

CIVIL AVIATION AUTHORITY, PAKISTAN

AIR NAVIGATION ORDER
NO. : 91.0032
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SAFETY MANAGEMENT SYSTEM (SMS)
FOR OPERATORS

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1. Authority

- 1.1 This ANO is issued by the Director General of the Civil Aviation Authority of Pakistan in pursuance of the powers vested in him under Rule-4 of Civil Aviation Rules (CARs) 1994.

2. Scope

- 2.1. This regulation describes the requirements for an AOC holder operating in accordance with Section 3 of Part XI of CARs 1994.
- 2.1.1 This regulation addresses aviation safety related processes and activities rather than occupational safety, environmental protection, or customer service quality.
- 2.1.2 The AOC holder is responsible for the safety of services or products contracted to or purchased from other organizations.
- 2.1.3 This regulation establishes the minimum acceptable requirements; AOC holder can establish more stringent requirements.

2.2 Applicability and Acceptance

- 2.2.1 Effective 31st December, 2008, an AOC holder shall have in place a Safety Management System (SMS) that is acceptable to CAA Pakistan, that, as a minimum:
- a) identifies safety hazards;
 - b) ensures that remedial action necessary to maintain an acceptable level of safety is implemented;
 - c) provides for continuous monitoring and regular assessment of the safety level achieved; and
 - d) aims to make continuous improvement to the overall level of safety.
- 2.3 In order to be acceptable to the CAA, an AOC holder SMS shall meet the requirements set forth in Appendix "A" to this ANO.

3. References

- 3.1 This ANO is in accordance with ICAO Annex 6 — *Operation of Aircraft, Part I — International Commercial Air Transport — Aeroplanes, and Part III — International Operations — Helicopters* and the *ICAO Safety Management Manual (Doc 9859)*.

4. Definitions

- a) **Accident** is an occurrence during the operation of an aircraft which entails:
- i) A person is fatally or seriously injured; or
 - ii) Substantial damage to the aircraft involving structural failure or requiring major repair; or
 - iii) The aircraft is missing or is completely inaccessible.

- b) **Acceptable level of safety** is a reference expressed by a number of safety indicators and safety targets against which the oversight authority can measure safety performance.
- c) **Accountable Executive** is the person who directs and controls the organisation at the highest level and who is ultimately accountable for safety in the organization.
- d) **Hazard** is a condition, object or activity with the potential of causing injuries to personnel, damage to equipment or structures, loss of material, or reduction of ability to perform a prescribed function. A hazard is defined as a potential source of threat to safety, resulting in a reduction of safety margin.
- e) **Incident** is an occurrence, other than an accident, associated with the operation of an aircraft which affects or could affect the safety of operation. A serious incident is an incident involving circumstances indicating that an accident nearly occurred.
- f) **Oversight** is a mechanism to ensure that operators and Operators maintain an acceptable level of safety in their operations.
- g) **Proactive** means the adoption of an approach, which emphasizes prevention through the identification of hazards, and the introduction of risk mitigation measures before the risk-bearing event occurs and adversely affects safety performance.
- h) **Risk** is the chance of a loss or injury, measured in terms of severity and probability. The chance that something is going to happen and the consequences if it does. or the probable rate of occurrence of a hazard causing harm and the degree of severity of the harm.
- i) **Safety** is a condition in which the risk of harm or damage is limited to an acceptable level.
- j) **Safety Assessment** is post-implementation monitoring to verify that the defined level of safety continues to be met.
- k) **Safety Audit** a process to ensure that risks are identified and the potential for causing or contributing to an incident are recognized.
- l) **Safety Manager** is a managerial function where the organisational responsibility and maintenance of an SMS is placed.
- m) **Safety Management System (SMS)** is an organized approach to managing safety, including the necessary organizational structures, accountabilities, policies and procedures.
- n) **Safety Performance Indicators** are a measure of the safety performance of an aviation organization or a sector of the industry.
- o) **Safety Performance Targets** (sometimes referred to as goals or objectives) are determined by considering what safety performance levels are desirable and realistic for individual operators/ Operators.
- p) **Safety Policy** outlines the methods and processes that the organization will use to achieve desired safety outcomes, and it serves as a reminder as to “*how we do business here*”.

- q) **Safety Requirements** are the operational procedures, technology, systems and programmes to which measures of reliability, availability, performance and/or accuracy can be specified.
 - r) **Safety Survey** is one way to systematically examine particular organizational elements or the processes used to perform a specific operation — either generally or from a particular safety perspective.
 - s) **Safety Programme** is an integrated set of regulations and activities aimed at improving safety.
5. **General**
- 5.1 The AOC holder shall establish, maintain and adhere to a safety management system (SMS) that is appropriate to the size, nature and complexity of the operations authorized to be conducted under its operations certificate and the safety hazards and risks related to the operations.
6. **Safety Policy and Objectives**
- 6.1 **General Requirements**
- 6.1.1 An AOC holder shall define the organization's safety policy.
 - 6.1.2 The safety Policy shall be signed by the Chief Executive Officer of the organization.
 - 6.1.3 The safety Policy shall be in accordance with international and national requirements, and reflect organizational commitments regarding safety.
 - 6.1.4 The safety Policy shall be communicated, with visible endorsement, throughout the organization.
 - 6.1.5 The safety Policy shall include a clear statement about the provision of the necessary human and financial resources for its implementation.
 - 6.1.6 The safety Policy shall, *inter alia*, include the following objectives:
 - a) Commitment to implement an SMS;
 - b) Commitment to continual improvement in the level of safety;
 - c) Commitment to the management of safety risks;
 - d) Commitment to encourage employees to report safety issues;
 - e) Establishment of clear standards for acceptable behaviour; and
 - f) Identification of responsibilities of management and employees with respect to safety performance.
 - 6.1.7 The safety Policy shall be reviewed periodically to ensure it remains relevant and appropriate to the organization.
 - 6.1.8 An AOC holder shall establish safety objectives for the SMS.
 - 6.1.9 The safety objectives should be linked to the safety performance indicators, safety performance targets and safety requirements of the AOC holder SMS.
- 6.2 **Organizational Structure and Responsibilities**
- 6.2.1 An AOC holder shall identify an Accountable Executive to be responsible and accountable on behalf of the AOC holder for meeting the requirements of this regulation, and shall notify the State the name of the person.
 - 6.2.2 The Accountable Executive shall be a single, identifiable person who, irrespective of other functions, shall have the ultimate responsibility for the implementation and maintenance of the SMS.
 - 6.2.3 The Accountable Executive shall have:
 - a) Full control of the human resources required for the operations authorized to be conducted under the operations certificate;
 - b) Full control of the financial resources required for the operations authorized to be conducted under the operations certificate;

- c) Final authority over operations authorized to be conducted under the operations certificate;
 - d) direct responsibility for the conduct of the organization's affairs; and
 - e) Final responsibility for all safety issues.
- 6.2.4 An AOC holder shall establish the safety structure necessary for the implementation and maintenance of the organization's SMS.
- 6.2.5 An AOC holder shall identify the safety responsibilities of all members of senior management, irrespective of other responsibilities
- 6.2.6 Safety-related positions, responsibilities and authorities shall be defined, documented and communicated throughout the organization.
- 6.2.7 An AOC holder shall identify a Safety Manager to be the member of management who shall be the responsible individual and focal point for the implementation and maintenance of an effective SMS.
- 6.2.8 The Safety Manager shall:
- a) Ensure that processes needed for the SMS are established, implemented and maintained;
 - b) Report to the Accountable Executive on the performance of the SMS and on any need for improvement; and
 - c) Ensure safety promotion throughout the organization.

6.3 SMS Implementation Plan

- 6.3.1 An AOC holder shall develop and maintain an SMS implementation plan.
- 6.3.2 The SMS Implementation Plan shall be the definition of the approach the organization will adopt for managing safety in a manner that will meet the organization's safety needs.
- 6.3.3 The SMS Implementation Plan shall include the following:
- a) Safety policy and objectives;
 - b) Safety roles and responsibilities;
 - c) System description;
 - d) Gap analysis;
 - e) SMS components;
 - f) Safety performance measurement;
 - g) Safety reporting policy;
 - h) Safety communication;
 - i) Means of employee involvement; and
 - j) Management review of safety performance.
- 6.3.4 The SMS implementation plan shall be endorsed by senior management of the organization.
- 6.3.5 An AOC holder shall, as part of the development of the SMS implementation plan, complete a system description.
- 6.3.6 The system description shall include the following:
- a) The system interactions with other systems in the air transportation system;
 - b) The system functions;
 - c) Required Human Factors considerations of the system operation;
 - d) Hardware components of the system;
 - e) Software components of the system;
 - f) related procedures that define guidance for the operation and use of the system;
 - g) Operational environment; and
 - h) Contracted and purchased products and services.

- 6.3.7 An AOC holder shall, as part of the development of the SMS implementation plan, complete a gap analysis, in order to:
- Identify the safety arrangements existing within the organization; and
 - Determine additional safety arrangements required to implement and maintain the organization's SMS.

6.4 Coordination of the Emergency Response Plan

- 6.4.1 An AOC holder shall develop and maintain, or coordinate, as appropriate, an emergency response plan (ERP) that shall ensure:
- Orderly and efficient transition from normal to emergency operations;
 - Designation of emergency authority;
 - Assignment of emergency responsibilities;
 - Coordination of efforts to cope with the emergency; and
 - Safe continuation of operations, or return to normal operations as soon as possible.

6.5 Documentation

- 6.5.1 An AOC holder shall develop and maintain SMS documentation, in paper or electronic form, to describe the following:
- Safety policy;
 - Safety objectives;
 - SMS requirements, procedures and processes;
 - Responsibilities and authorities for procedures and processes; and
 - SMS outputs.
- 6.5.2 An AOC holder shall, as part of the SMS documentation, develop and maintain a safety management manual (SMM), to communicate the organization's approach to safety throughout the organization.
- 6.5.3 The SMM shall document all aspects of the SMS, and its contents shall include the following:
- Scope of the safety management system;
 - Safety policy and objectives;
 - Safety accountabilities;
 - Key safety personnel;
 - Documentation control procedures;
 - Emergency response planning;
 - Hazard identification and risk management schemes;
 - Safety performance monitoring;
 - Management of change;
 - Safety auditing; and
 - Safety promotion.

Information note 1. – Generic guidelines for SMS documentation development and maintenance can be found in Attachment H to ICAO Annex 6, Part I, and Attachment G to ICAO Annex 6, Part III, Operator's Flight Safety Documents System.

Information note 2. – The SMM may be a stand-alone document, or may be included as part of existing documentation, for example, as a chapter or division of an air operator's operations manual or an aerodrome's airport's operations manual.

7. Safety Risk Management

7.1 General

7.1.1 An AOC holder shall develop and maintain safety data collection and processing systems (SDCPS) that provide for the identification of hazards and the analysis, assessment and control of risks.

7.1.2 An AOC holder's SDCPS shall include reactive, proactive and predictive methods of safety data collection.

7.2 Hazard Identification

7.2.1 An AOC holder shall develop and maintain formal means of collecting, recording, acting on and generating feedback about hazards in operations, which combine reactive, proactive and predictive methods of safety data collection.

7.2.2 The hazard identification process shall include the following steps:

- a) Reporting of hazards, events or safety concerns;
- b) Collection and storing the safety data;
- c) Analysis of the safety data; and
- d) Distribution of the safety information distilled from the safety data.

7.3 Risk Management

7.3.1 An AOC holder shall develop and maintain a formal risk management process that ensures the analysis, assessment and control of risks to an acceptable level.

7.3.2 The risks in each hazard identified through the hazard identification processes described in section 7.2 of this regulation shall be analysed in terms of probability and severity of occurrence, and assessed for their tolerability.

7.3.3 The organization shall define the levels of management with authority to make safety risk tolerability decisions.

7.3.4 The organization shall define safety controls for each risk assessed as intolerable.

7.4 Internal Safety Investigations

7.4.1 An AOC holder shall, as part of the SMS, develop and maintain formal processes for the internal investigation of occurrences that are not required to be investigated by the State or reported to the oversight authority.

8. Safety Assurance

8.1 General

8.1.1 An AOC holder shall develop and maintain safety assurance processes to ensure that the safety risks controls developed as a consequence of the hazard identification and risk management activities under paragraph 7 achieve their intended objectives.

8.1.2 Safety assurance processes shall apply to an SMS whether the activities and/or operations are accomplished internally or outsourced.

8.2 Safety Performance Monitoring and Measurement

- 8.2.1 An AOC holder shall, as part of the SMS safety assurance activities, develop and maintain the necessary means to verify safety performance of the organization in comparison with the approved safety policies and objectives, and to validate the effectiveness of implemented safety risk controls.
- 8.2.2 Safety performance monitoring and measurement means shall include the following:
- a) Safety reporting;
 - b) Safety audits;
 - c) Safety surveys;
 - d) Safety reviews; and
 - e) Safety studies.
 - f) Flight Data Analysis (FDA).
- 8.2.3 The safety reporting procedure shall set out the conditions under which immunity from disciplinary action would be considered.

8.3 Management of Change

- 8.3.1 An AOC holder shall, as part of the SMS safety assurance activities, develop and maintain a formal process for the management of change.
- 8.3.2 The formal process for the management of change shall:
- a) Identify changes within the organization which may affect established processes and services;
 - b) Describe the arrangements to ensure safety performance before implementing changes; and
 - c) Eliminate or modify safety risk controls that are no longer needed due to changes in the operational environment.

8.4 Continuous Improvement of the Safety System

- 8.4.1 An AOC holder shall, as part of the SMS safety assurance activities, develop and maintain formal processes to identify the causes of under-performance of the SMS, determine the implications in its operation, and eliminate such causes, in order to ensure the continual improvement of the SMS.
- 8.4.2 Continuous improvement of the AOC holder SMS shall include:
- a) Proactive and reactive evaluations of facilities, equipment, documentation and procedures, to verify the effectiveness of strategies for control of safety risks; and
 - b) Proactive evaluation of the individuals' performance, to verify the fulfillment of safety responsibilities.

9. Safety Promotion

9.1 General

- 9.1.1 AOC holders shall develop and maintain formal safety training and safety communication activities to create an environment where the safety objectives of the organization can be achieved.

9.2 Safety Training

- 9.2.1 An AOC holder shall, as part of its safety promotion activities, develop and maintain a safety training programme that ensures that personnel are trained and competent to perform the SMS duties.
- 9.2.2 The scope of the safety training shall be appropriate to the individual's involvement in the SMS.
- 9.2.3 The Accountable Executive shall receive safety awareness training regarding:
- SMS roles and responsibilities;
 - Safety policy;
 - SMS objectives; and
 - Safety assurance.

9.3 Safety Communication

- 9.3.1 An AOC holder shall, as part of its safety promotion activities, develop and maintain formal means for safety communication, to:
- Ensure that all staff is fully aware of the SMS;
 - Convey safety critical information;
 - Explain why particular safety actions are taken; and
 - Explain why safety procedures are introduced or changed.
- 9.3.2 Formal means of safety communication shall include:
- Safety policies and procedures;
 - News letters; and
 - Bulletins.

10. Quality Policy

- 10.1 An AOC holder shall ensure that the organization quality policy is consistent with, and supports the fulfilment of the activities of the SMS.

11. Implementation of the SMS

- 11.1 This regulation proposes, but does not mandate, a phased implementation of An AOC holder SMS, which encompasses four phases as described in paragraph 11.2 through paragraph 11.5 hereunder.
- 11.2 Phase 1 should provide a blueprint on how the SMS requirements will be met and integrated to the organization's work activities, and an accountability framework for the implementation of the SMS:
- Identify the accountable executive and the safety accountabilities of managers;
 - Identify the person (or planning group) within the organization responsible for implementing the SMS;
 - Describe the system (Air operator, ATC services provider, approved maintenance organization, certified aerodrome operator);
 - Conduct a gap analysis of the organization's existing resources compared with the national and international requirements for establishing an SMS;
 - Develop an SMS implementation plan that explains how the organization will implement the SMS on the basis of national requirements and international SARPs, the system description and the results of the gap analysis;
 - Develop documentation relevant to safety policy and objectives; and
 - Develop and establish means for safety communication.

- 11.3 Phase 2 should put into practice those elements of the SMS implementation plan that refer to the safety risk management reactive processes:
- a) Investigation and analysis;
 - b) Hazard identification and risk management;
 - c) training relevant to:
 - SMS implementation plan components; and
 - Safety risk management (reactive processes).
 - d) Documentation relevant to:
 - SMS implementation plan components; and
 - Safety Risk Management (reactive processes).
- 11.4 Phase 3 should put into practice those elements of the SMS implementation plan that refer to the safety risk management proactive processes:
- a) Investigation and analysis;
 - b) Hazard identification and risk management;
 - c) Training relevant to:
 - SMS implementation plan components; and
 - Safety risk management (proactive processes).
 - d) Documentation relevant to:
 - SMS implementation plan components; and
 - Safety Risk Management (proactive processes).
- 11.5 Phase 4 should put into practice operational safety assurance:
- a) Development of acceptable level (s) of safety;
 - b) Development of safety indicators and targets;
 - c) SMS continuous improvement;
 - d) Training relevant to operational safety assurance; and
 - e) Documentation relevant to operational safety assurance.

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Dated: 4th September, 2008

APPENDIX "A"**SMS IMPLEMENTATION**

The implementation of SMS involves a progressive development. CAA Pakistan is taking a phased-in approach to implementation. The four phases extend over 3 years.

ANO In force Date	+ 90 Days	+ 1 Year	+ 2 Years	+ 3 Years
	Initial Certification	1 Year Follow up	2 Years Follow up	3 Years Follow up

Phase 1: Initial Certification

Within 3 months of the publication of the SMS regulation, initial certification requires that applicants provide CAA Pakistan:

- a) The name of the accountable executive;
- b) The name of the person responsible for implementing the SMS;
- c) A statement of commitment to the implementation of SMS (signed by the accountable executive);
- d) Documentation of a gap analysis between the organization's existing system and the SMS regulatory requirements; and
- e) The organization's implementation project plan, based on the requirements of the exemption and the AOC holder's internal gap analysis.

Phase 2: One-Year Follow-up

At one-year, AOC holders will demonstrate that their system includes the following components:

- a) Documented safety management plan;
- b) Documented policies and procedures relating to the required SMS components; and
- c) A process for occurrence reporting with the associated supportive elements such as training, a method of collecting, storing and distributing data, and a risk management process.

Phase 3: Two-Years Follow-up

Two years after initial certification, the AOC holder will demonstrate that, in addition to the components already demonstrated during Phase 2, they also have a process for the proactive identification of hazards and associated methods of collecting, storing and distributing data and a risk management process.

Required components:

- a) Documented safety management plan;
- b) Documented policies and procedures;
- c) Process for reactive occurrence reporting and training; and
- d) Process for proactive identification of hazards.

Phase 4: Three-Years Follow-up

One year following phase 3, AOC holders will demonstrate that, in addition to the components already demonstrated during phases two and three, they have also addressed:

- a) Training;
- b) Quality Assurance; And
- c) Emergency preparedness.