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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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Subject: Establishment of a Safety Management System (SMS)

1. INTRODUCTION

- 1.1 The ICAO safety management SARPs as contained in its Annex 19 to the convention, provide the high-level requirements, which the States are required to implement to fulfil their safety management responsibilities related to, or in direct support of, the safe operation of aircraft.
- 1.2 In compliance with the standards of ICAO Annexes, various CARs specify the requirements for the establishment of SMS by a service provider. This CAR specifies the minimum acceptable requirements for the establishment of SMS by a service provider.
- 1.3 This CAR lays down the aviation safety-related processes, procedures and activities for the establishment of SMS by a service provider and is issued in accordance with rule 29D and rule 133A of the Aircraft Rules, 1937.

2. APPLICABILITY

- 2.1 The provisions of this CAR are applicable to an applicant for, or a holder of, one of the following approvals/permits/licence:
 - i) Scheduled or Non-Scheduled Operator's Permit issued under rule 134 or 134A.
 - ii) Conducting operations of large or turbojet aeroplanes for general aviation.
 - iii) Engaged in the operation of an aerodrome licensed under rule 78.
 - iv) Engaged in the type design of aircraft, engines or propellers approved under rule 133B.

- v) Engaged in manufacture of aircraft, engines or propellers approved under rule 133B.
- vi) Maintenance organization approved under rule 133B and engaged in the maintenance of aeroplanes or helicopters.
- vii) Training organization approved under rule 41B.
- viii) An air traffic service provider.

3. DEFINITIONS

- 3.1 **Acceptable level of safety performance (ALoSP):** The level of safety performance agreed by State authorities to be achieved for the civil aviation system in a State, as defined in its State safety programme, expressed in terms of safety performance targets and safety performance indicators.
- 3.2 **Accountable executive:** A single, identifiable person having responsibility for the effective and efficient performance of the State's SSP or of the service provider's SMS.
- 3.3 **Change management:** A formal process to manage changes within an organization in a systematic manner, so that changes which may impact identified hazards and risk mitigation strategies are accounted for, before the implementation of such changes.
- 3.4 **Defences:** Specific mitigating actions, preventive controls or recovery measures put in place to prevent the realization of a hazard or its escalation into an undesirable consequence.
- 3.5 **Errors:** An action or inaction by an operational person that leads to deviations from organizational, or the operational person's, intentions or expectations.
- 3.6 **Hazard:** A condition or an object with the potential to cause or contribute to an aircraft incident or accident.
- 3.7 **Gap analysis:** a gap analysis is basically an analysis of the safety arrangements already existing within the organization as compared to those necessary for SMS function
- 3.8 **Inappropriate use:** use of safety information for purposes different from the purposes for which it was collected, namely, use of the information for disciplinary, civil, administrative and criminal proceedings against operational personnel, and/or disclosure of the information to the public. (ICAO Annex 13/19)
- 3.9 **Industry codes of practice:** Guidance material developed by an industry body, for a particular sector of the aviation industry to comply with the requirements of the International Civil Aviation Organization's Standards and Recommended Practices, other aviation safety requirements and the best practices deemed appropriate.

Note.— Some States accept and reference industry codes of practice in the development of regulations to meet the requirements of Annex 19, and make available, for the industry codes of practice, their sources and how they may be obtained.

3.10 **Just Culture:** It is a culture in which personnel are not punished for actions, omissions or decisions taken by them which are commensurate with their experience and training, but where gross negligence, wilful violations and destructive acts are not tolerated.

3.11 **Operational personnel:** Personnel involved in aviation activities who are in a position to report safety information.

Note.— Such personnel include, but are not limited to: flight crews; air traffic controllers; aeronautical station operators; maintenance technicians; personnel of aircraft design and manufacturing organizations; cabin crews; flight dispatchers, apron personnel and ground handling personnel.

3.12 **Risk mitigation:** The process of incorporating defences, preventive controls or recovery measures to lower the severity and/or likelihood of a hazard's projected consequence.

3.13 **Safety.** The state in which risks associated with aviation activities, related to, or in direct support of the operation of aircraft, are reduced and controlled to an acceptable level.

3.14 **Safety information:** Safety data processed, organized or analysed in a given context so as to make it useful for safety management purposes.

3.15 **Safety management system:** A systematic approach to managing safety, including the necessary organizational structures, accountabilities, responsibilities, policies and procedures.

3.16 **Safety performance:** A State or service provider's safety achievement as defined by its safety performance targets and safety performance indicators.

3.17 **Safety performance indicator:** A data-based safety parameter used for monitoring and assessing safety performance.

3.18 **Safety risk:** The predicted probability and severity of the consequences or outcomes of a hazard.

3.19 **Safety data:** A defined set of facts or set of safety values collected from various aviation-related sources, which is used to maintain or improve safety.

Note. — Such safety data is collected from proactive or reactive safety-related activities, including but not limited to:

- a) accident or incident investigations;
 - b) safety reporting;
 - c) continuing airworthiness reporting;
 - d) operational performance monitoring;
 - e) Inspections, audits, surveys; or
 - f) safety studies and reviews
- 3.20 **Safety objective.** A brief, high-level statement of safety achievement or desired outcome to be accomplished by the State safety programme or service provider's safety management system.
- Note. — Safety objectives are developed from the organization's top safety risks and should be taken into consideration during subsequent development of safety performance indicators and targets.
- 3.21 **Safety oversight:** A function performed by a State to ensure that individuals and organizations performing an aviation activity comply with safety-related national laws and regulations.
- 3.22 **Safety performance target:** The State or service provider's planned or intended target for a safety performance indicator over a given period that aligns with the safety objectives.
- 3.23 **State of Design:** The state having jurisdiction over the organisation responsible for the type design.
- 3.24 **State of Manufacture:** The state having jurisdiction over the organisation responsible for the final assembly of the aircraft.
- 3.25 **Service Provider:** refers to any organisation providing aviation product and/or services. The term includes approved training organisations, organisations responsible for type design and/or manufacture of aircraft/engines, air traffic service providers, Ground handling service providers, airlines, aerodromes, as applicable.
- 3.26 **State of the Operator.** The State in which the operator's principal place of business is located or, if there is no such place of business, the operator's permanent residence.
- 3.27 **State safety programme:** An integrated set of regulations and activities aimed at improving safety.
- 3.28 **Surveillance:** The State activities through which the State proactively verifies through inspections and audits that aviation licence, certificate, authorization or approval holders continue to meet the established requirements and function at the level of competency and safety required by the State.

4. GENERAL

- 4.1 A service provider or holder of an approval/certificate/ licence, as specified in para 2 of this CAR shall develop, establish, maintain and adhere to a safety management system commensurate with the size and the complexity of its aviation products or services. The safety management system shall be established in accordance with the framework elements contained in this civil aviation requirements.
- 4.2 SMS framework shall incorporate four components and twelve key elements, mentioned below as the minimum requirements for SMS implementation:
- 4.2.1 Safety policy and objectives
- i) Management commitment
 - ii) Safety accountability and responsibilities
 - iii) Appointment of key safety personnel
 - iv) Coordination of emergency response planning
 - v) SMS documentation
- 4.2.2 Safety risk management
- i) Hazard identification
 - ii) Safety risk assessment and mitigation
- 4.2.3 Safety assurance
- i) Safety performance monitoring and measurement
 - ii) The Management of change
 - iii) Continuous improvement of the SMS
- 4.2.4 Safety promotion
- i) Training and education
 - ii) Safety communication
- 4.3 The safety management system shall be accepted by DGCA.
- 4.4 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 Management Commitment

- 5.1.1 The service provider shall define its safety policy in accordance with international and national requirements. The safety policy shall:
- a) reflect service provider commitment regarding safety, including the promotion of a positive safety culture;

- b) include a clear statement about the provision of the necessary resources for implementation of the safety policy;
- c) include safety reporting procedures;
- d) clearly indicate which types of behaviours are unacceptable related to the service provider's aviation activities and include the circumstances under which disciplinary action would not apply;
- e) be signed by the accountable executive of the service provider;
- f) be communicated, with visible endorsement, throughout the service provider; and
- g) be periodically reviewed to ensure it remains relevant and appropriate to the service provider.

5.1.2 To reflect the organization's commitment to safety, the safety policy shall include a commitment to:

- a) continuously improve the level of safety performance;
- b) comply with all applicable regulatory requirements;
- c) provide all the necessary resources to deliver a safe product or service;
- d) ensure safety is a primary responsibility of all managers;
- e) ensure that the safety policy is understood, implemented and maintained at all levels.
- f) promote and maintain a positive safety culture within the organization.

5.1.3 Based on the safety policy, the service provider shall define safety objectives. The safety objectives shall:

- a) form the basis for safety performance monitoring and measurement;
- b) reflect the service provider's commitment to maintain or continuously improve the overall effectiveness of the SMS;
- c) be communicated throughout the organization; and
- d) be periodically reviewed to ensure that they remain relevant and appropriate to the service provider.

5.2 Safety Accountabilities and Responsibilities

5.2.1 The service provider shall:

- a) identify the accountable executive who, irrespective of other functions, is accountable on behalf of the organization for the implementation and maintenance of an effective SMS;
- b) clearly define lines of safety accountability throughout the organization, including a direct accountability for safety on the part of senior management;
- c) identify the responsibilities of all members of management, irrespective of other functions, as well as of employees, with respect to the safety performance of the organization;
- d) document and communicate safety accountability, responsibilities and authorities throughout the organization; and
- e) define the levels of management with authority to make decisions regarding safety risk tolerability.

6. Appointment of Key Safety Personnel

- 6.1 The service provider shall appoint a safety manager who is responsible for the implementation and maintenance of the SMS.
- 6.2 Depending on the size of the service provider and the complexity of its aviation products or services, the responsibilities for the implementation and maintenance of the SMS may be assigned to one or more persons.
- 6.3 In cases where the function is allocated to a group of persons, one of the persons shall be designated as “lead” safety manager, to maintain a direct and unequivocal reporting line to the accountable executive. Service provider shall document the arrangement as adopted in its SMS manual and submit the detail of lead safety manager/ safety manager as applicable to the DGCA for acceptance.
- 6.4 The safety manager’s functions include, but are not necessarily limited to:
- a) manage the SMS implementation plan on behalf of the accountable executive;
 - b) responsible for ensuring there is a suitable safety training programme in place
 - c) performing/facilitating hazard identification and safety risk analysis;
 - d) monitoring corrective actions and evaluating their results;
 - e) providing periodic reports on the organization’s safety performance;
 - f) maintaining safety documentation and records;
 - g) planning and facilitating staff safety training;
 - h) providing independent advice on safety matters;
 - i) monitoring safety concerns in the aviation industry and their perceived impact on the service provider’s operations aimed at product and service delivery; and
 - j) coordinating and communicating (on behalf of the accountable executive) with DGCA and other service providers on issues relating to safety.
- 6.5 For selection of a safety manager, the service provider shall follow the guidance provided in ICAO Doc 9859.
- 6.6 After induction, the safety manager shall be imparted knowledge of the organization’s operations, procedures and activities as well as the applicable ICAO Standards and Recommended Practices (SARPs).
- 6.7 The service provider shall establish Safety Review Board (SRB) and Safety Action Group (SAG) depending upon size and scope of the service provider. The guidance for composition and functions of SRB/SAG is provided in ICAO Doc 9859.

7. Coordination of Emergency Response Planning

- 7.1 The service provider shall establish and maintain Emergency Response Plan (ERP) for aircraft accidents and incidents in aircraft operations and other aviation emergencies. An emergency is a sudden, unplanned situation or event requiring immediate action. It shall be ensured that the ERP is properly coordinated with

ERPs of those organisations it must interface with during the provision of its products and services.

8. Documentation

- 8.1 The service provider shall develop and maintain an SMS manual that describes its safety policy and objectives; SMS requirements; SMS processes and procedures; accountability, responsibilities and authorities for SMS processes and procedures. The contents of SMS Manual shall be as given in Appendix A to this CAR.
- 8.2 The service provider shall develop and maintain SMS operational records as part of its SMS documentation.

9. SAFETY RISK MANAGEMENT

9.1 Hazard Identification

- 9.1.1 The service provider shall develop and maintain a process to identify hazards associated with its aviation products or services.
- 9.1.2 Hazard identification shall be based on a combination of reactive and proactive methods.

9.2 Safety Risk Assessment and Mitigation

- 9.2.1 The service provider shall develop and maintain a process that ensures analysis, assessment and control of the safety risks associated with identified hazards.
- 9.2.2 Safety risk assessments and safety risk mitigations shall be continuously reviewed to ensure they remain effective.
- 9.2.3 The organizations shall adopt a methodology suited to the scope and complexity of their activities and adaptable to their individual resources and expertise.

10. SAFETY ASSURANCE

10.1 Safety Performance Monitoring and Measurement

- a. The service provider shall develop and maintain the means to verify the safety performance of the organisation and to validate the effectiveness of safety risk controls.
- b. The service provider's safety performance shall be verified with reference to the safety performance indicators and safety performance targets of the SMS in support of the service provider's safety objectives by means of Safety Data

Collection and Processing System (SDCPS). A more complete and realistic picture of the service provider's safety performance will be achieved if SPIs encompass a wide spectrum of indicators. This should include:

- i. low probability/high severity events
- ii. high probability/low severity events
- iii. process performance

10.2 Management of Change

10.2.1 The service provider shall develop and maintain processes to identify changes which may affect the level of safety risk associated with its aviation products or services and to identify and manage the safety risks that may arise from those changes.

10.3 Continuous Improvement of the SMS

The service provider shall monitor and assess its SMS processes to maintain or continuously improve the overall effectiveness of the SMS.

11. SAFETY PROMOTION

- 11.1 The service provider shall ensure effective communication throughout all levels of the service provider, sharing information about safety objectives and current safety activities and issues.
- 11.2 The Communication shall be from the 'bottom-up', in an environment that allows management to receive open and constructive feedback from operational personnel and to demonstrate that they are taking action in response to such feedback.

12. SAFETY TRAINING

- 12.1 The service provider shall develop and maintain a safety training programme to ensure that the personnel are trained and competent to perform the SMS duties.
- 12.2 The scope of the safety training programme shall be appropriate to each individual's involvement in the SMS.
(NOTE: the guidance on safety training program is provided in Appendix- B)

13. SAFETY COMMUNICATION

- 13.1 The service provider shall develop and maintain formal means for safety communication that:
 - a) ensures personnel are aware of the SMS to a degree commensurate with their positions;

- b) conveys safety-critical information;
 - c) explains why particular actions are taken to improve safety; and
 - d) explains why safety procedures are introduced or changed.
- 13.2 The service provider shall ensure that all SMS elements are developed and implemented within a framework of just culture.
- 13.3 The organization shall ensure that policies and procedures to support just culture are established and documented. Such policies and procedures shall include the following, but not limited to:
- i) Mandatory and voluntary safety reporting systems; and
 - ii) Staff management including disciplinary procedures.
- 13.4 The senior management shall familiarize themselves with the principles and practice of Just Culture and incorporate a structured strategy for its development as part of the SMS implementation.

14. INTERFACE MANAGEMENT

- 14.1 A service provider's interfaces with other organizations can make a significant contribution to the safety of its products or services. Service provider shall have process in place for identification and management of safety risk associated with internal (e.g. between departments) and external (e.g. other service providers or contracted services) interfaces.
- 14.2 All safety issues or safety risks related to the interfaces should be documented and made accessible to each organization for sharing and review.
- 14.3 The coordination between the organizations involved in the interface should include:
- a. Clarification of each organization's roles and responsibilities;
 - b. Agreement of decisions on the actions to be taken (e.g. safety risk control actions and timescales);
 - c. Identification of what safety information needs to be shared and communicated;
 - d. How and when coordination should take place (task force, regular meetings, ad hoc or dedicated meetings); and
 - e. Agreeing on solutions that benefit both organizations but that do not impair the effectiveness of the SMS.

15. HOLDER OF MORE THAN ONE CERTIFICATE

- 15.1 The holder of more than one licence, approval or certificate as referred to in Para 2 of this CAR, shall integrate the requirements of these Parts into a single SMS, subject to the acceptance of the DGCA.

16. GUIDANCE AND PLAN FOR IMPLEMENTATION OF SMS

- 16.1 A Service provider shall implement the SMS in planned phases in accordance with in Appendix C to this CAR.

17. GUIDANCE FOR PROTECTION OF SAFETY INFORMATION

- 17.1 The sole purpose of safety information shall be for improving aviation safety. The safety information so collected by DGCA and service provider shall qualify for protection under specified conditions.
- 17.2 Detailed guidance on protection of safety information is given in Appendix D to this CAR.



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Appendix 'A'

CONTENTS OF THE SMS MANUAL

The contents of the SMS manual may include the following sections:

- 1.1 Document control;
- 1.2 SMS regulatory requirements;
- 1.3 Scope and integration of the safety management system;
- 1.4 Safety policy;
- 1.5 Safety objectives;
- 1.6 Role, Safety accountability and responsibility of Personnel Involved in SMS
- 1.7 Safety reporting and remedial actions;
- 1.8 Hazard identification and risk assessment;
- 1.9 Safety performance monitoring and measurement;
- 1.10 Safety-related investigations and remedial actions;
- 1.11 Safety training and communication;
- 1.12 Continuous improvement and SMS audit;
- 1.13 SMS records management;
- 1.14 Management of change; and
- 1.15 Emergency/contingency response plan.

Appendix 'B'

GUIDANCE ON SAFETY TRAINING

The safety training programme shall include both initial and recurrent training to maintain competencies. The training programme should be tailored to the needs of the individual's role within the SMS of the organization. A suggested training program is as follows:

1. Initial safety training should consider, as a minimum, the following:
 - a. DGCA SMS related provisions and overview of State Safety Programme
 - b. Organizational safety policies and safety objectives
 - c. Organizational roles and responsibilities related to safety
 - d. Basic Safety Risk Management principles;
 - i. Identification of hazards
 - ii. Mitigation of safety risks
 - e. Safety reporting systems
 - f. Interface management
 - g. The organization's SMS processes and procedures
 - h. Human factors.
 - i. The organizations safety culture.
2. Recurrent safety training should focus on changes to the SMS policies, processes and procedures and should highlight any specific safety issues relevant to the organization or lessons learned.
3. Specific training shall be developed for senior managers and for the accountable executive that includes the following topics:
 - a. Specific awareness training on their SMS
 - b. Accountabilities and responsibilities
 - c. Importance of compliance with national and organizational safety requirements
 - d. Management commitment and safety leadership
 - e. Data driven decision making
 - f. Allocation of resources
 - g. Promotion of the safety policy and the SMS
 - h. Promotion of a positive safety culture
 - i. Effective interdepartmental safety communication
 - j. Safety objective, SPIs, SPTs and alert levels
 - k. Disciplinary policy.

PHASE-WISE IMPLEMENTATION OF SMS

Timelines for Implementation	At the time of Application for AOC/AOP/Approval/Certification (Phase 1)	At the time of Application for AOC/AOP/Approval/Certification (Phase 2)	+ 18 Months (Phase 3)	+ 18 Months (Phase 4)
To demonstrate	a) Identify SMS accountable executive. b) Establish SMS implementation team. c) Define scope of the SMS. d) Perform SMS gap analysis. e) Develop SMS implementation plan. f) Establish key person/office responsible for the administration and maintenance of the SMS. g) Establish SMS training program for personnel, with priority for the SMS implementation team. h) Initiate SMS/safety communication channels.	a) Establish safety policy and objectives. b) Define safety management responsibilities and accountabilities across relevant departments of the organization. c) Establish SMS/safety coordination mechanism/committee. d) Establish departmental/divisional SAGs where applicable. e) Establish emergency response plan. f) Initiate progressive development of SMS document/manual and other supporting documentation.	a) Establish voluntary hazard reporting procedure. b) Establish safety risk management procedures. c) Establish occurrence reporting and investigation procedures. d) Establish safety data collection and processing system for high-consequence outcomes. e) Develop SPIs associated with "low probability/high severity events" and associated targets and alert settings. f) Establish management of change procedure that includes safety risk assessment. g) Establish internal quality audit program. h) Establish external quality audit program.	a) Enhance existing disciplinary procedure/ policy with due consideration of unintentional errors or mistakes from deliberate or gross violations. b) Integrate hazards identified from occurrence investigation reports with the voluntary hazard reporting system. c) Integrate hazard identification and risk management procedures with the sub-contractor's or customer's SMS where applicable. d) Enhance safety data collection and processing system to include lower-consequence events. e) Develop SPIs associated with "low probability/high severity events, high probability/low severity events, process performance" and associated targets/alert settings. f) Establish SMS audit programs or integrate them into existing internal and external audit programs. g) Establish other operational SMS review/ survey programs where appropriate. h) Ensure that SMS training program for all relevant personnel has been completed. i) Promote safety information sharing and exchange internally and externally.

Note:

- Actual implementation period is dependent on the scope of actions required for each element allocated and the size/complexity of the organization. The time period will be acceptable to the DGCA as part of SMS acceptance process.
- Small and non-complex organizations should develop a simplified SMS that is workable with limited resources and expertise. While SMS should include all of the key SMS elements described in this CAR, documentation and procedures should be limited to the scope of the organization's activities and readily used without excessive management effort.

Appendix 'D'

GUIDANCE ON PROTECTION OF SAFETY INFORMATION

Description

Safety Data Collection and Processing System (SDCPS) refers to databases, schemes for exchange of information, and recorded information and include, but not limited to:

- a) Records/evidence pertaining to accident and incident investigations.
- b) Mandatory safety reporting system.
- c) Voluntary safety reporting system.
- d) Data/information captured from DGCA Oversight (regulatory audits/surveillance/spot checks, etc.).
- e) Self-disclosure reporting systems, including automatic data capture systems.

Principles of Protection

- a) Safety information shall qualify for protection from inappropriate use according to specified conditions that will include, but not necessarily be limited to, collection of information for explicit safety purposes and disclosure of such information would inhibit its continued availability.
- b) Safety information shall not be used in a way different from the purposes for which it was collected.

Principles of Exception

Exceptions to the protection of safety information shall only be granted when:

- a) DGCA considers that circumstances reasonably indicate that the occurrence may have been caused by conduct with intent to cause damage or conduct with knowledge that damage would probably result, equivalent to reckless conduct, gross negligence or willful misconduct.
- b) Review by DGCA determines that the release of the safety information is necessary for the proper administration of justice, and that its release outweighs the adverse domestic and international impact and such a release may have on the future availability of safety information.

Public Disclosure

Subject to the principles of protection and exception outlined above, any person seeking disclosure of safety information shall justify its release. Formal criteria for disclosure of safety information shall be established to include, but not necessarily be limited to, the following:

- a) Disclosure of the safety information is necessary to correct conditions that compromise safety and/or to change policies and regulations.
- b) Disclosure of the safety information does not inhibit its future availability in order to improve safety.
- c) Disclosure of relevant personal information included in the safety information complies with applicable privacy laws.
- d) Disclosure of the safety information is made in a de-identified, summarized or aggregate form.
- e) It shall be the responsibility of the custodian of safety information to apply all possible protection regarding the disclosure of the information, unless:
 - i. There is a consent of the originator of the information for disclosure; or
 - ii. There is a reason that release of safety information is in accordance with the principles of exception.