



GOVERNMENT OF INDIA

OFFICE OF THE DIRECTOR GENERAL OF CIVIL AVIATION
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CIVIL AVIATION REQUIREMENTS

SECTION 1 – GENERAL

SERIES 'C' PART I

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EFFECTIVE: FORTHWITH

F.No. _____

Subject: **Establishment of a Safety Management System (SMS)**

1. INTRODUCTION

- 1.1 ICAO Annex 1 (Personnel Licensing); Annex 6 — Operation of Aircraft, Part I — International Commercial Air Transport — Aeroplanes and Part III — International Operations — Helicopters; Annex 8 — Airworthiness of Aircraft; Annex 11 — Air Traffic Services; and Annex 14 — Aerodromes, Volume I — Aerodrome Design and Operation specifies the requirements for a service provider's safety management system (SMS). The requirements for the establishment of SMS by an organisation have been laid down in various CARs.
- 1.2 This CAR lays down the aviation safety-related processes, procedures and activities for the establishment of Safety Management System (SMS) by an organization and is issued in accordance with rule 133A of the Aircraft Rules, 1937. This CAR specifies the minimum acceptable requirements for the establishment of SMS in an organization.

2. Applicability

- 2.1 This CAR applies to:
- 2.1.1 an applicant for, or a holder of, one of the following approvals/ permits/ licence:
- a) an approval issued to a maintenance organization for the maintenance of aircraft engaged in scheduled/ non-scheduled operations; or
 - b) an air operator's permit issued in accordance with rule 134; or
 - c) an Aerodrome licence; or
- 2.1.2 An air traffic services provider.

3. DEFINITIONS

- 3.1 Acceptable level of safety (ALoS) is the minimum degree of safety that must be assured by a system in actual practice;
- 3.2 Accountable Executive is the single, identifiable person having final responsibility for the effective and efficient performance of the organization's SMS.
- 3.3 Consequence A consequence is defined as the potential outcome (or outcomes) of a hazard.
- 3.4 Gap analysis - a gap analysis is basically an analysis of the safety arrangements already existing within the organization as compared to those necessary for the SMS to function.
- 3.5 "Service provider" refers to any organization providing aviation services. The term includes approved training organizations that are exposed to operational safety risks during the provision of their services, aircraft operators, approved maintenance organizations, organizations responsible for type design and/or manufacture of aircraft, air traffic service providers and certified aerodromes, as applicable.

4. GENERAL

- 4.1 The applicant of, or holder of an approval/ certificate/ licence as specified in the applicability para of this CAR including the ANS service provider shall develop, establish, maintain and adhere to a safety management system.
- 4.2 The safety management system shall correspond to the size, nature and complexity of the operations, activities, hazards and risks associated with the operations associated with the approval of an organization.
- 4.3 A safety management system shall include:
1. a safety policy on which the system is based;
 2. a process for setting goals for the improvement of aviation safety and for measuring the attainment of those goals;
 3. a process for identifying hazards to aviation safety and for evaluating and managing the associated risks;
 4. a process for ensuring that personnel are trained and competent to perform their duties;
 5. a process for the internal reporting and analyzing of hazards, incidents and accidents and for taking corrective actions to prevent their recurrence;
 6. a document containing all safety management system processes and a process for making personnel aware of their responsibilities with respect to them;
 7. a quality assurance program;
 8. a process for conducting periodic reviews or audits of the safety management system; and

9. any additional requirements for the safety management system that are prescribed in this CAR.

4.4 The safety management system shall be accepted by DGCA.

4.5 Detailed requirements for the acceptance of a safety management system are laid down in the subsequent paras of this CAR.

5. SAFETY POLICY AND OBJECTIVES

5.1 General requirements – Safety Policy

5.1.1 A service provider shall define the organization's safety policy including a clear statement about the provision of the necessary resources for its implementation. The safety policy shall be signed by the Accountable Executive of the organization.

5.1.2 The safety policy shall include the responsibilities of management and employees with respect to the safety performance of the SMS.

5.1.3 The safety policy shall be communicated to all the employees.

5.1.4 The safety policy shall also include:

- a) a commitment to review the safety management system to determine its effectiveness for continual improvement in the level of safety;
- b) procedures for reporting of a hazard, incidents and accidents;
- c) procedures for collection of data relating to a hazard, incidents and accidents, its analysis and ;
- d) the conditions under which disciplinary action would not be applicable following hazard reporting by employees.

5.1.5 The safety policy shall be in accordance with all applicable legal requirements and international standards, best industry practices and shall reflect organizational commitments regarding safety.

5.1.6 The safety policy shall be reviewed periodically to ensure it remains relevant and appropriate to the organization.

5.1.7 A service provider shall establish safety objectives for the SMS.

5.1.8 The safety objectives should be linked to the safety performance indicators, safety performance targets and action plans of the service provider's SMS.

5.2 SMS organizational arrangements and safety accountabilities and responsibilities

5.2.1 Accountable Executive:

- a) A service provider shall identify an Accountable Executive to be responsible and accountable on behalf of the service provider for meeting the requirements of this CAR, and shall notify the name of the person.
- b) The Accountable Executive shall be a single, identifiable person who, irrespective of other functions, shall have ultimate responsibility and accountability, on behalf of the [organization], for the implementation and maintenance of the SMS.
- c) The Accountable Executive shall have full control over the following for the operations authorized to be conducted under the approval/ permit/ licence or for the provision of ANS services:

9.1.1.1. The required human resources;

9.1.1.2. The required financial resources;

- d) The Accountable Executive would be the final authority over operations authorized to be conducted under the approval/ permit/ licence or for the provision of ANS services, be directly responsible for the conduct of the organization's affairs and be the final responsibility for all safety issues.

5.2.2 The service provider shall establish the necessary organizational arrangements for the implementation of, adherence to and maintenance of the organization's SMS.

5.2.3 A service provider shall identify the safety accountabilities, responsibilities and authorities of all members of management as well as of all employees, irrespective of other responsibilities.

5.2.4 Safety-related accountabilities, responsibilities and authorities shall be defined, documented and communicated throughout the organization.

6. Person managing the Safety Management System

6.1 The service provider shall identify someone from management to be the safety manager who shall be the individual and focal point responsible for the implementation and maintenance of an effective SMS.

6.2 The safety manager shall *inter alia*:

- 6.2.1 ensure that processes needed for the SMS are developed, implemented adhered to and maintained;
- 6.2.2 report to the Accountable Executive on the performance of the SMS and on any need for improvement; and
- 6.2.3 ensure safety promotion throughout the organization.

7. Coordination of emergency response planning

- 7.1 A service provider as part of the safety management system prepare its emergency response plan and ensure that the emergency response plan is properly coordinated with the emergency response plans of those organizations it must interface with during the provision of its services.
- 7.2 The emergency response plan shall be such so as to ensure orderly and efficient transition from normal to emergency operations and the return to normal operations.
 - 7.2.1 The coordination of the emergency response plan shall include, *inter alia*, the:
 - a) delegation of emergency authority;
 - b) assignment of emergency responsibilities during the coordinated activities;
 - c) coordination of efforts to cope with the emergency; and
 - d) compatibility with other emergency response plans of other organizations.

8. Documentation

- 8.1 A service provider shall develop and maintain SMS documentation to describe:
 - a) the safety policy and objectives;
 - b) the SMS requirements;
 - c) the SMS processes and procedures;
 - d) the accountabilities, responsibilities and authorities for processes and procedures; and
 - e) the SMS outputs.
- 8.2 A service provider shall, as part of the SMS documentation, complete a system description.
- 8.3 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 performance 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, subcontracted and purchased products and/or services.
- 8.4 A service provider shall, as part of the SMS documentation, complete a gap analysis, to:
- a) identify the safety arrangements and structures that may already exist in its organization; and
 - b) determine additional safety arrangements required to implement and maintain the organization's SMS.
- 8.5 A service provider shall, as part of the SMS documentation, develop, adhere to and maintain an SMS implementation plan.
- 8.6 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 objectives.
- 8.7 The SMS implementation plan shall explicitly address the coordination between the SMS of the service provider and the SMS of other organizations the service provider must interface with during the provision of services.
- 8.8 The SMS implementation plan shall include the following:
- a) safety policy and objectives;
 - b) system description;
 - c) gap analysis;
 - d) SMS components;
 - e) safety roles and responsibilities;
 - f) hazard reporting policy;
 - g) means of employee involvement;
 - h) safety performance measurement;

- i) safety training;
 - j) safety communication; and
 - k) management review of safety performance.
- 8.9 The SMS implementation plan shall be endorsed by senior management of the organization.
9. **A safety management systems manual (SMSM)**
- 9.1 As part of the SMS documentation, a service provider shall develop and maintain a safety management systems manual (SMSM), to communicate the organization's approach to safety throughout the organization.
- 9.2 The SMSM shall document all aspects of the SMS, and its contents shall include the following:
- a) scope of the safety management system;
 - b) safety policy and objectives;
 - c) safety accountabilities;
 - d) key safety personnel;
 - e) documentation control procedures;
 - f) coordination of emergency response planning;
 - g) hazard identification and safety risk management schemes;
 - h) safety performance monitoring;
 - i) safety auditing;
 - j) procedures for the management of change;
 - k) safety promotion; and
 - l) control of contracted activities.

Information note.— 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.

10. SAFETY RISK MANAGEMENT

10.1 General

- 10.1.1 A service provider shall develop and maintain a formal process that ensures that hazards in operations are identified.
- 10.1.2 A service provider shall develop and maintain safety data collection and processing systems (SDCPS) that provide for the identification of hazards and the analysis, assessment and mitigation of safety risks.
- 10.1.3 A service provider's SDCPS shall include reactive, proactive and predictive methods of safety data collection.

10.2 Hazard identification

- 10.2.1 A service provider shall develop and maintain formal means for effectively collecting, recording, acting on and generating feedback about hazards in operations, which combine reactive, proactive and predictive methods of safety data collection. Formal means of safety data collection shall include mandatory, voluntary and confidential reporting systems.
- 10.2.2 The hazard identification process shall include the following steps:
 - a) reporting of hazards, events or safety concerns;
 - b) collection and storage of safety data;
 - c) analysis of the safety data; and
 - d) distribution of the safety information distilled from the safety data.

10.3 Safety risk assessment and mitigation

- 10.3.1 A service provider shall develop and maintain a formal process that ensures analysis, assessment and control of the safety risks of the consequences of hazards during the provision of its services.
- 10.3.2 The safety risks of the consequences of each hazard identified through the hazard identification processes described in para 10.2 of this CAR shall be analysed in terms of probability and severity of occurrence, and assessed for their tolerability.
- 10.3.3 The organization shall define the levels of management with authority to make safety risk tolerability decisions.
- 10.3.4 The organization shall define safety controls for each safety risk assessed as tolerable.

11. SAFETY ASSURANCE

11.1 General

11.1.1 A service provider shall develop and maintain safety assurance processes to ensure that the safety risk controls developed as a consequence of the hazard identification and safety risk management activities in paragraph 10 achieve their intended objectives.

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

11.2 Safety performance monitoring and measurement

11.2.1 A service provider shall, as part of the SMS safety assurance activities, develop and maintain the necessary means to verify the safety performance of the organization in reference to the safety performance indicators and safety performance targets of the SMS, and to validate the effectiveness of safety risk controls.

11.2.2 Safety performance monitoring and measurement means shall include the following:

- a) hazard reporting systems;
- b) safety audits;
- c) safety surveys;
- d) safety reviews;
- e) safety studies; and
- f) internal safety investigations.

11.2.3 The hazard reporting procedures shall set out the conditions to ensure effective reporting, including the conditions under which disciplinary/ administrative action shall not apply.

11.3 Management of change

11.3.1 A service provider shall, as part of the SMS safety assurance activities, develop and maintain a formal process for the management of change.

11.3.2 The formal process for the management of change shall:

- a) identify changes within the organization which may affect established processes and services;
- b) establish arrangements to ensure safety performance prior to implementing changes; and
- c) eliminate or modify safety risk controls that are no longer needed due to changes in the operational environment.

11.4 Continuous improvement of the safety system

11.4.1 A service provider shall, as part of the SMS safety assurance activities, develop and maintain formal processes to identify the causes of substandard performance of the SMS, determine the implications on its operations, and rectify situations involving substandard performance in order to ensure continuous improvement of the SMS.

11.4.2 Continuous improvement of the service provider's 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 individual's performance, to verify the fulfillment of safety responsibilities.

12. SAFETY PROMOTION

12.1 General

Service providers 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.

12.2 Safety training

12.2.1 A service provider 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 their SMS duties.

12.2.2 The scope of the safety training shall be appropriate to the individual's involvement in the SMS.

12.2.3 The Accountable Executive shall receive safety awareness training regarding:

- a) safety policy and objectives;
- b) SMS roles and responsibilities;

- c) SMS standards; and
- d) safety assurance.

12.3 Safety communication

12.3.1 A service provider shall, as part of its safety promotion activities, develop and maintain formal means for safety communication, to:

- a) ensure that all staff are fully aware of the SMS;
- b) convey safety-critical information;
- c) explain why particular safety actions are taken;
- d) explain why safety procedures are introduced or changed; and
- e) convey generic safety information.

12.3.2 Formal means of safety communication shall include *inter alia*:

- a) safety policies and procedures;
- b) newsletters;
- c) bulletins; and
- d) websites.

13. QUALITY POLICY

A service provider shall ensure that the organization's quality policy is consistent with, and supports the fulfilment of, the activities of the SMS.

14. GUIDANCE FOR THE DEVELOPMENT OF SMS

The guidelines and phase-wise for the development and implementation of an SMS in an organization has been described in Annexure I to this Car.

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GUIDELINES AND PHASE-WISE FOR THE DEVELOPMENT AND IMPLEMENTATION OF AN SMS IN AN ORGANIZATION

1. **Phase I** — Planning should provide a blueprint on how the SMS requirements will be met and integrated into the organization's work activities, and an accountability framework for the implementation of the SMS:
 - a. Identify the Accountable Executive and the safety accountabilities of managers;
 - b. Identify the person (or planning group) within the organization responsible for implementing the SMS;
 - c. Describe the system (ATOs, air operators, AMOs, organizations responsible for type design and/or manufacture of aircraft, ATC service providers, certified aerodromes);
 - d. Conduct a gap analysis of the organization's existing resources compared with the national and international requirements for establishing an SMS;
 - e. 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;
 - f. Develop documentation relevant to safety policy and objectives; and
 - g. Develop and establish means for safety communication.
2. **Phase II** — Reactive processes should put into practice those elements of the SMS implementation plan that refer to safety risk management based on reactive processes:
 - a. hazard identification and safety risk management using reactive processes;
 - b. training relevant to:
 1. SMS implementation plan components; and
 2. safety risk management (reactive processes).
 - c. documentation relevant to:
 1. SMS implementation plan components; and
 2. safety risk management (reactive processes).

- 3. Phase III** — Proactive and predictive processes should put into practice those elements of the SMS implementation plan that refer to safety risk management based on proactive and predictive processes:
- a. hazard identification and safety risk management using proactive and predictive processes;
 - b. training relevant to:
 1. SMS implementation plan components; and
 2. safety risk management (proactive and predictive processes).
 - c. documentation relevant to:
 1. SMS implementation plan components; and
 2. safety risk management (proactive and predictive processes).
- 4. Phase IV** — Operational safety assurance should put into practice operational safety assurance:
- a. development of and agreement on safety performance indicators and safety performance targets;
 - b. SMS continuous improvement;
 - c. training relevant to operational safety assurance;
 - d. documentation relevant to operational safety assurance; and
 - e. develop and maintain formal means for safety communication.
