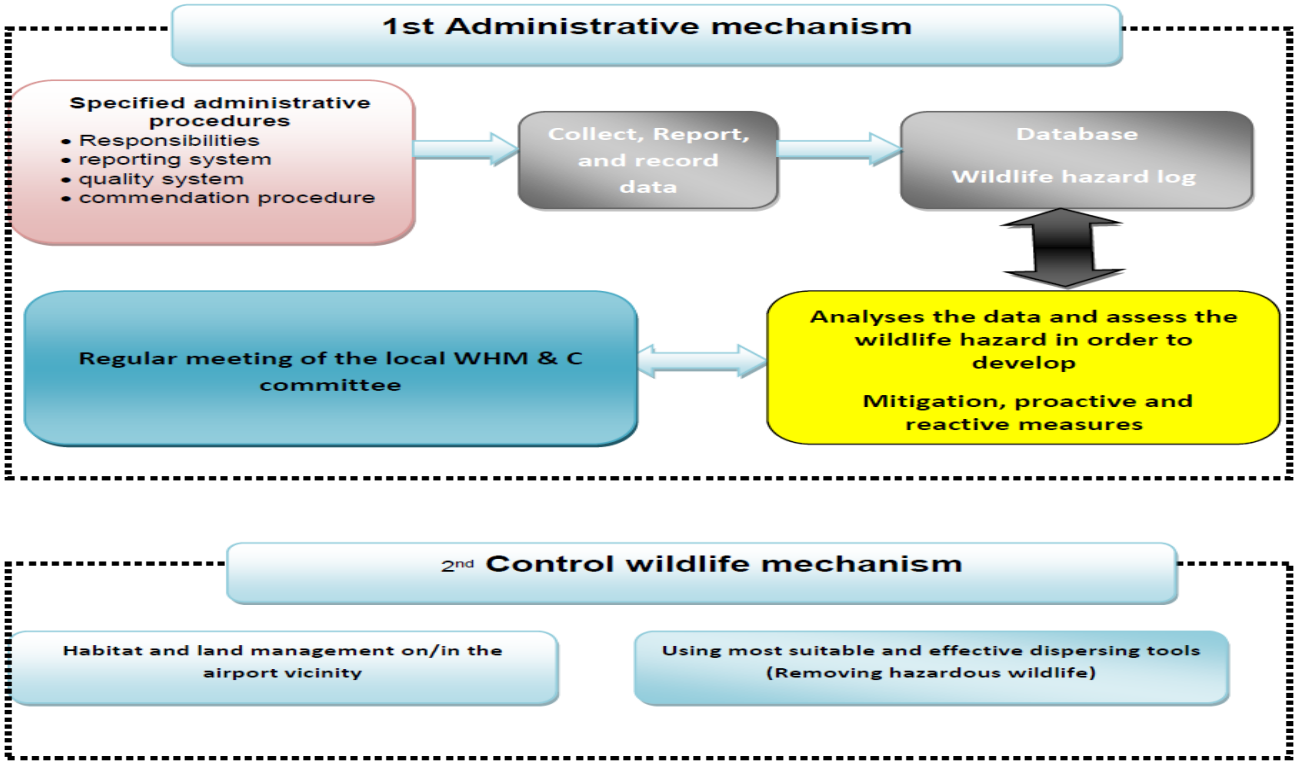

Figure 3

1st Administrative Mechanism

- For effective implementation the Airport Operator should have specified administrative procedures whether to activate the key person responsibilities, writing reports and quality system include documents control system
- Senior airport staff will be responsible for the implementation of this WHMP. This includes the acquisition of the various permits, the provision of training and awareness programs and the review and submission of the annual strike reports and two-year updates.
- Senior management, or their designate, will be responsible for coordinating, supervising and the overall management of the WHMP on a long-term and a daily basis at the site-specific level. This will include the nomination of the key Wildlife Management Officer, co-ordination of training, safety assurance and ensuring that the necessary equipment is available.
- **Appendix E - Key Roles & Responsibilities** provides the roles and responsibilities for all key person

  Note: Further information can be found: ICAO Airport Service Manual, Part 3, Wildlife Control and Reduction, 3.3 Role of The Airport Operator and 3.4 Role Of Bird/ Wildlife Strike Control Coordinator and Wildlife Hazard Management Handbook Section 2

- Regular meeting of the Local Wildlife Hazard Management and Control Committee
- Wildlife Hazard Management on an airport often requires communication, cooperation, and coordination among various groups on the aerodrome. Establishment of the Airport Wildlife Committee is required to facilitate this communication, cooperation and

coordination. This committee might be included within the Safety Management Committee.

Members:

a. Airport Operator.
b. Bird/Wildlife Department Team.
c. Maintenance Department Representative/s.
d. Planning Department Representative/s.
e. Financing Department Representative/s.
f. Operations Department Representative/s.
g. ATC Representative/s.
h. Security Department Representative/s.
i. Environment Department Representative/s.
j. Agriculture Department Representative/s.
k. Airport Using Airlines Representative/s.
l. Local Runway Safety Team Representative

Roles and Responsibilities:

a. Review strike data collected.
b. Assess bird/wildlife risks.
c. Summarize trends in order to evaluate and determine what effective and most suitable control measures should be implemented in order to manage the bird/wildlife hazards.

Committee Meeting Intervals:
Based on the airport complexity and the level of bird/wildlife existence (recommended monthly).

- An integrated approach is needed to coordinate throw the airport organizations. It is important to have effective communication between those involved in bird/wildlife dispersal and air traffic control. Upon receipt of notice of a specific wildlife threat, air traffic control should issue appropriate warnings to aircraft on and in the vicinity of the airport. (Aircraft operators also be part of such an integrated approach by implement their roles upon receipt of the warning of a specific threat.)

  Note: Further information can be found: ICAO Airport Service Manual, Part 3, Wildlife Control and Reduction, Chapter 5.

Example of communication procedures should be stated in Wildlife Management Plan *(see figure 4)* :

1. Information will be provided directly from the wildlife observer on duty to Air Traffic Services (ATS) via radio contact.
2. Wildlife observer responsible for ensuring that updated wildlife information is provided to ATS immediately if an urgent situation arises and on a regular basis depending on the current conditions, or when requested by ATS.
3. ATS deployment any information received from aircraft operator concern wildlife observations to wildlife observer in a timely manner.
4. ATS will provide information to pilots on current wildlife hazards and will ask pilots to report any wildlife observations to ATS especially those observed while taxiing.

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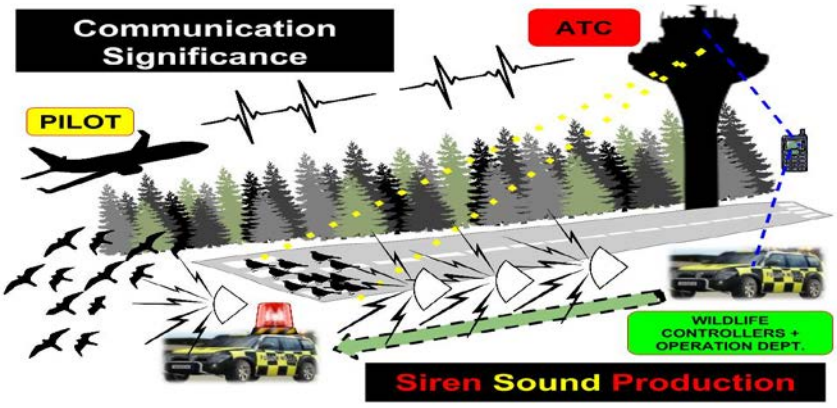

(Figure 4)

Further information can be found: ICAO Airport Service Manual, part 3, 3.4 Role of Bird/ Wildlife Strike Control Committee- ACI Wildlife Hazard Management Handbook item 2.5

2nd: Wildlife Control Mechanism (*Operational Mechanism*)

Habitat (Wildlife Hazard Attractants) Management Mechanism on/in the Airport Vicinity

- The airport's WHMP should provide details on the actions and procedures necessary to manage both habitat and wildlife given the specific local conditions and considerations Actions to deal with wildlife on a daily basis starts with patrols and inspections, observation of wildlife and other conditions, making interventions and assessing the response to inventions. It is also crucial to record all actions and observations in order to be able to review the effectiveness of the WHMP and development improvements.

- After working hazard identification and analysis (item 3-1-1) airport operator should have machoism to control of wildlife attractants through the following:
    a. Avoid establishment such kind of wildlife attractants anymore in the airport new projects or expanding.
    b. Reduce the wildlife attractants from its original source as much as possible.
    c. Destroying the food chain of such wildlife species at airports by using a series of insecticides, herbicides and rodenticides applications.
    d. Management of airport's airside ground cover as appropriate with its relevant wildlife species and its behaviors.
    e. Choosing the optimum way of habitat modification based on the existing and expected wildlife.
    f. Definitely short grass cover is more convenient for visual and physical access of wildlife control team.
    g. Eliminate all standing water on an airport to the greatest extent possible.
    h. Modify waste water oxidation ponds whether by monitoring and dispersing birds regularly to form a wildlife plugged zone (WPZ) or covering it using nets or any other relevant suitable techniques (exclusions techniques).
    i. Proper fencing installation.
    j. Others.

Using Most Suitable and Effective Dispersing Tools

- Repellent and harassment techniques should be used to keep hazardous wildlife away from specific areas on or near an airport. The long-term cost-effectiveness of repelling hazardous wildlife does not compare favourably with habitat modification or exclusion techniques. Wildlife will return as long as the attractant is accessible. However, habitat modification and exclusion techniques will never rid an airport of all hazardous wildlife. Repellent techniques are a key ingredient of any wildlife hazard management plan.

- Repellents work by affecting the animal's senses through chemical, auditory or visual means. Habituation or acclimation of birds and mammals to most mechanical repellent techniques is a major problem. When used repeatedly, without added reinforcement, wildlife soon learn that the repellents or techniques are harmless and the repellents or techniques are ignored.

  When Using Repellents, Four Critical Factors should be Remembered:
  1. there is no single solution to all problems;
  2. there is no standard protocol or set of procedures that is best for all situations. Repelling wildlife is an art and a science. Motivated, trained and suitably equipped personnel who understand the wildlife on the airport are critical for the successful use of repellents;
  3. each wildlife species is unique and will often respond differently to various repellent techniques. Even within a group of closely related species, such as gulls, the various species will often respond differently to various repellent techniques; and
  4. to lessen habituation to repellent techniques:
     - use each technique sparingly and appropriately when the target wildlife is present;
     - use various repellent techniques in an integrated fashion; and
     - Reinforce repellents with occasional lethal control (only when necessary depredation permits are in place) directed at abundant problem species.

- Advances in electronics, remote sensing and computers have resulted in "intelligent'' systems that can automatically dispense repellents (for example, noisemakers, chemical sprays) when targeted wildlife enter selected areas. These devices are used to reduce habituation and increase the effectiveness of other repellent techniques. It should be remembered that automated repellents are not a substitute for trained people on the ground, who can respond appropriately to incursions by various wildlife species, and should be considered only when more traditional methods of control and dispersal have proved ineffective.

Note: for further information can be found: ICAO Airport Service Manual, Part 3, and chapter 8 Wildlife Control and Reduction and ACI Wildlife Hazard Handbook section 4

3.3 WHMP Periodic Evaluation

3.3.1 Purpose:

Aerodromes should have a process to review and evaluate the wildlife management plan to provide safety assurance that the plan is fully effective and correctly implemented. The review should be completed on an annual basis but also must include an on-going review process to ensure that the plans are always current and fully functional at all times.

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Procedures to monitor and evaluate the effectiveness of bird or wildlife control strategies might include:

- Airport's WHMP include wildlife control performance monitoring, measurement and improvement systems;
- Personnel training, competence assessment and appraisal.

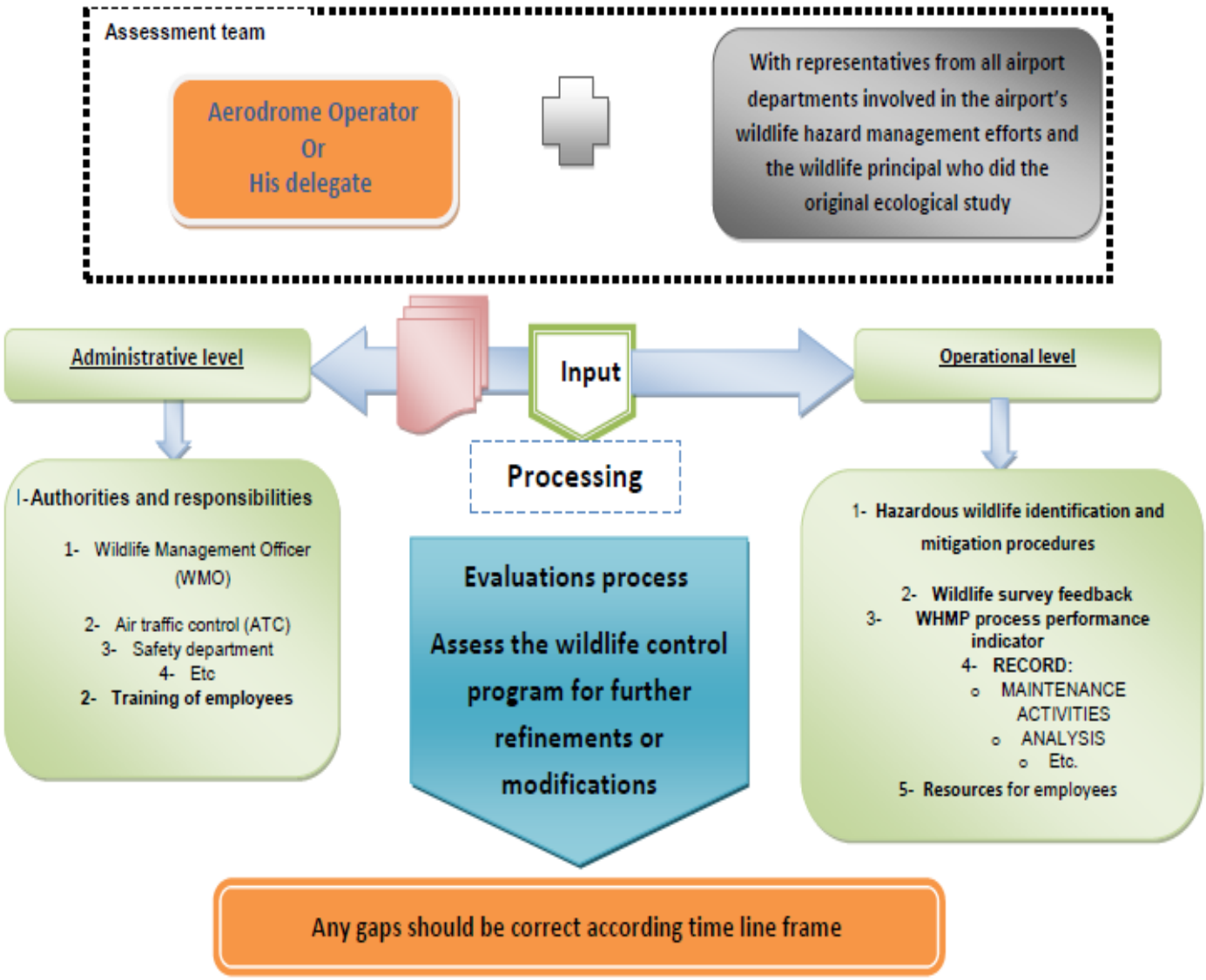

Figure 5 -Evaluation Process

3.3 Evaluation of the Airports Wildlife Hazard Management Program:

3.3.1 Administrative Level

i. **Evaluation the Authorities** and responsibilities: to ensure that all roles clearly defined and understood by all and the aerodrome personnel understand their roles and responsibilities

ii. **Evaluation the Training** of employees: to ensure the computability with the training program

Note: For further information about the training program can be found in the ICAO Airport Service Manual, Part 3, Chapter 4 Wildlife Control and Reduction and ACI Wildlife Hazard Handbook Section 5

3.3.2 Operational Level: Assessment should include at least the following:

i. **Evaluation The Hazardous Wildlife Identification and Mitigation Procedures:** include assessment the records of any habitat modifications and adjacent land use management which will consequently affect the presence of wildlife (time, locations, dates, migratory flyways, numbers, etc…)

ii. **Wildlife Survey Feedback:** is a valuable tool for aerodromes to ensure their wildlife management and habitat plans are effective, meet all regulations and standards required (ATC, Airlines and ……etc).

iii. **Evaluation the WHMP Process Performance Indicator*:** Performance indicators is critical to determine the need for enhancement or modification. It is also very necessary because actions to reduce one wildlife hazard will inevitably result in improved conditions for some other wildlife species.

- a- The number of wildlife strikes;
- b- Strike rate;
- c- Damage associated with strikes;
- d- Individual species' hazard assessments;
- e- Risk rankings for airport; and
- f- The status of action items that have been recommended in the plan.

**Taken together, these seven measurements will form an effective and objective measurement of performance of the WHMP for airport. The hazard and risk assessment will be updated and compared to the previous assessments in the WHMP every two years (or earlier if there is a significant change in hazards or risk). A discussion of any changes will be provided. Feedback from airport users will be sought and reported in time for each two-year update this will help determine if the wildlife program is being responsive to their needs.*

3.3.3 Evaluation of the Keeping Records:

a) **Records of wildlife activity**, wildlife strikes, and wildlife management actions

b) **Maintenance activities** and any other corrective and preventative actions: keep records of any corrective and preventative actions serving wildlife hazard management and control concept, such actions might be installing or repairing fencing, thinning trees, clearing construction debris, applying pesticides or repellents, conducting grass-height management, installing netting in hangers or wires over ponds or oxidation tanks, and regarding pavement or grass areas to eliminate standing water.

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c) Recorded Information Analysis: the information recorded will be most useful if it is summarized into monthly and annual statistics. The use of computerized database systems customized to provide summaries of wildlife control activities is recommended.

Note: Furthermore, without accurate records and proper evaluation, it might be difficult to justify and defend certain management actions such as wildlife removal.

d) Evaluation of Resources for Employees: Periodic analyses of daily wildlife reports, will reveal:

- The effectiveness of applied control techniques for various wildlife species;
- The effectiveness of different dispersal techniques at different times of the day and under different weather conditions; and
- The amount of time wildlife remain dispersed.

Note: see figure 5 -Evaluation Process

APPENDIX A
WILDLIFE HAZARD MANAGEMENT ASSESSMENT CHECKLIST

Name of Aerodrome: Inspection Date: Name of Operator: Inspector(s) Name (s): Regulation ……						
	Item	Reg Ref	Yes	No	N/A	Remark
1.	Has Bird/Wildlife Control Officer(s) at the site been appointed and responsibilities assigned?					
2.	Has a training programme been developed to train those involved in Bird/Wildlife Control Programme?					
3.	Have the control officer(s) being trained accordingly?					
4.	Has the Bird/Wildlife Control Co-Coordinating Committee been established with well-defined responsibilities?					
5.	Has a Bird/Wildlife Control Programme (Management Plan) been developed?					
6.	Is level of implementation of measures in control programme (including those below) satisfactory?					
7.	Does the Aerodrome Operator maintain an observation log? Does the content of the log give an indication of the actual status during inspection					
8.	Does the aerodrome operator on a regular basis remove the attraction to birds particularly water, food, nesting sites and resting places?					
9.	Does the operator maintain a wildlife/bird dispersal log? Does the content of the log give an indication of the actual status during inspection?					
10.	Does the Aerodrome Operator regulate the creation of refuse dumps that would attract birds in the vicinity of the aerodrome where the safety of aircraft operations is endangered?					
11.	Has a reporting procedure been documented covering all aspects of the Bird/Wildlife Control Programme?					
12.	Does the Aerodrome Operator keep records of timely reports on bird strike incidents or accidents occurring at the aerodrome?					
13.	Does the Aerodrome Operator submit reports to the CAA for onward submission to ICAO on a regular basis, bird strike reports to facilitate effective use of the IBIS programme in accordance with eac139-20?					
14.	Does the operator make available information on the presence of birds and associated hazards to ATC for advising arriving and departing aircrafts?					
15.	Does the Aerodrome Operator take active part in workshops on bird hazard control and reduction organized by ICAO and other relevant bodies for exchange of views and experiences conclusion?					
16.	Has a list of all bird/wildlife attractants at the aerodrome been completed?					
17.	Has a list of all birds/wildlife surrounding the aerodrome been completed?					
18.	Has a Land Use Plan been established with regard to effective land use on and off the aerodrome as it pertains to the bird/wildlife control programme?					
Inspector's Remarks: Recommendation: Name Of Inspector:_____Sign:_____Date:___						

APPENDIX B
DATA COLLECTION TEMPLATE FOR OBSERVED WILDLIFE

Wildlife Description	Location and Round Figure of No.				Movement period Season/ month
	1st point	2nd point	3rd point	4th point	
White Stork					**August**
Prey					**May- Jun- July**
Water Birds					**From September**
Others					**all over the year**

APPENDIX C
RISK ANALYSIS

Table Appendix C-1: Probability

Qualitative Definition	Meaning	Value
Frequent	Likely to occur many times (has occurred frequently)	3
Occasional	Likely to occur sometimes (has occurred infrequently)	2
Remote	Unlikely, but possible to occur (has occurred rarely)	1

Table Appendix C-2: Severity

Qualitative Definition	Meaning	Value
Major Damage	Aircraft may incur damage or structural failure that adversely affect the structure strength, performance, or flight characteristics and that would normally require major repair or replacement of the affected component, or make it inadvisable to restore aircraft to airworthy condition.	C
Damage	Aircraft may incur at least some damage (destroyed, substantial, minor, or unknown) from strike	B
Effect on Flight	Aborted takeoff, engine shutdown, precautionary landing, or other	A

Table Appendix C-3 Probability /Severity

	Severity		
Probability	**Major Damage C**	**Damage B**	**Effect on Flight A**
Frequent 3	**3C**	**3B**	**3A**
Occasional 2	**2C**	**2B**	**2A**
Remote 1	**1C**	**1B**	**1A**

APPENDIX D
GAP ANALYSIS FOR WILDLIFE HAZARD MANAGEMENT PROGRAMME IMPLEMENTATION

Priority Level	Target state	Current State	Reg. Ref.	Remarks
High	Ecological study	○yes ○partial ○no		
High	Events and Strikes records	○yes ○partial ○no		
High	Other wildlife damaging collision records	○yes ○partial ○no		
High	Wildlife species identification	○yes ○partial ○no		
Medium	Wildlife species numbers and sizes	○yes ○partial ○no		
High	Wildlife locations on/in aerodrome vicinity	○yes ○partial ○no		
Medium	Daily and seasonal occurrence records	○yes ○partial ○no		
High	Recognizing wildlife attractants	○yes ○partial ○no		
High	Most significant wildlife species identification	○yes ○partial ○no		
High	Most potential date and time of event occurrence identification	○yes ○partial ○no		
High	Migratory birds flyways identification	○yes ○partial ○no		
High	Flyway altitude identification	○yes ○partial ○no		
High	Migratory birds flyway interference with aircraft pathway mapping	○yes ○partial ○no		
High	Most important wildlife gathering points identification and mapping	○yes ○partial ○no		
High	Responsible person determination	○yes ○partial ○no		
High	Wildlife controllers determination	○yes ○partial ○no		
High	Wildlife controllers qualifications and training requirements identification	○yes ○partial ○no		
High	Providing the needed training for both wildlife controller and other airport personnel	○yes ○partial ○no		
High	Wildlife attractants modifications procedures identification	○yes ○partial ○no		
High	Individual roles and responsibilities assignment	○yes ○partial ○no		
High	Resources identification	○yes ○partial ○no		
High	Suitable wildlife control strategies determination	○yes ○partial ○no		
High	Suitable wildlife control measures (Monitoring and Dispersing tools) determination	○yes ○partial ○no		
Medium	Daily inspection checklist preparation	○yes ○partial ○no		
Medium	Weekly inspection checklist preparation	○yes ○partial ○no		
Medium	Monthly inspection checklist preparation	○yes ○partial ○no		
Medium	Actions taken records	○yes ○partial ○no		
Medium	Wildlife hazard management and control internal committee records	○yes ○partial ○no		

Priority Level	Target state	Current State	Reg. Ref.	Remarks
Medium	Wildlife hazard management and control internal committee recommendations and enforcement follow-up sheets	○yes ○partial ○no		
Medium	Wildlife hazard management and control national committee records	○yes ○partial ○no		
Medium	Wildlife hazard management and control national committee recommendations and enforcement follow-up sheets	○yes ○partial ○no		
Medium	WHMP implementation evaluation forms	○yes ○partial ○no		
Medium	WHMP evaluation forms for its effectiveness	○yes ○partial ○no		

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APPENDIX E
KEY ROLES AND RESPONSIBILITIES

Title	Key WHMP Responsibilities
Airport Manager	• Implementation of this WHMP; • Acquisition of the various permits; • Provision of training and awareness programs; • Review and submission of the annual strike reports and two year updates.
Assistant Manager	• Coordinating, supervising and the overall management of the WHMP; • Nomination of the key Wildlife Management Officer (WMO); • Co-ordination of training, safety assurance; • Ensuring that the necessary equipment is available.
Wildlife Management Officer (WMO)	• Maintenance of the Wildlife Management Log (e.g., including strike data, details on wildlife numbers and activity; • WHMP measures undertaken, firearm use details; • details on the use of lethal reinforcement and monthly summaries); • Co-ordination of the monitoring program; • Preparation of the annual strike report; • Ensuring that Airport operations are consistent with the requirements of the WHMP; • Ensuring that the appropriate permits are current and present on-site; • Undertaking deterrent activities; • Ensuring all activities are undertaken following standard practices and safety protocols; and • identification of equipment, resource and training needs.
Back-up to WMO	• Filling in for WMO during vacations, lunch, sick time etc.
Air traffic Control (ATC)	• Informing wildlife hazards controllers, environmental dept. and operations dept. in case of observing any of these birds and/or wildlife gathering on/in airport vicinity or when receiving any relevant notification from pilot. • Warning pilots in case of wildlife observations (risky operating environment) and hazards expectation. • Report any unsafe conditions including hazardous wildlife on or in airport vicinity to the appropriate airport personnel anytime they are observed. • Actively attend the local wildlife hazard control committee meetings and any other relevant meetings.
Safety Department	• Receiving all wildlife strikes and events with the aim of risk assessment formation to ease the future forecasting based on accurate database and risk assessment strategy. • Actively attend the local wildlife hazard control committee meetings and any other relevant meetings

Title	Key WHMP Responsibilities
Maintenance Department	• Periodical inspection of the wildlife attractants (such as ponds, transfer stations and water treatment facilities) or airport infrastructure (such as fence) which ease the wildlife invasion. • Corrective maintenance actions and preventative maintenance actions to be taken for wildlife hazards management and control verification.
Environmental Department	• Receiving wildlife strike reports from the wildlife hazard coordinator or wildlife hazards controllers. • Wildlife existence notification receiving from ATC and then verification of wildlife hazards controllers moving to the place of wildlife existence. • Database formation including wildlife species, numbers, sizes, date and time of existence, local movements, behaviours, the most suitable way of dispersing, etc… • Wildlife hazards management plan evaluating for effectiveness and verification of its compliance with the original wildlife hazard assessment (Ecological study). • Preparing under direct supervision of aerodrome operator for the local wildlife hazards control and management committee and other relevant meetings. • Follow-up decisions and recommendations taken by the mentioned above committee.
Other governmental municipalities (such as agriculture offices/corporations, solid waste and sewage disposal offices / corporations, state national environmental offices, natural reserves corporations, defense, representatives of the major airlines using airport, even the private sectors located in airport vicinity and others)	• Advance cooperation and coordination with airport management regarding land use planning for those located in airport vicinity. • Exchange information on research and development in airport wildlife control. • Providing and updating much relevant information for those in the aviation community.

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APPENDIX 3G

DIP Tracking for MID-RAST/RGS/6

Laser Attacks

RGS/6 DIP Deliverable	Target Date	Status	Comments
RSA for Guidance Material	September 2016	In Progress	Draft Completed – to be finalized after review
✓ ICAO to issue State Letter to promulgate regulations on Laser Attacks	June 2015	Completed	Letter issued by ICAO MID on 3 September 2015
RSA with Case Study	May 2016	In Progress	Draft Completed – to be finalized after review

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APPENDIX 3H

STATUS OF AERODROME CERTIFICATION IMPLEMENTATION IN MID REGION

Sr	State	Listed Aaerodromes					Certified Aerodromes					Percentage Certified	Remarks
		RS	RNS	AS	ANS	Total	RS	RNS	AS	ANS	Total		
1	Bahrain	1				1	1				1	100%	OBBI (1RST)
2	Egypt	6	1			7	4				4	57%	HECA, HEGN , HEMA, HESH (4 RSTs)
3	Iran	8	1			9	4				4	44%	OIFM, OIKB, OISS, OIZH (3 RSTs)
4	Iraq	5	1			6	2				2	33%	
5	Jordan	2		1		3	1				1	33%	OJAQ
6	Kuwait	1				1	1				1	100%	OKBK (1 RST)
7	Lebanon	1				1	0				0	0%	
8	Libya	3				3	0				0	0%	
9	Oman	1		1		2	1		1		2	100%	OOMS, OOSA
10	Qatar	2				2	2				2	100%	
11	Saudi Arabia	4				4	4				4	100%	All inernational airports (4 RSTs)
12	Sudan	2		2	0	4	2		1		3	75%	HSSS, HSPN, HSOB (4 RSTs)
13	Syria	3				3	0				0	0%	
14	UAE	7	1			8	7	1			8	100%	All inernational airports (8 RSTs)
15	Yemen	5				5	0				0	0%	
	Total	**51**	**4**	**4**	**0**	**59**	**29**	**1**	**2**	**0**	**32**	**54%**	**25 RSTs**
	% Certified						57%	25%	50%		54%		

APPENDIX 3I

STATUS OF THE MID REGION SAFETY INDICATORS vs. THE SAFETY TARGETS

	Safety Indicator	Safety Target	MID Region			Global		
			Average Rate (2009-2013)	Average Rate (2010-2014)	Rate 2014	Average Rate (2009-2013)	Average Rate (2010-2014)	Rate 2014
Reactive Part	Number of accidents per million departures	Reduce/Maintain the regional average rate of accidents to be in line with the global average rate by 2016.	**7.28**	**5.2**	**4.4**	**3.72**	**3.5**	**3.1**
	Number of fatal accidents per million departures	Reduce/Maintain the regional average rate of fatal accidents to be in line with the global average rate by 2016.	**1.69**	**1.2**	**0.88**	**0.53**	**0.46**	**0.29**
	Number of Runway Safety related accidents per million departures	Reduce/Maintain the regional average rate of Runway Safety related accidents to be below the global average rate by 2016.	**3.98**	**2.68**	**2.6**	**1.98**	**2.05**	**2.45**
		Reduce/Maintain the Runway Safety related accidents to be less than 1 accident per million departures by 2016.	**N/A**	**N/A**	**2.6**	**N/A**	**N/A**	**N/A**
	Number of LOC-I related accidents per million departures	Reduce/Maintain the regional average rate of LOC-I related accidents to be below the global rate by 2016.	**0.61**	**0.39**	**0**	**0.08**	**0.07**	**0.06**
	Number of CFIT related accidents per million departures	Reduce/Maintain the regional average rate of LOC-I related accidents to be below the global rate by 2016.	**0.42**	**0.2**	**0**	**0.12**	**0.11**	**0.06**

	Safety Indicator	Safety Target	MID
Proactive Part	USOAP-CMA Effective Implementation (EI) results: a. Regional average EI. b. Number of MIDStates with an overall EI over 60%. c. Number of MID States with an EI score less than 60% for more than 2 areas (LEG, ORG, PEL, OPS, AIR, AIG, ANS and AGA).	Progressively increase the USOAP-CMA EI scores/results: a. Increase the regional average EI to be above 70% by 2020. b. 11 MID States to have at least 60% EI by 2020. c. Max 3 MID States with an EI score less than 60% for more than 2 areas by 2017.	a. 68.23% b. 8 States c. 6 States
	Number of Significant Safety Concerns.	a. MID States resolve identified Significant Safety Concerns as a matter of urgency and in any case within 12 months from their identification. b. No significant Safety Concern by end of 2016.	None
	Use of the IATA Operational Safety Audit (IOSA), to complement safety oversight activities.	a. Maintain at least 60% of eligible MID airlines to be certified IATA-IOSA by the end of 2015 at all times. b. All MID States with an EI of at least 60% accept the IATA Operational Safety Audit (IOSA) as an acceptable Means of Compliance (AMC) by 2015 to complement their safety oversight activities.	a. 68% b. 4 States
	Number of certified international aerodrome as a percentage of all International Aerodromes in the MID Region.	a. 50% of the International Aerodromes certified by 2015. b. 75% of the International Aerodromes certified by 2017.	(54%) 32 out of 59
	Number of established Runway Safety Team (RST) at MID International Aerodromes.	a. 50% of the International Aerodromes by 2020.	42%

	Safety Indicator	Safety Target	MID
Predictive Part	Number of MID States, having completed the SSP Gap Analysis on iSTARS.	10 MID States by 2015	11 States (Bahrain, Egypt, Iran, Kuwait, Lebanon, Oman, Qatar, Saudi Arabia, Sudan, Syrian Arab Republic and UAE).
	Number of MID States, that have developed an SSP implementation plan.	10 MID States by 2015	9 States (Bahrain, Egypt, Kuwait, Lebanon, Oman, Qatar, Saudi Arabia, Sudan and UAE).
	Number of MID States with EI>60%, having completed implementation of SSP Phase 1.	All MID States with EI>60% to complete phase 1 by 2016.	3 States (Bahrain, Saudi Arabia and UAE) completed implementation of SSP Phase 1. 4 States (Egypt, Iran, Kuwait and Qatar) partially completed implementation of SSP Phase 1.
	Number of MID States with EI>60%, having completed implementation of SSP Phase 2.	All MID States with EI>60% to complete phase 2 by 2017.	1 State (UAE) completed implementation of SSP Phase 2. 6 States (Bahrain, Egypt, Iran, Kuwait, Qatar and Saudi Arabia) partially completed implementation of SSP Phase 2.
	Number of MID States with EI>60%, having completed implementation of SSP Phase 3.	All MID States with EI>60% to complete phase 3 by 2018.	7 States (Bahrain, Egypt, Iran, Kuwait, Qatar, Saudi Arabia and UAE) partially completed implementation of SSP Phase 3.
	Number of MID States with EI>60%, having completed implementation of SSP	All MID States with EI>60% to complete SSP implementation by 2020	None
	Number of MID States with EI>60% that have established a process for acceptance of individual service providers' SMS .	a. 30% of MID Stateswith EI>60% by 2015. b. 70% of MID Stateswith EI>60% by 2016. c. 100% of MID Stateswith EI>60% by 2017.	75% 6 States (Bahrain, Egypt, Iran, Kuwait, Saudi Arabia and UAE) established a process for acceptance of individual service providers' SMS.

APPENDIX 4A

B0-SURF: Safety and Efficiency of Surface Operations (A-SMGCS Level 1-2)

Description and purpose

Basic A-SMGCS provides surveillance and alerting of movements of both aircraft and vehicles on the aerodrome thus improving runway/aerodrome safety. ADS-B information is used when available (ADS-B APT).

Main performance impact:

KPA- 01 – Access and Equity	KPA-02 – Capacity	KPA-04 – Efficiency	KPA-05 – Environment	KPA-10 – Safety
Y	Y	Y	Y	Y

Applicability consideration:

A-SMGCS is applicable to any aerodrome and all classes of aircraft/vehicles. Implementation is to be based on requirements stemming from individual aerodrome operational and cost-benefit assessments. ADS-B APT, when applied is an element of A-SMGCS, is designed to be applied at aerodromes with medium traffic complexity, having up to two active runways at a time and the runway width of minimum 45 m.

B0-SURF: Safety and Efficiency of Surface Operations (A-SMGCS Level 1-2)			
Elements	***Applicability***	**Performance Indicators/Supporting Metrics**	**Targets**
A-SMGCS Level 1*	OBBI, HECA, OIII, OKBK, OOMS, OTBD, OTHH, OEDF, OEJN, OERK, OMDB, OMAA, OMDW	Indicator: % of applicable international aerodromes having implemented A-SMGCS Level 1 Supporting Metric: Number of applicable international aerodromes having implemented A-SMGCS Level 1	70% by Dec. 2017
A-SMGCS Level 2*	OBBI, HECA, OIII, OKBK, OOMS, OTBD, OTHH, OEJN, OERK, OMDB, OMAA, OMDW	Indicator: % of applicable international aerodromes having implemented A-SMGCS Level 2 Supporting Metric: Number of applicable international aerodromes having implemented A-SMGCS Level 2	50% by Dec. 2017

**Reference: Eurocontrol Document – "Definition of A-SMGCS Implementation Levels, Edition 1.2, 2010".*

TABLE B0-SURF (A-SMGCS Level 1-2)

EXPLANATION OF THE TABLE

Column

1 Name of the State

2 Name of City/Aerodrome and Location Indicator

3 Status of implementation of A-SMGCS Level 1, where:
Y – Yes, implemented
N – No, not implemented

4 Status of implementation of A-SMGCS Level 2, where:
Y – Yes, implemented
N – No, not implemented

5 Action plan — short description of the State's Action Plan with regard to the implementation of A-SMGCS Level 1-2, especially for items with "N".

6 Remarks

State	City/ Aerodrome Location Indicator	Level 1	Level 2	Action Plan	Remarks
1	*2*	*3*	*4*	*5*	*6*
BAHRAIN	Bahrain/Bahrain Intl (OBBI)	N	N	A-SMGCS Level 1-2 Project is under Execution phase. expected completion on Dec 2015	
EGYPT	Cairo/Cairo Intl (HECA)	Y	Y		
IRAN	Tehran/Mehrabad Intl (OIII)	N	N		
KUWAIT	Kuwait/Kuwait Intl (OKBK)	N	N		
OMAN	Muscat/Muscat Intl (OOMS)	N	N		
QATAR	Doha/Doha Intl (OTBD)	Y	Y		
	Doha/Hamad Intl (OTHH)	Y	Y		
SAUDI ARABIA	Dammam/King Fahad Intl (OEDF)	N	N		
	JEDDAH/King Abdulaziz Intl (OEJN)	N	N		
	RIYADH/King Khalid Intl (OERK)	N	N		
UAE	Abu Dhabi/Abu Dhabi Intl (OMAA)	Y	Y	Level 4 2017	
	Dubai/Dubai Intl (OMDB)	Y	Y	Level 4 2016	
	DUBAI/Al Maktoum Intl (OMDW)	Y	N	Level 4 2018	
Total Percentage		**46%**	**46%**		

B0 – ACDM: Improved Airport Operations through Airport-CDM

Description and purpose

To implement collaborative applications that will allow the sharing of surface operations data among the different stakeholders on the airport. This will improve surface traffic management reducing delays on movement and manoeuvring areas and enhance safety, efficiency and situational awareness.

Main performance impact:

KPA- 01 – Access and Equity	KPA-02 – Capacity	KPA-04 – Efficiency	KPA-05 – Environment	KPA-10 – Safety
N	Y	Y	Y	N

Applicability consideration:

Local for equipped/capable fleets and already established airport surface infrastructure.

B0 – ACDM: Improved Airport Operations through Airport-CDM			
Elements	***Applicability***	***Performance Indicators/Supporting Metrics***	***Targets***
A-CDM	OBBI, HECA, OIII, OKBK, OOMS, OTBD, OTHH, OEJN, OERK, OMDB, OMAA, OMDW	Indicator: % of applicable international aerodromes having implemented improved airport operations through airport-CDM Supporting metric: Number of applicable international aerodromes having implemented improved airport operations through airport-CDM	40% by Dec. 2017

TABLE B0-ACDM

EXPLANATION OF THE TABLE

Column

1 Name of the State

2 Name of City/Aerodrome and Location Indicator

3 Status of implementation of Apron Management, where:
- Y – Yes, implemented
- N – No, not implemented

4 Status of implementation of ATM-Aerodrome coordination, where:
- Y – Yes, implemented
- N – No, not implemented

5 Terminal & runway capacity is declared, where:
- Y – Yes, declared
- N – No, not declared

6 Action plan — short description of the State's Action Plan with regard to the implementation of B0-ACDM.

7 Remarks

State	City/ Aerodrome Location Indicator	Apron Management	ATM-Aerodrome Coordination	Terminal &runway capacity declared	Action Plan	Remarks
1	*2*	*3*	*4*	*5*	*6*	*7*
BAHRAIN	Bahrain/Bahrain Intl (OBBI)	N	N	N	2018	
EGYPT	Cairo/Cairo Intl (HECA)	N	N	N		
IRAN	Tehran/Mehrabad Intl (OIII)	N	N	N		
KUWAIT	Kuwait/Kuwait Intl (OKBK)	N	N	N		
OMAN	Muscat/Muscat Intl (OOMS)	N	N	N		
QATAR	Doha/Doha Intl (OTBD)	N	N	N		
	Doha/Hamad Intl (OTHH)	N	N	N		
SAUDI ARABIA	Jeddah/King Abdulaziz Intl (OEJN)	N	N	N		
	Riyadh/King Khalid Intl (OERK)	N	N	N		
UAE	Abu Dhabi/Abu Dhabi Intl (OMAA)	N	N	N	2017	
	Dubai/Dubai Intl (OMDB)	N	N	N	2016	
	Dubai/Al Maktoum Intl (OMDW)	N	N	N	2017	
Total Percentage		**0**	**0**	**0**		

APPENDIX 5A

Deficiencies in the AOP Field

BAHRAIN

Item No	Identification		Deficiencies			Corrective Action			
	Requirement	Facilities/ Services	Description	Date First Reported	Remarks/ Rationale for Non-elimination	Description	Executing Body	Date of Completion	Priority for Action

No Deficiencies Reported

(1) Rationale for non-elimination: "F"= Financial "H"= Human Resources "S"= State (Military/political) "O"= Other unknown causes

Deficiencies in the AOP Field

EGYPT

Item No	Identification		Deficiencies				Corrective Action			
	Requirement	Facilities/ Services	Description	Date First Reported	Remarks/ Rationale for Non-elimination		Description	Executing Body	Date of Completion	Priority for Action
1	~~MID Basic ANP & FASID (Doc 9708)~~ MID Air Navigation Plan	Alexandria Int`l Airport	Runway is short and current distance is 7221 FT with runway all up weight maximum 68000kgs	~~May, 2014~~ Jul, 2004	\	F O	~~Plan to extend Runway~~ Corrective Action Plan has not been provided by the State	Egypt	~~Jan, 2013~~ Dec, 2016	A
2	Annex 14 Vol. 1.4.1, 1.4.4	~~Luxor, Aswan, Borg El Arab, Alexandria, Taba, Alamain, El Arish, Shark El Owenat, Port Said, St. Cathrine Intl. Airports~~ Luxor, Aswan, Borg El Arab, Alexandria, Taba, Asyut, El Arish, Port Said, Shark El Oeinat, St. Catherine, Alamain, Sohag Intl. Airports,	~~Implementation of Certification of Aerodromes used for international operations~~ Implementation of Certification of Aerodromes used for international operations	Nov, 2006	-	F H	~~Need to develop an Aerodrome Manual for each listed international aerodrome and fulfil all other requirements needed for granting the aerodrome certificate.~~ ~~State:~~ ~~implemented: Cairo, Sharm El-Sheikh,Hurghada, Mersa Alam,~~ ~~In Progress:~~ ~~Luxor,Aswan Borg Al-Arab, Taba~~ ~~The rest is planned for Nov 2014~~ Corrective Action Plan has not been provided by the State	Egypt	~~Nov, 2014~~ Dec, 2016	~~U~~ A

(1) Rationale for non-elimination: "F"= Financial "H"= Human Resources "S"= State (Military/political) "O"= Other unknown causes

Item No	Identification		Deficiencies				Corrective Action			
	Requirement	Facilities/ Services	Description	Date First Reported	Remarks/ Rationale for Non-elimination		Description	Executing Body	Date of Completion	Priority for Action
~~3~~	~~Annex 14 Vol. IFASID Table AOP-1MID/3 Rec. 1/3~~ ~~Annex 14 Vol. I~~	~~Alexandria Int`l Airport~~	~~No runway demarcation lines available on RWY 18/36, to identify the entry position to RWY 04/22~~	~~May, 2007~~	~~-~~	~~F~~	~~Runway is closed for extension and upgrade~~ ~~Runway is closed for extension and upgrade~~ ~~Runway permanently closed~~ ~~To be deleted~~	~~Egypt~~	~~Jan, 2013~~ ~~Dec, 2014~~	~~U~~

(1) Rationale for non-elimination: "F"= Financial "H"= Human Resources "S"= State (Military/political) "O"= Other unknown causes

Deficiencies in the AOP Field

IRAN

Item No	Identification		Deficiencies				Corrective Action			
	Requirement	Facilities/ Services	Description	Date First Reported	Remarks/ Rationale for Non-elimination		Description	Executing Body	Date of Completion	Priority for Action
1	Annex 14 Vol. 1.4.1, 1.4.3, 1.4.4	Emam Khomaini, Mehrabad, Shahid Hashmi Nejad, and Tabriz Intl. Airport,	Implementation of Certification of Aerodromes used for international operations	Nov, 2006	-	F H	~~Need to establish an appropriate regulatory framework and to establish a criteria for the certification of aerodromes. Need to develop an Aerodrome Manual for each international aerodrome and fulfil all requirements needed fo granting Certification of Aerodrome.~~ Corrective Action Plan has not been provided by the State	Iran	~~Jan, 2013~~ Dec, 2016	~~U~~ A

(1) Rationale for non-elimination: "F"= Financial "H"= Human Resources "S"= State (Military/political) "O"= Other unknown causes

Deficiencies in the AOP Field

IRAQ

Item No	Identification		Deficiencies				Corrective Action			
	Requirement	Facilities/ Services	Description	Date First Reported	Remarks/ Rationale for Non-elimination		Description	Executing Body	Date of Completion	Priority for Action
1	Annex 14 Vol. 1.4.1, 1.4.3, 1.4.4	Baghdad/ Basrah/ Erbil /Sulaymaniyah / Al Najaf Intl. Airports	Implementation of Certification of Aerodromes used for international operations	Nov, 2006	-	F H O	~~Need to establish an appropriate regulatory framework and to establish a criteria for the certification of aerodromes. Need to develop an Aerodrome Manual for each international aerodrome and fulfil all requirements needed for granting certification of aerodrome.~~ ~~State: Dec, 2010 except for Baghdad & Najaf June 2011~~ Corrective Action Plan has not been provided by the State	Iraq	~~Jan, 2014~~ Dec, 2016	~~U~~ A

[(1)] Rationale for non-elimination: "F"= Financial "H"= Human Resources "S"= State (Military/political) "O"= Other unknown causes

Deficiencies in the AOP Field

JORDAN

Item No	Identification		Deficiencies				Corrective Action			
	Requirement	Facilities/ Services	Description	Date First Reported	Remarks/ Rationale for Non-elimination		Description	Executing Body	Date of Completion	Priority for Action
1	~~Operation of the second runway for Queen Alia Airport~~ ANP Volume II Operation of the second runway for Queen Alia Airport	~~Runway 08L 26R~~ Queen Alia Airport Runway 08L 26R	Runway is not operational and closed since long time	Dec, 2014	construction handing over	F	~~Not submitted~~ Corrective Action Plan has not been provided by the State	~~CARC~~ Jordan	Dec, 2016	B
2	Annex 14 Vol. 1.4.1, 1.4.3, 1.4.4	Marka and Queen Alia Intl Airport	Implementation of Certification of Aerodromes used for international operations	May, 2015	-	F H	Corrective Action Plan has not been provided by the State	Jordan	Dec, 2016	~~U~~ A

(1) Rationale for non-elimination: "F"= Financial "H"= Human Resources "S"= State (Military/political) "O"= Other unknown causes

Deficiencies in the AOP Field

KUWAIT

Item No	Identification		Deficiencies			Corrective Action			
	Requirement	Facilities/ Services	Description	Date First Reported	Remarks/ Rationale for Non-elimination	Description	Executing Body	Date of Completion	Priority for Action

No Deficiencies Reported

(1) Rationale for non-elimination: "F"= Financial "H"= Human Resources "S"= State (Military/political) "O"= Other unknown causes

Deficiencies in the AOP Field

LEBANON

Item No	Identification		Deficiencies				Corrective Action			
	Requirement	Facilities/ Services	Description	Date First Reported	Remarks/ Rationale for Non-elimination		Description	Executing Body	Date of Completion	Priority for Action
1	Annex 14 Vol. 1.4.1, 1.4.4	Hariri. Beirut Intl. Airport	Implementation of Certification of Aerodromes used for international operations	Nov, 2006	-	F H	~~Need to develop an Aerodrome Manual and fulfil all requirements needed fo granting the aerodrome certificate~~ Corrective Action Plan has not been provided by the State	Lebanon	~~Jan, 2013~~ Dec, 2016	~~U~~ A

[(1)] Rationale for non-elimination: "F"= Financial "H"= Human Resources "S"= State (Military/political) "O"= Other unknown causes

Deficiencies in the AOP Field

LIBYA

Item No	Identification		Deficiencies				Corrective Action			
	Requirement	Facilities/ Services	Description	Date First Reported	Remarks/ Rationale for Non-elimination		Description	Executing Body	Date of Completion	Priority for Action
1	Annex 14 Vol. 1.4.1, 1.4.4	Benina, Sebha, and Tripoli Intl Airports	Implementation of Certification of Aerodromes used for international operations	May 2015	-	F H	Corrective Action Plan has not been provided by the State	Libya	Dec, 2016	A

(1) Rationale for non-elimination: "F"= Financial "H"= Human Resources "S"= State (Military/political) "O"= Other unknown causes

Deficiencies in the AOP Field

OMAN

Item No	Identification		Deficiencies			Corrective Action			
	Requirement	Facilities/ Services	Description	Date First Reported	Remarks/ Rationale for Non-elimination	Description	Executing Body	Date of Completion	Priority for Action

No Deficiencies Reported

(1) Rationale for non-elimination: "F"= Financial "H"= Human Resources "S"= State (Military/political) "O"= Other unknown causes

Deficiencies in the AOP Field

QATAR

Item No	Identification		Deficiencies			Corrective Action			
	Requirement	Facilities/ Services	Description	Date First Reported	Remarks/ Rationale for Non-elimination	Description	Executing Body	Date of Completion	Priority for Action

No Deficiencies Reported

(1) Rationale for non-elimination: "F"= Financial "H"= Human Resources "S"= State (Military/political) "O"= Other unknown causes

Deficiencies in the AOP Field

SAUDI ARABIA

Item No	Identification		Deficiencies			Corrective Action			
	Requirement	Facilities/ Services	Description	Date First Reported	Remarks/ Rationale for Non-elimination	Description	Executing Body	Date of Completion	Priority for Action

No Deficiencies Reported

(1) Rationale for non-elimination: "F"= Financial "H"= Human Resources "S"= State (Military/political) "O"= Other unknown causes

Deficiencies in the AOP Field

SUDAN

Item No	Identification		Deficiencies				Corrective Action			
	Requirement	Facilities/ Services	Description	Date First Reported	Remarks/ Rationale for Non-elimination		Description	Executing Body	Date of Completion	Priority for Action
1	Annex 14 Vol. 1.4.1, 1.4.4	Kasala Intl. Airport	Implementation of Certification of Aerodromes used for international operations	May 2015	-	F H	Corrective Action Plan has not been provided by the State	Sudan	Dec, 2016	A

(1) Rationale for non-elimination: "F"= Financial "H"= Human Resources "S"= State (Military/political) "O"= Other unknown causes

Deficiencies in the AOP Field

SYRIA

Item No	Identification		Deficiencies				Corrective Action			
	Requirement	Facilities/ Services	Description	Date First Reported	Remarks/ Rationale for Non-elimination		Description	Executing Body	Date of Completion	Priority for Action
1	~~Annex 14 Vol. IFASID Table AOP-1MID/3 Rec. 1/3~~ Annex 14 Vol. I FASID Table AOP-1MID/3 Rec. 1/3	Damascus int`l Airport	Apron lighting inadequate	Sep, 2003	-	F H	~~Apron lighting is to be improved~~ Corrective Action Plan has not been provided by the State	Syria	~~Jan, 2013~~ Dec, 2016	~~U~~ A
2	~~Annex 14 Vol. IFASID Table AOP-1MID/3 Rec. 1/3~~ Annex 14 Vol. I FASID Table AOP-1MID/3 Rec. 1/3	Damascus int`l Airport	Runway surface rough and damaged. Runway markings unsatisfactory	Sep, 2003	-	F H	~~RWY Surface to be repaired and refurbished, Markings are to be improved~~ Corrective Action Plan has not been provided by the State	Syria	~~Jan, 2013~~ Dec, 2016	A
~~3~~	~~Annex 14 Vol. IFASID Table AOP-1MID/3 Rec. 1/3~~ ~~Annex 14 Vol. I FASID Table AOP-1MID/3 Rec. 1/3~~	~~Damascus int`l Airport~~	~~DAM/DVOR 116 MHZ Out of Service~~	~~Jun, 2004~~	~~-~~	~~F~~	~~The VOR/DME to be replaced~~	~~Syria~~	~~Jan, 2013~~ ~~Dec, 2014~~	~~A~~

(1) Rationale for non-elimination: "F"= Financial "H"= Human Resources "S"= State (Military/political) "O"= Other unknown causes

Item No	Identification		Deficiencies				Corrective Action			
	Requirement	Facilities/ Services	Description	Date First Reported	Remarks/ Rationale for Non-elimination		Description	Executing Body	Date of Completion	Priority for Action
4	Annex 14 Vol. 1.4.1, 1.4.4	Damascus, Aleppo, Bassel Al-Assad Int`l. Airports	Implementation of Certification of Aerodromes used for international operations	Nov, 2006	-	F H	~~Need to devlope an Aerodrome Manual for each international aerodrome and fulfil all requirements needed for granting the aerodrome certificate~~ Corrective Action Plan has not been provided by the State	Syria	~~Jan, 2013~~ Dec, 2016	~~U~~ A

(1) Rationale for non-elimination: "F"= Financial "H"= Human Resources "S"= State (Military/political) "O"= Other unknown causes

Deficiencies in the AOP Field

UAE

Item No	Identification		Deficiencies			Corrective Action			
	Requirement	Facilities/ Services	Description	Date First Reported	Remarks/ Rationale for Non-elimination	Description	Executing Body	Date of Completion	Priority for Action

No Deficiencies Reported

(1) Rationale for non-elimination: "F"= Financial "H"= Human Resources "S"= State (Military/political) "O"= Other unknown causes

Deficiencies in the AOP Field

YEMEN

Item No	Identification		Deficiencies				Corrective Action			
	Requirement	Facilities/ Services	Description	Date First Reported	Remarks/ Rationale for Non-elimination		Description	Executing Body	Date of Completion	Priority for Action
1	Annex 14 Vol. 1.4.1, 1.4.3, 1.4.4	Sanaa, Aden, Hodeibah, Taiz Intl. Airports	Implementation of Certification of Aerodromes used for international operations	Nov, 2006	-	F H	~~establish a criteria for the certification of aerodromes. Need to devlope an Aerodrome Manual for each international aerodrome and fulfil all requirements needed for granting the aerodrome certificate.~~ Corrective Action Plan has not been provided by the State	Yemen	~~Jan, 2013~~ Dec, 2016	~~U~~ A

(1) Rationale for non-elimination: "F"= Financial "H"= Human Resources "S"= State (Military/political) "O"= Other unknown causes

Note:* Priority for action to remedy a deficiency is based on the following safety assessments:

'U' priority = Urgent requirements having a direct impact on safety and requiring immediate corrective actions.

Urgent requirement consisting of any physical, configuration, material, performance, personnel or procedures specification, the application of which is urgently required for air navigation safety.

'A' priority = Top priority requirements necessary for air navigation safety.

Top priority requirement consisting of any physical, configuration, material, performance, personnel or procedures specification, the application of which is considered necessary for air navigation safety.

'B' priority = Intermediate requirements necessary for air navigation regularity and efficiency.

Intermediate priority requirement consisting of any physical, configuration, material, performance, personnel or procedures specification, the application of which is considered necessary for air navigation regularity and efficiency.

Definition:

A deficiency is a situation where a facility, service or procedure does not comply with a regional air navigation plan approved by the Council, or with related ICAO Standards and Recommended Practices, and which situation has a negative impact on the safety, regularity and/or efficiency of international civil aviation.

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(1) Rationale for non-elimination: "F"= Financial "H"= Human Resources "S"= State (Military/political) "O"= Other unknown causes

ATTACHMENT A

LIST OF PARTICIPANTS

NAME	TITLE
STATES **EGYPT** Mr. Ahmed Helmy Mohamed Gharib	 Aviation Safety General Manager Cairo Airport International Cairo - EGYPT
Dr. Awad Khireldin	Vice Head of Operations Sector Cairo International Airport Cairo-EGYPT
Mr. Mohamed Mostafa Abdel Meguid Agwa	Senior ATC at Cairo Airport/NANSC Safety Representative National Air Navigation Services Company Egyptian Civil Aviation Authority Cairo - EGYPT
Mr. Mina Ibrahim Rizk	Aerodrome Safety Engineer Egyptian Airports Company Cairo - EGYPT
Mr. Ahmed Hani Mohamed ElKamel Eltony	Aerodrome Safety Specialist Egyptian Airports Company Cairo - EGYPT
Mrs. Basma Refat Abd El Hamid	Safety and Compliance General Manager Hurghada International Airport EGYPT
Mr. Abdelrahman Mahmoud Raafat Hassan	Head of SMS Audit Section Egyptian Airports Company Cairo Airport Road Cairo - EGYPT
Mr. Mahmoud Sharaf Al-Deen	CAA Inspector/Aerodrome Design Director Cairo - EGYPT
Mr. Mahmoud Sayad Abd Elghany	Air Traffic Control Officer Sharm Airport Cairo - EGYPT
Eng. Hamed Salah El Deen El Sisy	Airports Safety General Manager Egyptian Civil Aviation Authority Cairo - EGYPT

NAME	TITLE
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Eng. Nabeel Ahmed Shawky Amin Soliman	Safety Department Manager Egyptian Airports Company Airport Road, in Front of Ministry of Civil Aviation Cairo - EGYPT
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Mr. Atef Safa Ali Barakat	Director of Airport Compliance Egyptian Civil Aviation Authority Cairo Airport Road Cairo - EGYPT
Mr. Ahmed Arafa Abd Elaziz	Airport Standard – Director Cairo - EGYPT
Mr. Ahmed Khalil Ahmed Abdelal	Air Traffic Controller and Member of Hurghada Safety Team National Air Navigation Services Company Hurghada Airport
Dr. Eng. Mohamed Abd El-Hakim Galal	General manager of Design & Planning of Airport Projects Egyptian Airports Company Cairo - EGYPT
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Mr. Tariq Salah Eldin Abdelnasser	Air Traffic Controller Cairo Airport International Cairo – EGYPT
Eng. Mahmoud Mohamed Bendary	Safety Manager (SSH) Egyptian Airports Company Sharm El Sheikh Airport Cairo - EGYPT

NAME	TITLE
Mr. Mohamed Ahmed Ali	Air Traffic Controller Safety Department Cairo Airport - Cairo Tower Cairo - EGYPT
Mr. Moustafa Samir Abd Ellah	Safety Specialist Egyptian Airports Company Sharm El Sheikh Airport Cairo - EGYPT
Mr. Sherief Arafat Saad	Aerodrome Safety Specialist Egyptian Airports Company Hurghada International Airport Cairo - EGYPT
ISLAMIC REPUBLIC OF IRAN Mr. Hamid Reza Saanei	Aerodrome Inspector Iran Civil Aviation Organization Tehran Mehrabad International Airport Tehran - ISLAMIC REPUBLIC OF IRAN
Mr. Peyvand Riahi	Deputy of General Airport Standards Bureau Tehran Mehrabad International Airport Civil Aviation Organization Tehran - ISLAMIC REPUBLIC OF IRAN
Mr. Seyed Ahmad Momeni Rokh	Member of Board - Iran Airport Company (IAC) Tehran Mehrabad International Airport Civil Aviation Organization Tehran - ISALAMIC REPUBLIC OF IRAN
Mr. Seyed Ali Vaezi	Chief of Auditing & Monitoring Office Iran Airports and Air Navigation Company Central Building, Meraj St., Mehrabad Airport Tehran - ISALAMIC REPUBLIC OF IRAN
KUWAIT Mr. Awadh Ahmad Alhaqqan	Movement Control Center Supervisor - Operations Dept. Directorate General of Civil Aviation Kuwait International Airport State of KUWAIT
Mr. Mohammed Jasem AlFares	Movement Control Superintendent - Operations Dept. Directorate General of Civil Aviation Kuwait International Airport State of KUWAIT

NAME	TITLE
Mr. Salah K. Albabtain	Head of ATS Safety Directorate General of Civil Aviation Kuwait International Airport State of KUWAIT
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