

Safety Management System Requirement, 2010

1. Promulgation and effective date

1.1 Promulgation

This "Safety Management System Requirements, 2010" has been enacted by Civil Aviation Authority of Nepal pursuant to Clause-5, Sub-Clause "Pha", Clause 34 and Clause 35 of Civil Aviation Authority of Nepal Act, 2053; Rule 82, Scheduled 3 of Civil Aviation Regulation, 2002 and in accordance with the Standard and Recommended Practices of Annexes-1, 6, 8, 11, 13 and 14 to the Convention of International Civil Aviation for safety, regularity and efficiency of Civil Aviation in Nepal; and is called "SMS Requirement" in short.

1.2 Effective date

This Safety Management System Requirement comes into effect from 15 August, 2010 (30 Shrawan 2067)

2. Scope, Applicability and Objective

2.1 Scope

2.1.1 This Requirement describes the requirements for a service provider safety management system (SMS) operating in accordance with ICAO Annex 1- Personnel Licensing, Annex 6- Operation of Aircraft, Part 1- International Commercial Air Transport – Aeroplanes and Part III – International Operation – Helicopters, Annex 8- Airworthiness of Aircraft, Annex 11- Air

Traffic Services, Annex 13- Aircraft Accident and Incident Investigation and Annex 14- Aerodromes, Volume I- Aerodrome Design and Operations.

2.1.2 The term "service provider" must be understood to be any organisation designated for providing aviation related services within the context of this Requirement. The term encompasses approved training organizations that are exposed to safety risks during delivery of services, aircraft operators, and approved maintenance organizations, organizations responsible for type design and/or manufacture of aircraft, air traffic service providers and certified aerodromes and as applicable.

2.1.3 This Requirement addresses aviation safety related processes and activities only. Functions, such as, occupational safety, environmental protection, or customer service quality are separate activities.

2.1.4 The service provider is responsible for the safety of services or products contracted to or procured from other organisations.

2.1.5 This Requirement establishes the minimum acceptable requirements. The service provider can establish more stringent requirements.

2.2 Applicability and acceptance

2.2.1 A service provider shall implement a safety management system (SMS) that is acceptable to CAAN, and shall, as a minimum:

- a) identify safety hazards;
- b) ensure the implementation of remedial action necessary to maintain agreed safety performance;
- c) provide for continuous monitoring and regular assessment of the safety performance; and
- d) aim at continuous improvement of the overall performance of the safety management system.

2.2.2 In order to be acceptable to CAAN a service provider SMS shall meet the requirements set forth in it.

2.3. Safety Objective

The overall safety objective is to ensure that all safety issues within the provision of services have been addressed in a satisfactory manner, and to a satisfactory conclusion.

3. References

3.1 This Requirement is in accordance with Annex 1- Personnel Licensing, Annex 6- Operation of Aircraft, Part 1- International Commercial Air Transport – Aeroplanes and Part III – International Operation – Helicopters,

Annex 8- Airworthiness of Aircraft, Annex 11- Air Traffic Services, Annex 13- Aircraft Accident and Incident Investigation and Annex 14- Aerodromes, Volume I- Aerodrome Design and Operations and, the ICAO Safety Management Manual (Doc. 9859), FAA Aviation Safety (AVS) Safety Management System Requirement, ORDER VS 8000.367.

- 3.2 This Requirement is in accordance with CAAN Civil Aviation Requirements CAR 1- Personnel Licensing, CAR 6- Operation of Aircraft, Part 1- International Commercial Air Transport – Aeroplanes and Part III – International Operation – Helicopters, CAR 8- Airworthiness of Aircrafts, CAR 11- Air Traffic Services, CAR 13- Aircraft Accident and Incident Investigation and Manual of Aerodrome Standards (Say CAR-14).

4. Definitions

Accident- *An* occurrence associated with the operation of an aircraft that takes place between the time any person boards the aircraft with the intention of flight and all such persons have disembarked, and in which any person suffers death or serious injury, or in which the aircraft receives substantial damage.

Acceptable level of safety (ALoS) – It expresses the safety goals (or expectations) of an oversight authority, an operator, or a service provider.

Accountable Executive – A single, identifiable person, who irrespective of other functions, shall have the ultimate responsibility for the implementation and maintenance of SMS.

Air Traffic Service – A generic term meaning variously, flight information service, alerting service, air traffic advisory service, and air traffic control service (area control service, approach control service or aerodrome control service).

Consequence – Potential outcome(s) of the hazard.

Gap analysis – An analysis of the safety system to determine which components and elements of CAAN safety programme are currently in place and which components and elements must be added or modified to meet the implementation requirements.

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.

Incident – An incident is an occurrence, other than an accident, associated with the operation of an aircraft that effect or could affect the safety of operation. A serious incident is an incident involving circumstances indicating that an accident nearly occurred.

Internal Safety Investigations – An activity to determine and assess any risks associated with an event using the hazard assessment process.

Likelihood – the estimated probability or frequency, in quantitative or qualitative terms, of an occurrence related to the hazard.

Mitigation – The action taken either to contract, reduce or remove a hazard or to reduce the probability or the severity of a risk, the result of an action to make milder or less severe.

Occurrence reporting – establishment of formal procedures for reporting safety occurrences and other unsafe conditions.

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.

Risk – are the potential adverse consequences of a hazard, and are assessed in terms of their severity and likelihood.

Risk assessment -Assessment to establish that the achieved or perceived risk is acceptable or tolerable

Risk Mitigation- Measures to eliminate the potential hazard or to reduce the risk probability or severity.

Risk Probability- The likelihood that an unsafe event or condition might occur.

Risk Severity- See Severity

Safety – A state in which the risk of harm to persons or property damage is reduced to, and maintained at or below, an acceptable level through a continuing process of hazard identification and risk management.

Safety assessment- means analysis of proposed changes to equipment or procedures to identify and mitigate weakness before change is implemented.

Safety assurance – All planned and systematic actions necessary to provide adequate confidence that a product, a service, an organisation or a system achieves acceptable or tolerable safety

Safety audit –scheduled formal reviews and verifications to evaluate conformity with policy, standards and regulatory requirements.

Internal audit – An audit conducted by, or on behalf of, the organization being audited.

External audit – An audit conducted by an entity outside of the organization being audited.

Safety culture – the product of individual and group values, attitudes, competencies, and patterns of behavior that determine the commitment to, and the style and proficiency of, the organization's management of safety. Organizations with a positive safety culture are characterized by communications founded on mutual trust, by shared perceptions of the importance of safety, and by confidence in the efficacy of preventive measures.

Safety manager- Person to whom the Accountable Executive has assigned the day-to-day management functions of the SMS. The safety manager is the responsible individual and focal point for the development and maintenance of an effective SMS.

Safety Management System (SMS)- the formal, top-down business-like systematic approach to managing safety including the necessary organizational structure, accountabilities, policies and procedures.

Safety monitoring - A systematic action conducted to detect changes affecting the System with the specific objective of identifying that acceptable or tolerable safety can be met.

Safety Oversight- a function of the regulator to examine organisation's consistency with rules, regulations, standards, associated procedures, etc.

Safety performance indicator - is a measure used to express the safety performance of an aviation organization or a sector of the industry.

Safety performance targets - are determined by considering what safety performance levels are desirable and realistic for individual operators/service providers. A safety performance target comprises one or more safety performance indicators, together with desired outcomes expressed in terms of those indicators.

Safety Policy- A statement of the organisation's fundamental approach to achieve acceptable or tolerable safety.

Safety Programme- An integrated set of regulations and activities aimed at improving safety.

Safety promotion – a combination of safety culture, training, and data sharing activities that support the implementation and operation of an SMS in an organization

Safety records- Information about events or series of events that is maintained as a basis for providing safety assurance and demonstrating the effective operation of the safety management system.

Safety Requirements- are the steps that need to be taken to achieve the safety performance targets. They include the operational procedures, technology systems and program to which measures of reliability, availability, performance and/or accuracy can be specified.

Safety Risk Management- A description on how an organisation will identify hazards and assesses the safety risks of the consequences of hazards in aviation operations.

Safety survey- A systematic review, to recommend improvements where needed, to provide assurance of the safety of current activities, and to confirm conformance with applicable parts of the Safety Management System.

Service Provider- An entity who provides service in the designated sector of civil aviation as authorized to do so by CAAN.

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 services providers and certified aerodromes, as applicable.

Severity – the consequence or impact of a hazard in terms of degree of loss or harm. Severity of risk ranked as 'Catastrophic', 'Hazardous', 'Major',

'Minor', or Negligible with a descriptor for each indicating the potential severity of consequences.

SMS output – The result or product of an SMS process. In this context, the result of a process, which is intended to meet a requirement (e.g., results of safety risk analyses, safety audits, and safety investigations).

System- A combination of physical components, procedures and human resources organised to perform a function.

Systematic – Safety management activities are in accordance with a pre-determined plan, and applied in a consistent manner throughout the organisation.

5. Responsibility of the Service Provider

5.1 The service provider 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, safety objectives and safety performances

6.1 General requirement

6.1.1 The service provider shall define the organization's safety policy.

6.1.2 Top management is responsible for the organization's safety policy and its safety performance.

6.1.3 The safety policy shall be signed by the Accountable Executive of the organization.

6.1.4 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.

6.1.5 The safety policy shall:

- (a) include a commitment to implement an SMS;
- (b) include a commitment to continual improvement in the level of safety;
- (c) include a commitment to the management of safety risks;
- (d) include a commitment to meet applicable statutory and regulatory requirements;
- (e) include commitment to encourage employees to report safety issues;

- (f) include a clear statement about the provision of the necessary human and financial resources for its implementation;
- (g) Guidance for setting safety objectives, which shall be linked to the safety performance indicators, safety performance targets and safety requirements of the service provider SMS;
- (h) Guidance for reviewing safety objectives; and
- (i) include the responsibilities of management and employees with respect to the safety performance of the SMS;

6.1.6 The safety policy shall also include *inter alia*:

- (a) the hazard reporting procedures; and
- (b) the condition under which disciplinary action would be not be applicable following hazard reporting by employees.

6.1.6 Safety policy shall be:

- (a) documented;
- (b) communicated to all employees and responsible parties;
- (c) consistent with Government, CAAN and Organisation goals and objectives; and
- (d) reviewed periodically to ensure it remains relevant and appropriate to the organization.

6.2 Organizational Structure, Accountabilities and Responsibilities

6.2.1 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 Requirement, and shall notify Director General of CAAN.

- 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, as authorized under the operations certificate, shall have:
- (a) full control of the human resources required for the operations;
 - (b) full control of the financial resources required for the operations;
 - (c) final authority over operations;
 - (d) direct responsibility for the conduct of the organization's affairs; and
 - (e) final responsibility for all safety issues.
- 6.2.5 A service provider shall establish the safety structure necessary for the implementation and maintenance of the organization's SMS.
- 6.2.6 A service provider shall identify the safety responsibilities of all members of senior management, irrespective of other responsibilities.
- 6.2.7 Safety-related positions, accountabilities, responsibilities and authorities shall be defined, documented and communicated throughout the organization.
- 6.2.8 A service provider shall identify a Safety Manager to be the member of management who shall be the responsible individual and focal point for the development and maintenance of an effective SMS.
- 6.2.9 The Safety Manager shall *inter alia*:
- (a) ensure that processes needed for the SMS are established, implemented and maintained;

- (b) provide information and advice to the senior management and to the Accountable Executive on a matter relating to the safe operations and on any need for improvement; and
- (c) ensure safety promotion throughout the organization.

6.3 Coordination of emergency response planning

6.3.1 A service provider shall ensure its emergency response plan is properly coordinated with the emergency response plans of those organizations it must interface with during the provision of its services.

6.3.2 The coordination of the emergency response planning shall ensure the orderly and efficient transition from normal to emergency operations and the return to normal operations.

6.3.3 A service provider shall develop and maintain, or coordinate, as appropriate, an emergency response/contingency plan that shall ensure *inter alia*:

- (a) delegation of emergency authority;
- (c) assignment of emergency responsibilities;
- (d) coordination of efforts to cope with the emergency; and
- (f) the compatibility with other emergency response plans of other organisations.

6.3.4 The service provider shall also establish procedures to execute periodic exercises of the organization's response.

6.4 SMS Documentation

6.4.1 SMS Documentation and records

6.5.1.1 A service provider shall develop and maintain SMS documentation, in paper or electronic form as may be practical, to describe the following:

- (a) safety policy;
- (b) safety objectives;
- (c) SMS requirements, procedures and processes;
- (d) the accountabilities, responsibilities and authorities for procedures and processes .
- (e) SMS outputs .

6.5.1.2 The organization shall establish and maintain procedures for controlling all documents required by this Standard to ensure that:

- a) they can be located;
- b) they are periodically:
 - (1) reviewed,
 - (2) revised as necessary, and
 - (3) approved for applicability by authorized personnel;
 - 4) Distributed and controlled.

- c) the current versions of relevant documents are available at all locations where operations essential to the effective functioning of the SMS are performed; and
- d) obsolete documents are promptly removed from all points of use or otherwise assured against unintended use.

6.4.2 System description

6.4.2.1 A service provider shall, as part of the SMS documentation, complete a system description.

6.4.2.2 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, sub-contracted and purchased products and/or services.

6.4.3 Gap analysis

6.4.3.1 A service provider shall, as part of the SMS documentation, complete a gap analysis, in order to:

- (a) identify the safety arrangements and structures that may be already exist throughout an organization; and
- (b) determine additional safety arrangements required to implement and maintain the organization's SMS.

6.4.3.2 The gap analysis shall be conducted on the following:

1. Safety policy and objectives
 - (a) Management commitment and responsibility
 - (b) Safety accountabilities
 - (c) Appointment of key safety personnel
 - (d) Coordination of emergency response planning
 - (e) SMS documentation
2. Safety risk management
 - (a) Hazard identification
 - (b) Safety risk assessment and mitigation
3. Safety assurance
 - (a) Safety performance monitoring and measurement
 - (b) The management of change
 - (c) Continuous improvement of the SMS

4. Safety promotion

- (a) Training and education
- (b) Safety communication.

6.4.4 SMS implementation plan

- 6.4.4.1 A service provider shall, as part of the SMS documentation, develop, adhere to and maintain an SMS implementation plan.
- 6.4.4.2 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 objectives.
- 6.4.4.3 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.
- 6.4.4.4 The SMS implementation plan shall be endorsed by senior management of the organization and developed on the basis of national regulations, requirements and International Standards and Recommended Practices (SARPs).
- 6.4.4.5 The service provider shall prepare phased SMS implementation plan as outlined in the ICAO SMS framework (Ref. Doc. 9859).

6.4.6 Safety management system manual

6.4.6.1 A service provider shall, as part of the SMS documentation, develop and maintain a safety management system manual (SMSM), to communicate the organization's

6.4.6.2 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) hazard identification and risk management schemes;
- (g) safety performance monitoring;
- (h) emergency response/contingency planning;
- (i) safety auditing
- (j) procedures for the management of change; and
- (k) safety promotion
- (l) control of contracted activities.

7. Safety risk management

7.1 General

7.1.1 A service provider shall develop and maintain a formal process that ensures that hazards in operations are identified

7.1.2 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.

7.1.3 A service provider's SDCPS shall include reactive, proactive and predictive methods of safety data collection.

7.2 Hazard identification

7.2.1 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.

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 Safety risk assessment and mitigation

7.3.1 A service provider shall develop and maintain a formal risk management process that ensures the analysis, assessment and mitigation of risks of consequences of hazards to an acceptable level during the provision of its services.

7.3.2 The safety risks of the consequences of 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 tolerable.

8. Safety assurance

8.1 General

8.1.1 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 risk management activities under clause-7 achieve their intended objectives.

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

8.2 Safety performance monitoring and measurement

8.2.1 A service provider shall, as part of the SMS safety assurance activities shall:

- (a) develop and maintain the necessary means to verify safety performance of the organization in reference to the safety performance indicators and safety performance targets of the SMS;
- (b) validate the effectiveness of implemented safety risk controls;
- (c) identify the need for additional safety risk controls or changes to existing controls;
- (d) assess compliance with regulatory and statutory requirements applicable to the SMS: and
- (e) identify new or potential hazards, which would then be acted on within the Safety Risk Management process as described in clause -7.

8.2.2 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

8.3 Hazard reporting system

8.3.1 The safety reporting procedure shall set out the conditions to ensure effective safety reporting, including the conditions under protection from disciplinary/administrative action.

8.3.2 In addition, service provider shall encourage personnel to submit voluntary incident reports which:

- (a) facilitate collection of information that may not be captured by a mandatory incident reporting system;
- (b) is non-punitive; and
- (c) afford protection to the sources of the information to encourage the reporting of such information.

8.4 Safety Investigation

8.4.1 Service provider shall establish procedure to investigate certain safety occurrences internally.

8.4.2 Within the operation of SMS, the service provider shall ensure that occurrences which are considered to have significant safety implication are investigated immediately and any necessary corrective is taken.

8.5 Safety Surveys

8.5.1 Within the operation of the SMS, the service-provider shall ensure that safety surveys are carried out as a matter of routine, to recommend improvements where needed, to provide assurance to managers of the safety of activities within their areas and to confirm conformance with applicable parts of their Safety Management Systems.

8.6 Management of change

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

8.6.2 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.

8.7 Risk Assessment and Mitigation Documentation

8.7.1 Within the operation of the SMS, the service-provider shall ensure that the results and conclusions of the risk assessment and mitigation process of a new or changed safety significant system are specifically documented, and that this documentation is maintained throughout the life of the system.

8.8 Continuous improvement of the safety system

8.8.1 A service provider 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 to rectify situations involving below standard performance in order to ensure the continual improvement of the SMS.

8.8.2 Continuous improvement of the service provider 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.

8.8.3 The service provider shall ensure regular internal evaluations of the system's safety functions are conducted with priority placed on the areas of highest safety risk.

8.8.4 The service provider shall ensure that regular evaluations are conducted to

- (a) determine conformity with safety risk controls and
- (b) assess performance of safety risk controls.

8.8.5 Where applicable, the service provider shall include the results of external audits (e.g. oversight organisation audits in the data/information analysis conducted per section).

9. Safety promotion

9.1 General

9.1.1 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.

9.1.2 Safety culture

The accountable executive shall promote the growth of a positive safety culture demonstrated by, but not limited to:

- (a) publication to all employees of senior management's stated commitment to safety;
- (b) communication of safety responsibilities with the organisation's personnel to make each employee part of the safety activities;
- (c) clear and regular communications of safety policy, goals, objectives, and standards to all employees of the organization;
- (d) an effective employee reporting system that provide confidentiality and de-identification as appropriate;
- (e) use of a safety information system that provides an accessible, efficient means to retrieve information; and
- (f) allocation of resources to implement and maintain the SMS.

9.2 Safety training

9.2.1 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 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:

- (a) safety policy and objectives;
- (b) SMS roles and responsibilities; and
- (c) SMS standards
- (d) safety assurance.

9.3 Safety communication

9.3.1 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 is fully aware of the SMS;
- (b) convey safety critical information including lessons arising from safety occurrence investigations ;
- (c) explain why particular safety actions are taken;
- (d) explain why safety procedures are introduced or changed; and
- (e) convey generic safety information.

9.3.2 Formal means of safety communication shall include:

- (a) safety policies and procedures;
- (b) safety news letters and safety journals;
- (c) websites;
- (d) safety articles;

- (e) bulletins.
- (f) safety notice boards.

10. Quality policy

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