



**EVALUATION OF OUTCOME OF  
AERONAUTICAL STUDY/RISK ASSESSMENT**

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**STANDARD OPERATING PROCEDURE**

**VERSION :** 1.0  
**DATE OF IMPLEMENTATION :** 31-07-2022  
**OFFICE OF PRIME INTEREST :** Aerodrome Standards Branch  
(Directorate of Airspace & Aerodrome Regulations)

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TYPE OF DOCUMENT	STANDARD OPERATING PROCEDURE (SOP)		
STATUS OF DOCUMENT	CONTROLLED		

**A. PURPOSE:**

- A1. To provide documented process / guidelines to Aerodrome Regulatory and Inspectorate Personnel of Aerodrome Standards Branch of Directorate of Airspace and Aerodrome Regulation (DAAR) of Pakistan CAA on the evaluation/assessment of the outcome of Aeronautical Study or Risk Assessment for grant of exemption/ exception.
- A2. To provide guidance to Aerodrome Regulatory and Inspectorate Personnel, Aerodrome Operators and other stakeholders on use of Aeronautical Studies/Risk Assessment.

**B. SCOPE:**

- B1. This SOP is applicable to Aerodrome Standards, Airspace and Air Navigations Standards and Technical Standards branch of Directorate of Airspace and Aerodrome of Pakistan CAA to conduct Aeronautical Study / Risk Assessment against the request of aerodrome operators, and other relevant Stakeholders to grant exemption / exception in accordance with requirements / guidance contained in National Regulations.

**C. CORE RESPONSIBILITY:**

- C1. Director AAR shall be responsible for the effective implementation of mechanism/process for assessment of the outcome of Aeronautical Study or Risk Assessment for grant of exemption/ exception.
- C2. Additional Director Aerodrome Standards shall be responsible for;
  - C2.1. Coordination with relevant stakeholders for preparation/formulation of BOO for conduct of Aeronautical Study, in the case(s) where the Aeronautical Study /Risk Assessment is requested by applicant under Rule 68 of CARs 1994 (for OLS matters).
  - C2.2. Nomination of suitable Aerodrome Ground Aids (AGA) inspectors for assessment/evaluation of outcome of Aeronautical Study/Risk Assessment.
  - C2.3. Maintenance of the records of Aeronautical Studies conducted.
  - C2.4. Monitoring of exemption/exception granted as result of Aeronautical Study / Risk Assessment, is published in the AIP, Aerodrome Manual and Pakistan CAA website (where applicable) and filing of difference with ICAO if required or otherwise.
- C3. The nominated Aerodrome Ground Aids (AGA) inspectors for assessment/evaluation of outcome of Aeronautical Study/Risk Assessment shall be responsible for;
  - C3.1. Cross organizational coordination for involvement of other relevant expert for evaluation of outcome of Aeronautical Study, where required.
  - C3.2. Assessment of the outcome of Aeronautical Study and with the assurance that conduct of Aeronautical Study / Risk has met Pakistan CAA safety policies and processes
- C4. Aerodrome operators and applicants applying for any exemption/exception /deviation shall be responsible;
  - C4.1. To ensure that aeronautical study is conducted, where recommended in Aerodrome Standards Manual of Pakistan.
  - C4.2. To publish any exemption/exception granted as result of Aeronautical Study / Risk Assessment in the AIP, Aerodrome Manual and Pakistan CAA website (where applicable).

**D. DESCRIPTION:**

**D1. USE OF AERONAUTICAL STUDY/RISK ASSESSMENT:**

- D1.1. The main objective of Aerodrome Design and Operation Regulations and oversight activities of Aerodrome Standards DAAR is to ensure compliance with applicable ICAO SARPs through promulgation of the national regulations/standards and the identification of any non-compliances and other safety issues and for their effective and timely resolution.

- D1.2. An aeronautical study is a study of an aeronautical problem to identify possible solutions and select a solution that is acceptable without degrading safety. An aeronautical study is conducted to assess the impact of deviations from the aerodrome standards specified in Volume I to Annex 14 to the Convention on International Civil Aviation, and the national regulations, to present alternative means of ensuring the safety of aircraft operations, to estimate the effectiveness of each alternative and to recommend procedures to compensate for the deviation.
- D1.3. An aeronautical study may be carried out when aerodrome standards cannot be met as a result of development or there may be situations where it may not be possible or feasible for the aerodrome operator/certificate holder/applicant to comply with all regulatory requirements because of exceptional circumstances such as physical constraints, non-availability of specified equipment, operational requirements, environmental needs etc. Such a study is most frequently undertaken during the planning of a new airport or during the certification of an existing aerodrome.
- D1.4. Aeronautical studies may not be conducted in cases of deviations from the standards, if not specifically recommended in the Aerodrome Standards Manual of Pakistan.
- D1.5. Any request for Aeronautical Study/Risk Assessment for purpose of exemption / exception shall be processed in accordance with procedures prescribed in ANO-003-DDGR and may no more be considered a safety issue if required exemption / exception has been granted on the basis of compliance using alternate means or on the basis of assuring safety through appropriate mitigation measures.
- D1.6. The Aerodrome Operators / Applicants requesting Aeronautical study for grant exemption /exception may consult relevant paras of Chapter 3, 4, 5 and 6 of Aerodrome Standards Manual of Pakistan (ASMP), ANO-001-ARAS and ANO-004-ARAS for conditions, rationale, circumstances and other prevailing regulations for conduct of Aeronautical Study / Risk Assessment.
- D1.7. The guidance for conduct of Aeronautical Study / Risk Assessment is provided in ASC-001-ARAS.

D2. **EVALUATION/ASSESSMENT OF OUTCOME OF AERONAUTICAL STUDIES / SAFETY RISK ASSESSMENTS:**

- D2.1. It may be noted that compliance with the Pakistan CAA's regulatory requirements is obligatory. However, on some occasions, there might be instances where full compliance is not possible. In such instances, DG CAA may grant exemptions or exceptions. Nevertheless, such measures will be supported by appropriate, robust and documented safety risk assessments or aeronautical studies and imposition of limitations, conditions or mitigation measures, as appropriate.
- D2.2. It may be useful to review the historical background of some regulatory provisions to gain a better understanding of the safety objective of these provisions against which the Aeronautical Study is conducted / submitted.
- D2.3. Exemptions and exceptions should not be used to overcome an unpopular requirement or to suggest that compliance with a requirement is optional.
- D2.4. Any exception or exemption related to Aerodrome Design and Operation Regulations will only be granted on the basis of a robust rationale as prescribed in ANO-001-ARAS.
- D2.5. The use of the exemption and exception mechanisms needs to be the exception, not the norm. Therefore, the issuance of exceptions or exemptions that are not supported by safety risk assessments or aeronautical studies and by thorough reviews by the competent authority is not acceptable.
- D2.6. An initial evaluation of compliance with the appropriate provisions in the regulations applicable to the aerodrome is conducted and documented.

- D2.7. The assessment of Technical analysis will provide justification for a deviation on the grounds that an equivalent level of safety can be attained by other means. It is generally applicable in situations where the cost of correcting a problem that violates a standard is excessive but where the unsafe effects of the problem can be overcome by some procedural means which offers both practical and reasonable solutions.
- D2.8. In assessing the technical analysis as part of Aeronautical Study /Risk Assessment, inspectors will draw upon their practical experience and specialized knowledge. They may also consult other specialists in relevant areas. When reviewing alternative procedures in the deviation approval process, it is essential to bear in mind the safety objective of the aerodrome certification regulations and the applicable standards so that the intent of the regulations is not circumvented.
- D2.9. Furthermore, during the evaluation process of the outcome of the Aeronautical Study /Safety Risk Assessment the Aerodrome Standards DAAR analyses and verifies that:
- D2.9.1. appropriate coordination has been performed between the concerned stakeholders;
- D2.9.2. the risks have been properly identified and assessed, based on documented arguments (e.g. physical or Human Factors studies, analysis of previous accidents and incidents);
- D2.9.3. the proposed mitigation measures adequately address the risk; and
- D2.9.4. the time frames for planned implementation are acceptable.
- D2.10. In some instances, the only reasonable means of providing an equivalent level of safety is to adopt suitable procedures and to require, as a condition of certification, that cautionary advice be published in the appropriate AIS publications. The determination to require caution will be primarily dependent on two considerations:
- D2.10.1. a pilot's need to be made aware of potentially hazardous conditions; and
- D2.10.2. the responsibility of the CAA to publish deviations from standards that would otherwise be assumed under certificate status.
- D2.11. The Regulatory/inspectorate personnel of Aerodrome Standards DAAR shall ensure that the mitigation or conditional measures are properly implemented and that they fulfill their purpose. For assessment of outcome of Aeronautical Study, a checklist has been provided as Appendix "A" to this SOP as tool for Aerodrome Standards DAAR regulatory personnel.
- D3. **PROCESS FOR ASSESSMENT OF OUTCOME OF AERONAUTICAL STUDIES / SAFETY RISK ASSESSMENTS FOR GRANT EXEMPTIONS/EXCEPTIONS:**
- D3.1. As specified in ANO-003-DDGR, a safety risk assessment or aeronautical study will be developed by the service provider to demonstrate whether an equivalent level of safety or an alternative acceptable means of compliance can be achieved. Alternatively, for the matters pertaining to Rule 68 of CARs 1994 or Aerodrome Operator /applicant lacks the expertise for conduct of Aeronautical Studies, then, on the formal request of the Aerodrome Operator/applicant, the Aeronautical Study /Risk Assessment will be conducted by Pakistan CAA.
- D3.2. The regulations for conduct of Aeronautical Study/Risk Assessment are prescribed in ANO-003-DDGR, ANO-001-ARAS and ANO-004-ARAS. The procedure/guidance for conduct of Aeronautical Study/Risk Assessment is prescribed in ASC-001-ARAS.
- D3.3. The Aerodrome Operator / applicant shall submit a separate application on prescribed format (APPENDIX "A" to ANO-003-DDGR) to DG CAA along with Aeronautical Study /Risk Assessment as per the procedure prescribed in Para D5 of ANO-003-DDGR.
- D3.4. For the application of exception or exemption related to Aerodrome Design and Operation Regulations, DG CAA shall refer the application along with Aeronautical Study /Risk Assessment to DAAR for input/evaluation.

D3.5. The Aerodrome Standards branch in DAAR shall evaluate and assess the outcome of Aeronautical Study/Risk Assessment submitted along with application according process defined below in Figure 1-1 and shall forward the recommendation to DG CAA through DDG (Reg).

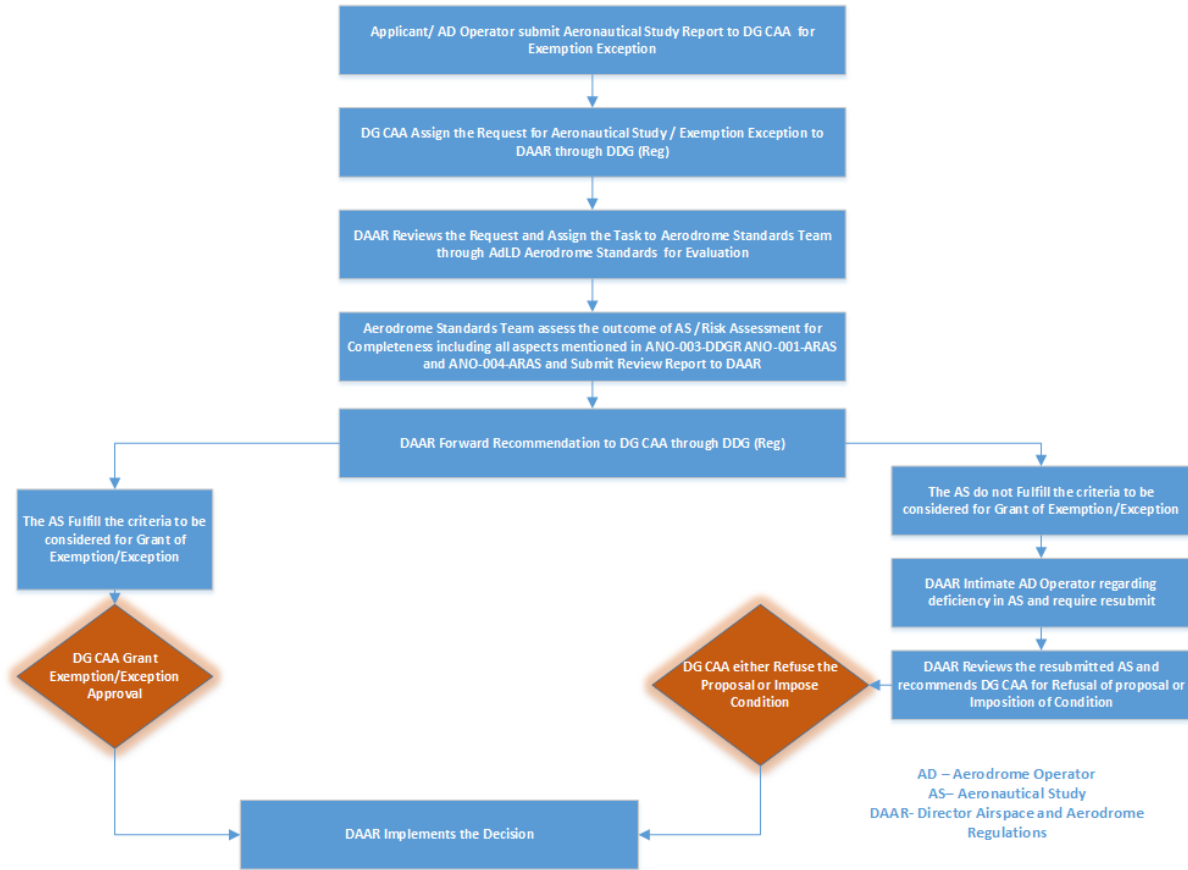


Figure 1-1, Process for Assessment of outcome of Aeronautical Study/ Risk Assessment

**D4. APPROVAL FOR GRANT OF EXEMPTION/EXCEPTION:**

D4.1. After a thorough review and assessment of outcome of the Aeronautical Study / Risk Assessment along with technical analysis, recommendations and mitigation measures, if any, the Inspectors from Aerodrome Standards shall submit their input to Director of Airspace and Aerodrome Regulations for acceptance on merit and further processing for approval of DG CAA.

D4.1.1. On completion of the analysis of the outcome of safety risk assessment by Aerodrome Standards, the DAAR;

D.4.1.1.1. either process for formal approval or acceptance of the safety assessment by DG CAA or

D.4.1.1.2. if some risks have been underestimated or have not been identified, coordinates with the aerodrome operator to reach an agreement on safety acceptance; or

D.4.1.1.3. if no agreement can be reached, recommends for rejection of the proposal for possible resubmission by the aerodrome operator; or

D.4.1.1.4. may recommends DG CAA to impose conditional measures to ensure safety.

D5. **PUBLICATION OF OUTCOMES OF AERONAUTICAL STUDIES / RISK ASSESSMENTS IN THE FORM EXEMPTION OR EXCEPTION/FOLLOW-UP OF EXEMPTION OR EXCEPTION GRANTED:**

- D5.1. All cases involving the granting of exceptions and exemptions shall be fully documented and the outcome shall be published as appropriate, such as on the CAA website, in the AIP and/or in safety assurance documents (e.g. the aerodrome manual held by the regulator and aerodrome operator). The publication should include references to relevant limitations, conditions or mitigation measures, as appropriate.
- D5.2. Furthermore, the aerodrome operator/service provider needs to regularly review any exceptions or exemptions with a view to removing the need for such exceptions or exemptions, where possible, as well as check the validity and robustness of any mitigating measures in place.
- D5.3. The Aerodrome Standards DAAR shall also assess, before granting an exception or exemption, whether the exception or exemption would lead to differences from SARPs and, if so, ensure that the Pakistan CAA notifies ICAO of the differences.

E. **EVIDENCES (ACRONYMS / RECORDS / REFERENCES):**

E1. **ACRONYMS:**

ANO	AIR NAVIGATION ORDER
AS	AERONAUTICAL STUDY
BOO	BOARD OF OFFICERS
CAA	CIVIL AVIATION AUTHORITY
CARs 1994	CIVIL AVIATION RULES 1994
DAAR	DIRECTOR AIRSPACE AND AERODROME REGULATIONS
DDG REG	DEPUTY DIRECTOR GENERAL REGULATORY
DG CAA	DIRECTOR GENERAL CIVIL AVIATION AUTHORITY
ICAO	INTERNATIONAL CIVIL AVIATION ORGANIZATION
SARPs	STANDARDS AND RECOMMENDED PRACTICES
SOP	STANDARD OPERATING PROCEDURE

E2. **RECORDS**

- E2.1. Aeronautical Study Evaluation Checklist (CAAF-030-ARAS-1.0)

E3. **REFERENCES:**

- E3.1. Aerodrome Standards Manual of Pakistan (MNL-003-DRAS)
- E3.2. Aerodromes Design and Operations (ICAO Annex 14 Vol I)
- E3.3. Manual on Certification of Aerodromes (ICAO Doc 9774 Part A)
- E3.4. PANS- Aerodromes (ICAO Doc 9981)
- E3.5. Exemption or Exception Procedure (ANO-003-DDGR)
- E3.6. Requirement for Issuance and /or Renewal of Aerodrome Certificate (ANO-001-ARAS)
- E3.7. Prevention of Obstacles Around Aerodromes (ANO-004-ARAS)
- E3.8. Aeronautical Study and Safety Assessment (ASC-001-DRAS)

**IMPLEMENTATION:**

This Standard Operating Procedure (SOP-002-ARAS) version 1.0 shall be implemented with effect from 31/07/2022.

**(IFTIKHAR AHMED)**

Director Airspace & Aerodrome Regulations

Dated: - July2022


**(ABDULLAH KHAN)**

Additional Director Aerodrome Standards

Dated: - 2022

File No. HQCAA/1117/522/ARAS/II



 پاکستان سول ایوی ایشن اتھارٹی	<b>CIVIL AVIATION AUTHORITY</b> <b>AERONAUTICAL STUDYREPORT</b> <b>EVALUATION CHECKLIST</b> <b>Aerodrome Standards Branch</b>	<b>CAAF-030-ARAS-1.0</b>
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**Directorate of Airspace & Aerodrome Regulations DAAR)**

Title of Aeronautical Study/ Risk Assessment Report \_\_\_\_\_

Aerodrome / Location \_\_\_\_\_

Name of Facilitator \_\_\_\_\_

Date of Request submitted: - \_\_\_\_\_

Acceptance / Correspondence Date with AD Operator Applicant: - \_\_\_\_\_

Coding: Y=Yes; N=No, N/A= Not applicable; NR=Not Required

If the Observation is NO then comments of Evaluator is a mandatory requirement

S No.	Evaluation Aspect	Observation	Comments)
	Aeronautical Study/Risk Assessment of New Development / Existing Non Compliance		
	Scope and Objective of the Aeronautical Study//Risk Assessment is defined correctly		
	Aeronautical Study//Risk Assessment Team consist of SMS qualified technical staff		
	Safety Hazards are identified correctly		
	Safety Risk index ranked correctly		
	Safety Risk tolerability is defined correctly		
	Is Safety Risk tolerability is in Catastrophic region		
	Is Safety Risk tolerability is in Tolerable region		
	Proposed Mitigation measures are documented correctly		
	Mitigation measures have been fully addressed		
	Recommendations are documented accurately		
	Conclusion of the report is satisfactory		
	Safety Risk tolerability is in the acceptable region		
	Aerodrome Operator / Applicant is intimated for Post implementation monitoring is applicable		
	Does Grant of Exemption /Exception Require filing of Difference with ICAO SARPs		

Aeronautical Study Report Evaluated By(Name)# \_\_\_\_\_

Dated: \_\_\_\_\_

Signature # \_\_\_\_\_

Stamp# \_\_\_\_\_