	GHANA	**ADVISORY CIRCULAR**
	CIVIL AVIATION AUTHORITY	**AC 09-005**

PREPARATION OF AN
ACCEPTABLE SAFETY MANAGEMENT SYSTEM

SECTION 1   GENERAL

1.1   PURPOSE

This Advisory Circular is issued to provide general guidance and principles to implement a Safety Management System (SMS) that will be acceptable to the Ghana Civil Aviation Authority (GCAA).

1.2   STATUS OF THE ADVISORY CIRCULAR

This is the first advisory circular issued on this subject.

1.3   BACKGROUND

A. Safety has always been the overriding consideration in the conduct of all aviation activities.

B. Due to the nature of the aviation industry, the total elimination of accidents or serious incidents is unachievable.

- No human endeavour or human-made system can be free from risk and error, and failures will be expected to occur in spite of the most accomplished prevention efforts.

- The system must, however, seek to understand and control such risks and errors.

C. Traditional approaches to accident prevention have focused primarily on outcomes (probable cause) and unsafe acts by operational personnel.

- In the 1950s, accident prevention concentrated primarily on technical factors.

- Recognition that human performance issues (human factor) played a part gained momentum in the 1970s.

- In the 1990s, safety thinking has evolved to the point of widespread acknowledgement that organizational factors play a significant role in the performance of human beings and therefore is an important issue in risk and error management.

> Today the study of accident causation focuses on organizational processes, latent conditions, workplace conditions, human factors, adequacy of defenses as well as active failures.

D. Safety improvement measures introduced usually address the identified safety concern exclusively. The 'what', 'who', 'when' and 'how' were often identified but not the 'why'. As such, the organizational, human factor and environmental contexts in which errors were made were often neglected, and measures adopted therefore often addressed only symptoms.

> - Advisory Circulars are intended to provide advice and guidance to illustrate a means, but not necessarily the only means, of complying with the regulations, or to explain certain regulatory requirements by providing informative, interpretative and explanatory material.
> - Where a regulation contains the words "prescribed by the Authority," the AC may considered to "prescribe" a viable method of compliance, but status of that "prescription" is always "guidance" (never regulation).

E. ICAO has established a harmonized framework for SMS regulation. Guidance material is available from ICAO and all aviation SMS regulations should share these common framework elements.

> The GCAR regulations and this advisory circular encapsulates the ICAO elements.

F. The Ghana aviation regulations require the establishment of the basic components of a safety management system, starting with a safety policy and senior management commitment.

> To be effective, these components must be integrated into a coherent management system and not exist as independent elements.

G. Today, aviation safety management systems seek to enhance the organizational approach to managing a safe and successful aviation operation.

H. It focuses on a systematic and proactive discipline of performing hazard identification and risk assessment on an organization's aviation safety related operations and processes.

> Appendix D provides additional background regarding the general concepts of Safety Management Systems.

1.4   APPLICABILITY

This AC applies to the following organizations approved for functions and services in the Ghana aviation environment—

1) Holders of Air Operator Certificates;

2) Holders of maintenance organization approvals;

> The following organizations have blanket deviations from the SMS requirement—
> - Single-Pilot Air Taxis (domestic operations only)
> - Basic Air Taxis (domestic operations only)

3) Aerodrome Operators and selected aerodrome service providers; and

4) Air Navigation and Air Traffic service provider(s).

1.5   RELATED REGULATIONS

The following regulations are directly applicable to the guidance contained in this advisory circular—

- GCAR Part 5, Approved Maintenance Organizations

- GCAR Part 12, Air Operator Certification & Administration

- GCAR Part 25, Air Traffic Certification & Administration *(to be developed)*

- GCAR Part 23, Aerodrome Operator Certification & Administration *(to be developed)*

1.6   RELATED PUBLICATIONS

For further information on this topic, individuals, organizations and other entities are invited to consult the following publications—

For further information on this topic, operators are advised to review the following publications and regulatory requirements—

1) Ghana Civil Aviation Authority

♦ AC 00-002, Preparation of Acceptable

> Copies may be obtained from the GCAA.

Quality Assurance System

2) International Civil Aviation Organization (ICAO)

> Copies may be obtained from Document Sales Unit, ICAO, 999 University Street, Montreal, Quebec, Canada H3C 5H7.

♦ Document 9859/AN460, Safety Management Manual

3) United States Federal Aviation Administration

♦ Advisory Circular 120-93, Introduction to Safety Management Systems for Air Operators

> Copies may be obtained from the FAA website located at www.faa.gov, searching for "Safety Management" and "SMS"

♦ Advisory Circular 150/5200-37, Introduction to Safety Management Systems for Airport Operators

1.7   DEFINITIONS & ACRONYMS

1.7.1   DEFINITIONS

The following definitions are used in this AC—

1) **Acceptable Level of Safety** (ALS) expresses the safety performance indicator benchmark or alert level(s) of an organization.

♦ These indicators are the minimum safety performance deemed acceptable to an organization while conducting their core business functions.

♦ These indicators are subject to acceptance by GCAA

2) **Hazard** – A condition, object or activity with the potential of causing—

♦ Injuries topersonnel;

♦ Damage to equipment or structures,

♦ Loss of material, or

♦ Reduction of ability to perform a prescribed function.

3) **Mitigation** – Measures to eliminate the potential hazard or to reduce the risk probability or severity.

4) **Probability** – Likelihood that a situation of danger might occur.

5) **Safety** – The 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.

6) **Safety Assessment** – The process or action of performing hazard identification and risk analysis.

7) **Severity** – The possible consequences of a situation of danger, taking as reference the worst foreseeable situation.

8) **Safety Management System** – A systematic, explicit and proactive process for managing safety that integrates operations and technical systems with financial and human resource management to achieve safe operations with as low as reasonably practicable risk.

9) **Risk Index** – The combined value of risk probability and severity.

10) **Risk** – The potential chance of a loss or injury, measured in terms of severity and probability. (The chance that an event can happen and the consequences when it does.)

1.7.2   ACRONYMS

The following acronyms and abbreviations are used in this AC—

1) **ALARP** – As low as reasonably practicable

2) **ALS** – Acceptable Level of Safety

3) **GCAR** – Ghana Aviation Safety Regulations

4) **GCAA** – Ghana Civil Aviation Authority

5) **ERP** – Emergency Response Plan

6) **HIRA** – Hazard Identification and Risk Assessment.

7) **OEM** – Original Equipment Manufacturer.

8) **SAG** – Safety Action Group

9) **SRB** – Safety Review Board

SECTION 2   SAFETY MANAGEMENT SYSTEM (SMS)

A. Safety cannot be achieved by simply introducing rules or directives concerning the procedures to be followed by operational employees; it encompasses most of the activities of the organization.

B. For this reason, safety management must start from senior management, and the effects on safety must be examined at all levels of the organization.

2.1   SYSTEMATIC APPROACH

A. A Safety Management System (SMS) is a systematic, explicit and proactive process for managing safety that integrates operations and technical systems with financial and human resource management to achieve safe operations with as low as reasonably practicable risk.

1) It is *systematic* in that safety management activities are carried out in accordance with a predetermined plan, and applied in a consistent manner throughout the organization.

2) It is *proactive* by taking an approach that emphasizes prevention, through hazards identification and risk control and mitigation measures, before events that affect safety occur.

3) It is also *explicit*, in that all safety management activities are documented, visible and performed as an essential component of management activities. People, procedures, practices and technology needed to monitor and improve the safety of the aviation transportation system.

B. Safety management may be also described as the systematic application of specific technical and managerial skills to identify and control hazards and related risks.

> Acceptable levels of safety are achieved by identifying, assessing and eliminating or controlling safety-related hazards and risks.

2.2   BENEFITS OF SMS

A. The primary reason for the introduction of SMS is to improve existing levels of aviation safety, reducing the frequency and type of aviation accidents and incidents, through a systematic process of hazard and risk management.

B. An effective safety management system may also enable organizations to reap the following additional benefits—

- Minimize direct and indirect costs resulting from accidents and incidents
- Gain safety recognition from customers and traveling public
- Create a positive, reliable and generative organizational culture
- Reduction in insurance rate
- Exceed regulatory requirements with simultaneous bottom line and productivity gains
- Proof of due diligence in event of legal or regulatory safety enquiries
- Improved working environment resulting in better productivity and morale
- Synergy in the safety related processes and functions within the organization

SECTION 3 SMS IMPLEMENTATION SCHEDULE & MANDATORY DEADLINE

A. Annex 6 to the Convention on International Civil Aviation requires States to mandate the implementation of safety management systems by air operators and maintenance organizations by January 2009.

B. To allow sufficient time for AOC Holders and AMOs to develop and implement their own SMS, GCAA has adopted a two-stage SMS implementation plan.

- All AOC Holders and AMOs are encouraged to initiate the implementation of their Safety Management System.

- During this period, GCAA will continue to provide guidance and facilitation where appropriate.

C. Those organizations for which it is mandated must have the basic elements of an SMS in place.

D. All of these organizationson must havethen) have in place a GCAA accepted SMS implementation plan.

Notwithstanding the approach or time frame intended in such a plan, the organization must be able to meet the progressive minimum performance criteria during GCAA's SMS assessment.

- Such plan shall include having a GCAA accepted SMS manual.

E. The details of the minimum performance criteria are contained in the GCAA SMS Using the checklist included Appendix E of this circular, the GCAA will conduct mandatory assessment checklist. assessment of all applicable organizations' SMS

on an annual basis.

F. All applicants for initial certification as must submit an SMS manual at the time of Minimum performance criteria of new appli-cant's SMS will be the same as that which is application together with all other required applicable for existing organizations for that manuals. year.

3.1 SMS REGULATORY REQUIREMENTS

A. All Ghana aviation organizations (except material distribution organizations) are recommended to initiate the implementation of a safety management system.

B. Such a system shall include the following high-level objectives— 1) Identifies safety hazards and assesses, controls and mitigates risks;

2) Ensures that remedial actions necessary to maintain an acceptable level of safety is implemented;

3) Provides for continuous monitoring and regular assessment of the safety level achieved; and

4) Aims to make continuous improvement to the overall level of safety.

C. The framework for the implementation and maintenance of a safety management system must include, as a minimum, twelve basic components grouped as follows— 1) Safety Policy and Objectives

(a) Management commitment and responsibility

(b) Safety accountabilities of managers

(c) Appointment of key safety personnel

(d) Emergency response planning

(e) Documentation and records

2) Safety Risk Management

(a) Hazard identification processes

(b) Risk assessment and mitigation processes3) Safety Assurance

(a) Safety performance monitoring and measurement

(b) Management of change

(c) Continuous improvement and audit4) Safety Promotion

(a) Training and education

(b) Safety communication

D. A safety management system shall clearly define lines of safety accountability throughout the organization, including a direct accountability for safety on the part of senior management.

E. Organizations are free to build their SMS to the complexity of their operations. Organizations have a wide range of procedural options for compliance, and are encouraged to identify the best method of compliance to meet their individual circumstances.

> The key to a successful SMS is to develop and grow the SMS based on the organization's needs and customized to its operations.

3.2 Senior Management's Accountability For Aviation Safety

A. The senior management of the organization led by the Chief Executive Officer is ultimately responsible for the entire organization's attitude towards safety. Its organization safety culture will depend on the senior management's level of commitment toward safe operations.

B. Regardless of the size, complexity, or type of operation, the success of the SMS depends on the extent to which senior management devotes the necessary time, resources and attention to safety as a core management issue.

> - A safety management system will not be effective if it receives attention only at the operational level.
> - The GCAA therefore considers it the responsibility of the Chief Executive Officer, as the Accountable Manager, to effectively implement the organization's safety management system..

C. The Accountable Manager, having full authority over human resources and financial issues, must ensure that the necessary

resources are allocated to the management of safety. He or she has direct responsibility for the conduct of the organization's affairs and final responsibility for all safety issues.

D. Senior management's commitment to safety is first demonstrated to the organization's staff through its stated safety policies, objectives and goals. The Accountable Manager, supported by the organization's senior management team, must therefore be responsible for—

1) Developing the organization's safety policy

2) Establishing safety objectives, goals and performance indicators

3) Communicating, with visible endorsement, the safety policy, objectives and goals to all staff

4) Providing the necessary human and financial resources

> - In very large companies, it may be the case that the Chief Executive Officer may not be directly involved in the aviation business unit of the company.
> - In such cases, the most senior person responsible for the aviation business unit, who has corporate authority for ensuring that all work can be financed and carried out to the required safety standards, may be accepted as the Accountable Manager.
> - This is in line with the requirements for an Accountable Manager for all GCAA-approved aviation organizations.

SECTION 4   IMPLEMENTING A SAFETY MANAGEMENT SYSTEM

To establish an SMS, the organization would need to build up its key SMS components. Following are guidance on what those components would be like. Organizations may scope these components to suit their operations—

4.1   SAFETY POLICY & OBJECTIVES

4.1.1   MANAGEMENT COMMITMENT & RESPONSIBILITY

4.1.1.1   Safety Policy

A. The Accountable Manager shall have ultimate responsibility for the implementation and maintenance of the SMS.

- He or she should have full control of human and financial resources and have final authority over operations under the certificate of approval.

- He or she should have final responsibility for all aviation safety issues.

B. The senior management has to show its commitment by developing a safety policy, communicating the policy to its staff and establishing safety objectives and goals for the organization.

4.1.1.2   Guidelines for Written Safety Policy

A. The written safety policy is a concrete expression of the management's philosophy and commitment to safety.

B. The policy should clearly encapsulate the senior management's commitment to improving aviation safety as their top priority.

> - When preparing a safety policy, senior management should consult widely with key staff members in charge of safety-critical areas.
> - Consultation ensures that the document is relevant to staff and encourages buy-in to the safety policy...

C. The policy should be a straightforward statement that includes the following points—

- Senior management commitment and intentions with regard to safety
- The organization's safety management principles
- Establishment of safety as a core value
- Responsibility for the safety program
- Non-punitive reporting policy (Just culture)

D. This safety policy should bear visible endorsement by the Accountable Manager and all members of the organization's senior management team, and communicated to all levels within the organization.

4.1.1.3   Example of a Safety Policy Statement

A. A safety policy statement could look like this—

TO PREVENT AVIATION ACCIDENTS AND INCIDENTS OUR ORGANIZATION WILL MAINTAIN AN ACTIVE SAFETY MANAGEMENT SYSTEM. I SUPPORT THE OPEN SHARING OF INFORMATION ON ALL SAFETY ISSUES AND ENCOURAGE ALL EMPLOYEES TO REPORT SIGNIFICANT ERRORS, SAFETY HAZARDS OR CONCERNS. I PLEDGE THAT NO STAFF MEMBER WILL BE ASKED TO COMPROMISE OUR SAFETY STANDARDS TO "GET THE JOB DONE".

SAFETY IS A CORPORATE VALUE OF THIS COMPANY, AND WE BELIEVE IN PROVIDING OUR EMPLOYEES AND CUSTOMERS WITH A SAFE ENVIRONMENT. ALL EMPLOYEES MUST COMPLY WITH THIS POLICY.

OUR OVERALL SAFETY OBJECTIVE IS THE PROACTIVE MANAGEMENT OF IDENTIFIABLE HAZARDS AND THEIR ASSOCIATED RISKS WITH THE INTENT TO ELIMINATE THEIR POTENTIAL FOR AFFECTING AVIATION SAFETY, AND FOR INJURY TO PEOPLE AND DAMAGE TO EQUIPMENT OR THE ENVIRONMENT. TO THAT END, WE WILL CONTINUOUSLY EXAMINE OUR OPERATION FOR THESE HAZARDS AND FIND WAYS TO MINIMIZE THEM. WE WILL ENCOURAGE HAZARDS AND INCIDENT REPORTING, TRAIN STAFF ON SAFETY MANAGEMENT, DOCUMENT OUR FINDINGS AND MITIGATION ACTIONS AND STRIVE FOR CONTINUOUS IMPROVEMENT.

ULTIMATE RESPONSIBILITY FOR AVIATION SAFETY IN THE COMPANY RESTS WITH ME AS THE CHIEF EXECUTIVE OFFICER AND ACCOUNTABLE MANAGER. RESPONSIBILITY FOR MAKING OUR OPERATIONS SAFER FOR EVERYONE LIES WITH EACH ONE OF US – FROM MANAGERS TO FRONT-LINE EMPLOYEES. EACH MANAGER IS RESPONSIBLE FOR IMPLEMENTING THE SAFETY MANAGEMENT SYSTEM IN HIS OR HER AREA OF RESPONSIBILITY, AND WILL BE HELD ACCOUNTABLE TO ENSURE THAT ALL REASONABLE STEPS ARE TAKEN.

4.1.2   SAFETY OBJECTIVES

A. In conjunction with an organization's overall safety policy statement, there should be a set of underlying tangible safety objectives.

B. Safety objectives are broad directions set in [These objectives should be unambiguous and reviewed on a regular basis.] place to facilitate the establishment of specific safety goals or desired targets. These would cover relevant aspects of the organization's—

1) Safety vision;

2) Senior management commitments;

3) Realistic safety milestones; and 4)   Desired outcomes.

C. Examples of such safety objectives are listed below—

- To identify and eliminate hazardous conditions within aviation related processes and operations
- To perform hazard and risk assessment for all proposed new equipment acquisitions, facilities, operations and procedures
- To promulgate an on going systematic hazard and risk assessment plan.
- To provide relevant SMS training and education to all personnel.
- To provide a safe, healthy work environment for all personnel
- To minimize accidents and incidents that is attributable to organizational factors
- To prevent damage and injury to property and people resulting from operations
- To improve the effectiveness of the safety management system through a yearly safety audit that reviews all aspects of the SMS

4.1.3   SAFETY ACCOUNTABILITIES OF MANAGERS

A. Safe operations are achieved with a balanced and realistic allocation of resources between protection and production goals. The organization shall define the safety responsibilities of key management personnel as applicable.

B. The safety accountabilities and responsibilities of all relevant departmental and/ or unit managers, and in particular line managers, should be described in the organization's Safety Management Systems Manual. It should include an accountability chart in terms of the delivery of safety as a core business process.

C. It must be emphasized that the primary responsibility for safety outcomes rests with those who 'own' the production processes.

> The line managers are responsible for the management of an identified safety concern, its mitigation activities and subsequent performance.

- Line management is where hazards are directly encountered, where deficiencies in processes contribute to safety risks, and where direct supervisory control and resource allocation can mitigate the safety risks to acceptable levels.

4.1.4   APPOINTMENT OF KEY SAFETY PERSONNEL

A. The successful management of safety is a cooperative responsibility that requires the participation of all relevant management and operational and support personnel of the organization.

B. The safety roles and accountabilities between the organization's key SMS personnel and the various functional departments should be established and defined.

C. These roles and accountabilities should be documented and communicated to all levels of the organization.

4.1.4.1   Safety (SMS) Manager

A. Although the Accountable Manager is ultimately responsible for the safety management system, it is necessary to appoint a focal point to act as the driving force for the implementation as well as maintenance of SMS activities across the entire organization.

- This is accomplished by appointing a safety (SMS) manager whose primary responsibility is to facilitate and administer the organization's SMS.

B. The SMS manager position, dependent on the size and structure of the organization may not necessarily be a dedicated position. He may have other non conflicting management responsibilities.

> The safety manager shall have direct access to the Accountable Manager.

C. Other responsibilities of the safety manager or department would include—

1) Advising the Accountable Manager and line managers on matters regarding safety management

2) Managing the SMS implementation plan

3) Facilitating hazard identification and risk assessment activities

4) Monitoring the effectiveness of mitigation actions 5)   Providing periodic reports on safety performance

6) Maintaining the SMS documentation

7) Planning and organizing staff safety training

8) Providing independent advice on safety matters to the senior management

9) Coordinating and communicating with the GCAA (on behalf of the Accountable Manager) on issues relating to safety.

D. It must be emphasized that the safety manager is not the sole person responsible for aviation safety.

- Specific safety activities and the functional or operational safety performance and outcomes are the responsibility of the relevant operational or functional managers, and senior management should not hold the safety manager accountable for line managers' responsibilities.
- The safety manager should monitor all cross functional or departmental SMS activities to ensure their relevant integration.
- While the safety manager may be held accountable for the satisfactory administration and facilitation of the safety management system itself, he or she should not be held accountable for the safety performance of the organization.

E. In order to avoid possible conflict of interest, the safety manager should not have conflicting responsibility for any of the operational areas.

> ⚠️ The safety manager should be at a sufficiently high level in the management hierarchy to ensure that he or she can have direct communication with other members of the senior management team.

4.1.5   SAFETY REVIEW BOARD (SAFETY COMMITTEE)

A. A high level Safety Review Board (SRB) or safety committee would normally be necessary for functional or senior management involvement on safety policy, overall system implementation and safety performance review purposes.

> Safety committee should be documented in the SMS manual.

- Scope of participation in the safety committee would depend on the size and structure of the organization.

B. The Accountable Manager should chair this committee with all relevant functional areas of the organization being represented.

> - The Accountable Manager may choose to assign this task to an appropriate senior person.
> - This assignment should be clearly stated and substantiated in the SMS manual that he is performing the task on behalf of the Accountable Manager.
> - The Accountable Manager remains accountable for all decisions of the SRB.

C. A safety committee would typically consist of the Accountable Manager, the safety manager and other members of the senior management team.

D. The objective of the safety committee is to provide a forum to discuss safety issues and the overall health and direction of the SMS.

E. The role of the safety committee would include—

- Making recommendations and decisions concerning safety policy and objectives
- Defining safety performance indicators and set safety performance goals for the organisation
- Reviewing safety performance and ensuring that corrective actions are taken in a timely manner
- Providing strategic directions to departmental Safety Action Groups (SAG) where applicable
- Directing and monitoring the initial SMS implementation process
- Ensuring that appropriate resources are allocated to achieve the established safety performance

4.1.6   SAFETY ACTION GROUP(S)

A. Large organizations that have relatively complex operations could set up Safety Action Groups (or equivalent subcommittees) accountable to the Safety Committee.

> Managers and supervisors from a given functional area would be members of the SAG for that area and would take strategic directions from the Safety Committee.

B. The functional head of that area should chair the SAG. The role of the SAG(s) would include—

- Overseeing operational safety within the functional area.
- Managing the area's hazard identification and risk assessment activities.
- Implementing mitigation or corrective actions to improve aviation safety relevant to the area.
- Assessing the impact of aviation safety on operational changes and activating hazard and risk assessment process as appropriate.
- Maintenance and review of relevant performance indicators

- Managing safety training and promotion activities within the area.

C. Departmental SAGs may wish to appoint "SMS Coordinators" to facilitate the department's SMS activities.

4.2   EMERGENCY RESPONSE PLANNING

A. An Emergency Response Plan (ERP) outlines in writing what should be done by an organization upon a major safetyrelated incident or accident resulting in emergency or crisis situation.

> This plan will also the discovery of critical defects and human errors during normal activities that "could" affect safe operations.

B. For AMOs, it should include (where applicable) the discovery of a critical defect or maintenance error that affects the safe operation of aircraft.

C. An ERP should include (where applicable)—

- Planned actions to minimize indirect or consequential damage upon the occurrence of a crisis or emergency situation.
- Provision for preservation of aviation product, services and equipment to avoid subsequent safety and quality and continuity problems, where applicable.
- Recovery actions as well as procedures for orderly transition from normal to emergency operations
- Designation of emergency authority
- Assignment of emergency roles and responsibilities
- Authorization of key personnel for actions contained in the plan
- Coordination procedures with contractors or operators where applicable
- Criteria for safe continuation of operations, or return to normal operations

> For an AOC holder, a comprehensive ERP would include other aspects of aircraft accident response such as—
> - Crisis management centre
> - Management of an accident site
> - News media
> - Coordination with state investigations
> - Family assistance
> - Post critical incident stress counseling,
>
> It should also include arrangements for emergencies at line stations.

4.3   DOCUMENTATION & RECORDS

4.3.1   SMS MANUAL

A. A SMS Manual (or program) is the key instrument for communicating the organization's SMS approach and methodology to the whole organization. It will document all aspects of the SMS, including the safety policy, objectives, accountabilities and procedures.

B. A typical SMS Manual would include the following contents—

1) Document Control

2) SMS Regulatory Requirements

3) Scope of the Safety Management System

4) Safety Policy

5) Safety Objectives and Goals

6) Safety Accountabilities and Key Personnel

7) Non-Punitive Reporting Policy

8) Safety Reporting

9) Hazard Identification and Risk Assessment

10) Safety Performance Monitoring and Measurement

11) Safety Investigations

12) SMS and Safety Training

13) SMS Audit and Safety Review

14) SMS Data and Records Management

15) Management of Change

16) Emergency Response Plan

C. An SMS manual should preferably be   a
   manual by itself.

> Appendix A provides further guidance on the compilation of the SMS Manual.

- For small organizations, it is possible for the
  SMS policy and procedures to be incorporated within an existing organization's manual.

- Whether for a large or small organization, the various SMS components and their relevant integration should be adequately and systematically documented.

- Where the SMS manual is a stand alone document, appropriate reference should be made to it in the relevant organization's primary manual.

- An organization's SMS program and manual shall be subject to GCAA approval.

4.3.2   SAFETY INFORMATION MANAGEMENT SYSTEM

A. In a large organization, operating a SMS generates significant amount of data, documents and reports. Proper management and record keeping of such data is crucial for sustaining an effective SMS.

> Effective safety analysis is totally dependent upon the availability and competent use of the safety information management system.

B. To facilitate easy retrieval and consolidation of safety data and information, it is necessary to ensure that there is relevant integration between the various sources of such data or reports.

- This is important where different departments within the organization have traditionally limited the scope of safety data distribution to within the department itself.

- Cross functional safety data integration becomes important in this case.

C. It is necessary that the organization maintain a systematic record of all measures taken to fulfill the objectives and activities of the SMS.

> These records are the EVIDENCE of an on-going SMS processes including hazard identification, risks mitigation and safety performance monitoring.

D. These records should be appropriately centralized and maintained in sufficient detail to ensure traceability of all safety related decisions.

E. Examples of such records include—

- Hazards Register
- Incident and Accident reports
- Incident and Accident investigation reports
- Safety and SMS audit reports
- Periodic analyses of safety trends and indicators
- Minutes of safety committee or safety action group meetings ● Hazard and Risk Analysis Reports, etc.

4.4   SAFETY RISK MANAGEMENT

4.4.1   RISK MANAGEMENT

A. The organization can be considered a system consisting of organizational structures, processes, and procedures, as well as people, equipment and facilities that are necessary to accomplish the system's mission.

> Organizations need to manage safety by making sure that hazards and their associated risks in critical activities related to the services it provides are controlled to an acceptable level.

B. Risks cannot be totally eliminated and the implementation of risk management processes is critical to an effective safety management program.

4.4.2   HAZARD IDENTIFICATION PROCESSES

A. Hazard identification is part of the risk management process.

B. Hazard identification is a process where organizational hazards are identified and managed so that safety is not compromised. Organizations may utilise a range of processes to identify hazards that are likely to jeopardise its operations or weaken its safety defenses.

4.4.2.1   Correct Hazard Identification

A. There is a natural (and erroneous) tendency to describe hazards as an outcome.

- For example, "runway incursion" is an outcome, not a hazard. On other hand, "unclear aerodrome signage" is a hazard, not an outcome.

- Mistaking hazards as outcomes disguise their nature and interfere with proper identification of actual outcomes or risks associated with those hazards.

- A correctly named hazard will enable the tracking of its source or origin on the one hand and the identification of its potential outcome(s) or risk(s) on the other.

B. Following are some examples of hazards –

1) Airline Operations: Unfamiliar phraseology, inclement weather, birds in take-off path, heavy traffic, unfamiliar airports, high terrain around airport, new on-board equipment, cabin reconfiguration, FTL, recurring defects, etc.

2) Aircraft and Workshop Maintenance: Fuel vapor from open wing tanks, discrepant test equipment, ambiguous work instructions, improper shift handover procedure, inadequate training, resources, capabilities, improper material and equipment handling, etc.

C. The scope for hazards in aviation is wide, and may be related to—

- **Design factors,** such as equipment and task design
- **Procedures and operating practices,** such as documentation and checklists
- **Communications,** such as language proficiency and terminology
- **Organizational factors,** such as company policies for recruitment, training, remuneration and allocation of resources
- **Work environment factors,** such as ambient noise and vibration, temperature, lighting, protective equipment and clothing
- **Defenses,** such as detection and warning systems, and the extent to which the equipment is resilient against errors and failures
- **Human factors,** such as medical conditions, circadian rhythms and physical limitations
- **Regulatory factors,** such as the applicability of regulations and the certification of equipment, personnel and procedures.

4.4.2.2   Reactive, Proactive & Predictive Hazard Identification

A. Hazards may be identified from the organization's reactive, proactive and predictive processes.

B. This should include the company's voluntary reporting system, audits and surveys, accident and incident reports as well as industry incident and accident reports.

C. The hazard identification and reporting process should be open to any employee.

> Appendix C provides guidance for the evaluation of an Incident Reporting System.

D. It may be done through formal as well as informal processes. It may be performed at any time as well as under specific conditions. Specific conditions would include—

- When there is an unexplained increase in safety-related events or infractions
- When there are abnormal audit or safety indicator trends
- When major operational changes are planned
- Before a new project, major equipment or facility is set up
- During a period of significant organizational change

E. In essence, the three steps of hazard identification and risks projection are—

- State the generic hazard (hazard statement), e.g. an operating aircraft engine
- Identify specific components of the hazard, e.g. engine intake suction
- Project specific risk(s) associated with each hazard, e.g. foreign object ingestion

4.4.3   RISK ASSESSMENT & MITIGATION PROCESSES

4.4.3.1   Risk Management

A. Risk management is the identification, analysis and mitigation of risks associated with the hazards of an organization's operations. Risk assessment uses conventional breakdown of risk in its two components – probability of occurrence and severity of the projected risk should it occur

B. This diagram illustrates the process of hazard identification, risk assessment and mitigation methodologies—.
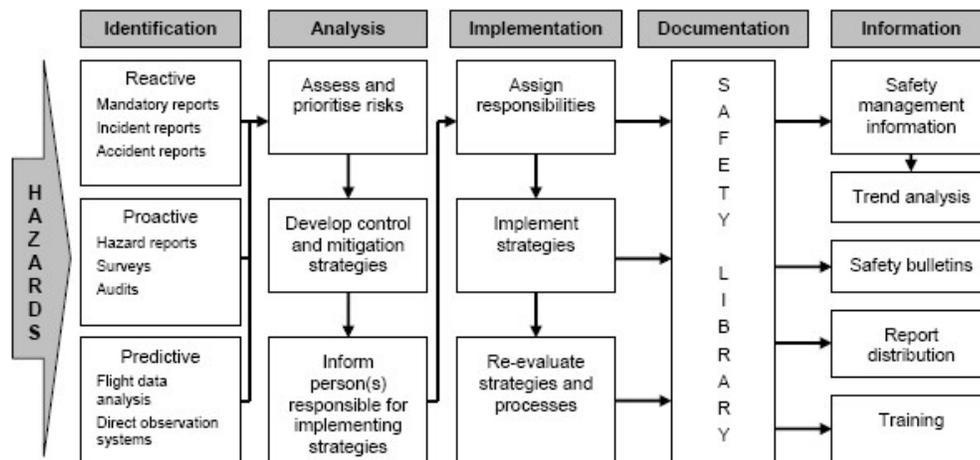
C. Acceptability of a risk is based on the use of a risk index matrix and its corresponding acceptability and decision criteria. While a matrix is required, the definitions and final construction of the matrix is left to the organization to design, subject to the acceptance of GCAA.

- This is to allow organizations to incorporate this decision tool relevant to its operational environment. Organizations will need to ensure that the meaning of terms used in defining probability and severity are in the context of the aviation industry.

D. Risk management is a key component of safety management systems. It is a data-driven approach to safety management resources allocation i.e. priority is accorded to activities based on their risk index.

4.4.3.2 Risk Probability

A. Risk Probability is the likelihood that a situation of danger might occur. Certain questions may be used to guide the assessment of probability, such as—

- Is there a history of occurrences like the one being assessed, or is the occurrence an isolated event?
- What other equipment, or similar types of components might have similar defects?
- What number of operating or maintenance personnel must follow the procedure(s) in question?
- How frequently is the equipment or procedure under assessment used?
- Are there organizational, management or regulatory implications that might generate larger threats to public safety?

B. The following is an example of a risk probability table. It allows the users to assess, based on past historical examples, the probability of an occurrence.

LIKELIHOOD OF OCCURANCE		
4	**Probable**	• **LIkely to occur many times** • **In reference to aircraft fleet operations, may occur once or several times during operational life**
3	**Remote**	• **Likely to occur sometimes** • **In reference to aircraft fleet operations, likely to occur during total operational life of each system but may occur several times when considering several systems of the same type**
2	**Extremely Remote**	• **Unlikely, but possible to occur** • **In reference to aircraft fleet operations, unlikely to occur when considering systems of the same type, but nevertheless, has to be considered as being possible**
1	**Extremely Improbable**	• **Very unlikely to occur** • **In reference to aircraft fleet operations, should virtually never occur in the whole fleet life**
0	**No Factor**	• **Almost inconceivable that the event will occur**

4.4.3.3 Risk Severity

A. Risk severity measures the possible consequences of a situation of danger, taking as reference the worst foreseeable situation. Severity may be defined in terms of property, health, finance, liability, people, environment, image, or public confidence. Certain questions may be used to guide the assessment of severity, such as—

- How many lives are at risk (e.g. employees, passengers, bystanders, general public)?
- What is the environmental impact (e.g. spillage of fuel or other hazardous products, physical disruption of natural habitats)?
- What is the severity of property, financial damage (e.g. direct asset loss; damage to aviation infrastructure, third party damage, financial impact and economic impact for the State)? • What is the damage to the organization's reputation?

B. The following is an example of a risk severity table as currently used by the GCAA—.

SEVERITY OF OCCURRANCE		
4	**Catastrophic**	• **Loss of equipment** • **Multiple fatalities**

3	Hazardous	• **Large reduction in safety margins** • **Physical distress or a high workload such that operations cannot be relied upon to perform their tasks accurately or completely** • **Serious or fatal injury to a number of people** • **Major equipment damage**
2	Major	• **Significant reduction in safety margins** • **Reduction in the ability operations to cope with adverse operating conditions as a result of and increase in workload, or as a result of conditions impairing their efficiency** • **Serious incident** • **Injury to persons**
1	Minor	• **Nuisance** • **Operating limitations** • **Use of emergency procedures** • **Minor incident**
0	Negligible	• **Little consequence**

4.4.3.4   Risk Index

A. Once the risk probability and risk severity values are determined, they will (together) constitute the "Risk Index" for that occurrence.

B. A "Risk Index" matrix currently in use by the GCAA is provided in the following example—

SEVERITY

Catastrophic	4	4 Review	8 Unacceptable	12 Unacceptable	16 Unacceptable
Hazardous	3	3 Acceptable	6 Review	9 Unacceptable	12 Unacceptable
Major	2	2 Acceptable	4 Acceptable	6 Review	8 Unacceptable
Minor	1	1 Acceptable	2 Acceptable	3 Acceptable	4 Review
		Extremely Improbable 1	Extremely Remote 2	Remote 3	Probable 4

LIKELIHOOD OF OCCURRENCE

4.4.3.5   Risk Determination

A. The following risk determinations will be made and documented for all identified hazards—

The initial risk analysis may be evaluated and revised by the organization's safety committee.

1) An initial risk determination upon identification of the hazard; and

2) A residual risk determination when the risk is believed to be mitigated.

B. The priority of the required mitigation will be based on the initial risk determination.

C. The level of risk as taken from the example risk matrix will be—1)   Red area = High Risk

♦ STOP – This risk is unacceptable under the existing circumstances.

♦ Do not permit further operation until control measures have been established to mitigate the risk to an acceptable level.

2) Yellow area = Medium Risk

♦ Management attention and approval of risk mitigation and control measures is required.

3) Green area = Low Risk

♦ Acceptable after a review of the operation is conducted.
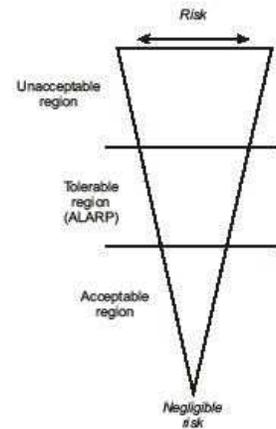
4.5   RISK MITIGATION

4.5.1   THE PROCESS

A. Risk mitigation is the process of implementing actions or defences to eliminate or reduce the probability or severity of risks associated with hazards. The basic defences employed in the aviation industry are technology, training and procedures (or regulations).

B. When analyzing defences during a mitigation process, following questions may be useful—

● Do defences to protect against such risk (s) exist?
● Do defences function as intended?
● Are the defences practical for use under actual working conditions?
● Are the staffs involved aware of the risks and the defences in place?
● Are additional risk mitigation measures required?
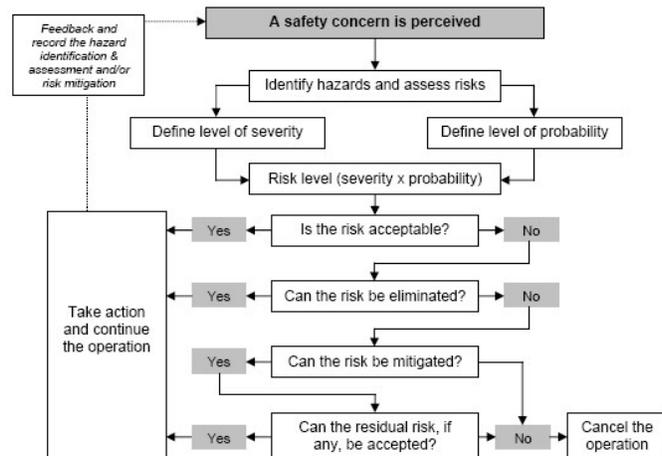
4.5.2   STRATEGIES FOR RISK MITIGATION

There are three basic strategies in risk mitigation—

1) **Avoidance.** The operation or activity is cancelled because risks exceed the benefits of continuing the operation or activity.

♦ Example: *Operations into an* aerodrome *surrounded by complex geography and without the necessary aids are cancelled.*

2) **Reduction.** The frequency of the operation or activity is reduced, or action is taken to reduce the magnitude of the consequences of the accepted risks.

♦ Example: *Operations into an aerodrome surrounded by complex geography and without the necessary aids are continued based upon the availability of specific aids and application of specific procedures.*

3) **Segregation of exposure.** Action is taken to isolate the effects of risks OR ensure there is build-in redundancy to protect against it i.e reducing the severity of risk.

♦ Example: *Operations into an aerodrome surrounded by complex geography are limited to day-time, visual conditions.*

4.5.3   COSTS CONSIDERATIONS

A. During the process of evaluating mitigation actions or additional defences, it is necessary to strike a balance between production and safety goals. Efficient and safe operations or provision of service require a constant balance between production goals and safety goals.

- Airline operation contains hazardous conditions or risks which may not be cost-effective to eliminate totally.

- Operations may have to continue so long as safety risks associated with such hazards have been mitigated to a level that is as low as reasonably practicable. (The acronym ALARP is used to describe a safety risk which has been reduced to a level that is "as low as reasonably practicable").

- In determining what is reasonably practicable, consideration is given to both the technical feasibility and the cost of further reducing the safety risk. This may involve a cost/benefit study where necessary.

B. While the cost of risk mitigation is an important factor in safety management, it must be weighed out against the cost of undesirable outcomes due to lack of mitigation.

- Direct costs of incidents and accidents (which can be determined) can be reduced by insurance coverage.

- However, purchasing insurance only transfers the monetary aspect of a risk. It is the indirect uninsured costs which may be underestimated in such considerations.

C. An understanding of these uninsured costs (or indirect costs) is fundamental to understanding the economics of safety. Usually they amount to more than the direct costs. These indirect costs include loss of business, damage to reputation, loss of use of equipment, loss of staff productivity, legal actions and claims, fines and citations, insurance deductibles, etc.

D. In addition to having an effective SMS, all organizations have to comply with all the minimum requirements of the applicable regulatory requirements.

4.5.4   CONTINUING ASSESSMENT

A. The procedure for routine review of completed safety assessments should be established as appropriate. The interval for such scheduled review may be on a case by case basis or as a standard interval, for example annually.

B. Such scheduled review may take into consideration previously unidentified hazard and risks based on operational or industry incident and accident investigation findings. Likewise, any modification or change subsequent to the initial safety assessment done should be evaluated for any possible effect on the existing safety assessment.

4.5.5   HAZARD IDENTIFICATION & RISK ASSESSMENT (HIRA) PROGRAM

4.5.5.1   Establish Program

As part of an organization's SMS implementation plan, there should be a program for systematic hazard identification and risk analysis (HIRA) of its operations and processes which are pertinent to aviation safety.

> The systematic and progressive performance (and maintenance) of this program should constitute the primary long term safety objective of an organization's SMS.

4.5.5.2   Establish Baseline Completion Goals

A. Such a program should include a short to medium term target of completing an initial (baseline) HIRA for all eligible operations and processes (as determined by the organization).

B. Depending on the size and complexity of the organization, such an initial (baseline) evaluation and safety assessment program may take from several months to a few years to be fully completed.

   ● A historical review on aviation safety related incidents and accidents associated with these operations and processes should be assessed with higher level of priority.

4.5.5.3   Review OEM System Design Risk Data

A. Organizations with newly acquired equipment or processes may take into consideration OEM (Original Equipment Manufacturer) system design risk analysis data or recommendations during its initial safety assessment.

   ● The organization should also review the interface between such equipment and processes and its own operational environment and internal procedures where applicable.

   ● Where there are subsequent (or historical) local modifications or incidents and accidents attributable to such operations or processes, a review of its initial (baseline) safety assessment (with respect to the affected area or system) should be completed.

4.5.5.4   HIRA Eligible Operations & Processes

A. During an organization's initial HIRA program, there will be an apparent need to identify what are the HIRA eligible operations and processes for the organization.

> In principle, all operations and processes with the potential to harbor or generate hazards and risks to aviation safety should be eligible for HIRA accountability.

B. The prudent approach should be to give priority to the identification of those operations and processes that are deemed by the organization to be crucial or pertinent to aviation safety.

   ● Later the HIRA eligibility identification process may then be expanded to cover other lower priority operations and processes.

C. For this purpose, organizations may begin by compiling an inventory (or register) of HIRA eligible operations and processes. These may be categorized to facilitate HIRA performance prioritization.

4.5.5.5   Prioritizing HIRA Performance

Following are some examples of what organizations may consider as candidates for their initial and priority HIRA performance— 1)   Flight Operations

   ♦ Operational routes with unusual or special hazard and risk such as ULR, ETOPs, polar, RVSM, RNP, volcanic regions, inefficient ATC, etc.

   ♦ Line stations (aerodromes) with unusual or special hazard and risk such as difficult terrain, high traffic density, typhoon prone areas, inefficient apron control, inadequate markings or guidance systems, extreme weather conditions, etc

   ♦ Other AOC operations and processes deemed by the organization as essential for priority HIRA accountability.

   2) Maintenance Organizations

♦ Aircraft Maintenance – high risk or complex aircraft maintenance operations and processes such as aircraft marshalling, aircraft towing, engine ground run, engine change, functional checks involving hydraulic, pneumatic, electrical power, fuel tank entry work, etc

♦ Workshop Maintenance – crucial operations and processes on aircraft and engine parts such as NDT, metal machining, metal put-on, heat treatment, etc

♦ Other operations and processes deemed by the organization as essential for priority HIRA accountability.

SECTION 5   SAFETY ASSURANCE

> Refer to AC 00-002, Preparation of an acceptable Quality Assurance System for additional considerations for Safety Assurance.

5.1   SAFETY PERFORMANCE MONITORING & MEASUREMENT

5.1.1   SAFETY PERFORMANCE INDICATORS

A. Safety performance indicators (parameters) are generally data based expressions of the frequency of occurrence of some safety and quality related events, incidents or reports. These occurrence data may be reactive, proactive or predictive in nature.

B. There is no single safety performance indicator that is appropriate to all organizations. The indicator(s) chosen should correspond to the organization's relevant safety objectives or goals.

C. Examples of possible safety indicators would be as follows—

- Number of in flight incidents per 1000 flight hours/cycles
- Number of warranty claims per 1000 man-hours
- Component infant mortality rate
- Final test rejects rate
- Number of findings per audit (or other measurable audit performance criteria)
- Number of hazard reports received,
- APM/ECM trends
- FDAP deviation rates and trends

5.1.2   SAFETY PERFORMANCE MONITORING

A. Safety performance monitoring is the process by which safety indicators of the organization are reviewed in relation to safety policies and objectives.

> Such monitoring would normally be done at the safety committee and where applicable safety action group level.

B. The performance of each indicator is reviewed with respect to its pre-established minimum acceptable level (alert level) and its safety target (desired level).

C. Any significant abnormal trend or breech of the minimum acceptable (alert) level for any of the (ALS) indicators would warrant appropriate investigation into potential hazards or risks associated with such deviation.

5.1.3   SAFETY TARGETS (GOALS)

A. Safety targets (desired goals) are quantifiable and have time components. They should be achievable and realistic.

B. These safety targets should be measured and monitored with the use of safety performance indicators where applicable.

C. Examples of possible safety targets are as follows—

- To increase the number of hazard reports received by X % over the next 12 consecutive months (or some other consecutive month period).
- To reduce days lost to injury or illness by X % over the next 12 consecutive months
- To reduce direct and indirect cost due to incidents and accidents by X % over the next 12 consecutive months

- To complete initial safety assessment for all existing safety related equipment, facilities, operations and procedures according to the following schedule ___ *(schedule details)* ___
- To reduce annual insurance claims due to incidents and accidents by X % over the next 12 consecutive months
- To reduce number of operational technical incidents by X % over the next 12 consecutive months.
- Zero safety-related defect in 5 years
- X safety-related defects per 10000 man-hours
- To reduce the number of customer warranty claims by X % over the next 12 consecutive months.
- To reduce the number of findings per external audit by X % over the next 12 consecutive months. year

5.1.4   ACCEPTABLE LEVEL OF SAFETY (ALS)

A. Acceptable Level of Safety (ALS) is the expression of an organization's minimum acceptable safety performance level(s) associated with a set of pre-established safety indicators.

B. This is the minimum safety performance that an organization should achieve while conducting their core business functions.

C. Each organization may have a slightly different set (combination) of ALS indicators so long as they are commensurate with the complexity and scope of its operations.

> - In a developing SMS with a new reporting system, you would expect to see an increase in the number of reports over the short term.
> - This shows that the company culture encourages this feedback.
> - In the long term, as the SMS matures, you would expect to see a decrease in number of hazard reports.

D. Where applicable, a combination of reactive (incident and accident rates), proactive (audit findings) and predictive (hazard reports, FDAP deviations) should be used.

- There should normally be more than one ALS indicator.
- Those safety performance indicators which are meant to constitute an organization's ALS performance monitoring shall be identified accordingly in the SMS manual.
- Their respective minimum acceptable or alert level (s) shall be subject to GCAA acceptance.
- These ALS indicators or their respective alert levels may be subject to revision where deemed appropriate.

E. An organization may maintain other nonALS related indicators as part of their quality and reliability, productivity, OSHE systems etc.

> These other indicators should be distinguished from the ALS indicators.

5.2   MANAGEMENT OF CHANGE

A. Aviation organizations experience constant change due to expansion and introduction of new equipment or procedures.

> Changes can introduce new hazards or risks which can impact the appropriateness or effectiveness of previous risk mitigation.

B. External changes would include change of—

- Regulatory requirements
- Security status/level, or
- Re-arrangement of air traffic control/provisions, etc.

C. Internal changes can involve management/organizational changes, major new equipment introduction or new procedures, etc.

D. A formal management of change process should identify changes within or from outside the organization which may affect established processes and services from a safety viewpoint.

- Prior to implementing such changes, the new arrangements should be assessed using the SMS hazard and risk analysis protocol or in relation to previously completed risk mitigation as applicable.

E. Activities with safety risks should be scheduled for a baseline hazard analysis in accordance with the organization's HIRA program.

- Periodically, such activities should be reviewed for any changes to the operational environment which may affect the continued validity of the previous baseline analysis.

F. The procedure for routine review of completed safety assessments should be established as appropriate.

1) The interval for such scheduled review may be on a case by case basis or as a standard interval, for example annually.

2) Such scheduled review may take into consideration previously unidentified hazard and risks based on operational or industry incident and accident investigation findings.

3) Likewise, any modification or change subsequent to the initial safety assessment done should be evaluated for any possible effect on the existing safety assessment.

5.3   CONTINUOUS IMPROVEMENT & AUDIT

5.3.1   INTERNAL SMS AUDIT

A. Internal safety (SMS) audits are used to ensure that the structure of an SMS is sound. It is also a formal process to ensure continuous improvement and effectiveness of the SMS.

> Appendix B provides a starting point for evaluation of an operational Safety Management system.

B. The protocol for conducting a SMS audit (from planning to final corrective action closure) should be no different from any other system audit. Audits should involve the use of appropriate checklists.

C. The overall scope of an SMS audit should include—

- Regulatory SMS requirements
- Structure of safety accountabilities
- Organizational safety policies and standards
- Documentation, including SMS manual and SMS records
- Compliance with SMS hazard and risk evaluation procedures
- Adequacy of staff training for their SMS roles
- Performance indicators and Acceptable Level of Safety
- Compliance with safety assessment plan or schedule
- Effective SMS integration with other control systems
- SMS integration with contractors where applicable
- Continuing assessments and management of change
- Review completed safety assessments for any that may be obviously sub-standard orinadequate

5.3.2   SAFETY REVIEWS

A. Over and above SMS audits, safety reviews or surveys may be employed as a proactive procedure for examining particular elements, processes or a specific operation for any safety concerns or sub-standard performance.

B. Such targeted safety surveys may be initiated as a follow up to informal feedback or voluntary and confidential reports to identify issues that may contribute to generation of hazard and risks or their escalation factors, such as—

- Problem areas or bottlenecks in daily operations
- Perceptions and opinions about personnel's competency with possible safety implications
- Poor Teamwork and cooperation between employee groups or departments (especially involving safety/operational/technical functions)

- Areas of dissent or perceived confusion (especially involving safety/operational/technical functions)
- Unsafe working procedures or conditions
- Prolonged working hours or long-term manpower shortfall, etc

SECTION 6   SAFETY PROMOTION

6.1   TRAINING & EDUCATION

A. Safety training and education is an essential foundation for the development and maintenance of a safety culture. The provision of appropriate safety training to all staff is an indication of management's commitment to SMS.

B. The procedure for safety training and education should include the following where applicable—

- A documented process to identify training requirements
- A validation process that measures the effectiveness of training
- Initial general and job-specific safety training
- Initial training incorporating SMS, Human Factors and organizational factors
- Recurrent safety training as applicable

6.1.1   ORGANIZATION REVIEW

A. The safety manager should, in conjunction with the personnel department or functional heads, review the job descriptions of all staff, and identify those positions that have safety responsibilities.

B. These should include operational personnel, managers/supervisors, senior managers and the Accountable Manager.

C. This is to ensure that relevant personnel are trained and competent to perform their SMS duties. The level and mode of training should be appropriate to the individual's involvement in the SMS.

6.1.2   SMS TRAINING PROGRAMS

A. SMS training may possibly be integrated with related training programs.

B. In-house SMS training programs, where applicable, should be conducted or cleared by personnel who have undergone appropriate SMS training.

6.1.3   SCOPE OF TRAINING

Examples of the scope of SMS training—

6.1.3.1   Operations & Support Personnel

- Safety policy
- SMS fundamentals including definition of hazards, consequences and risks, safety risk management process
- Roles and responsibilities
- Safety reporting and the organization's safety reporting system

6.1.3.2   Managers & Supervisors—

Those elements specified above, plus—

- Safety Responsibilities in promoting the SMS and engaging operational personnel in hazard reporting
  - Knowledge of safety process, HIRA and change management
- Safety data analysis

6.1.3.3　Senior Managers

Those elements specified above, plus—

- Safety assurance and safety promotion
- Safety roles and responsibilities
- Acceptable Level of Safety indicators

6.1.3.4　Accountable Manager

- General awareness of the organization's SMS, including SMS roles and responsibilities, safety policy and objectives, safety risk management and safety assurance
- Knowledge of GCAA SMS regulations

6.1.3.5　SMS Manager—

- Should attend a formal comprehensive aviation SMS training course.
- Be familiar with relevant GCAA SMS regulations and ICAO SMS guidance materials

6.2　SAFETY COMMUNICATION

A. There is a need to communicate the organization's SMS processes and activities to the organization's population. The purpose of such communication includes—

- Ensuring that all staff members are aware of the SMS
- Conveying safety lessons and information
- Explaining why SMS related activities are introduced or changed
- Conveying SMS activities updates
- Dissemination of completed safety assessments to concerned personnel.
- Educating personnel on procedure for hazards reporting
- Promotion of the company's safety objectives, goals and culture

B. The medium for such communication and promotion may include—

- Notices or statements on safety policy and objectives
- News letters
- Bulletins
- Safety seminars and workshops
- Orientation programs

SECTION 7　SMS INTEGRATION

7.1　NEED FOR INTERROGATION

A. In civil aviation today, there is various safety or quality related control systems existing within an organization, such as—

- ISO 9000, etc
- Quality management system (QMS)
- Human Factor and Error Management System (HFEM)
- Environment management system (EMS)
- Occupational health and safety management system (OHSMS)
- Security management system, etc

B. There are different ways to integrate a safety management system in the operation of an organization. Aviation organizations may consider integrating their management system for quality, safety, HFEM, security, occupational health and environmental protection where appropriate.

7.2   AREAS OF INTEGRATION

A. Possible areas of integration would include having a—

- Common safety committee
- HIRA team with personnel from the various disciplines
- Consolidated hazards and HIRA register
- Integrated SMS/ HF training
- Coordinated communication and promotion efforts

7.3   BENEFITS OF INTEGRATION

The benefits of such integration would include—

- Reducing resource duplication and therefore costs.
- Easy integration and processing of cross functional safety related data.
- Reducing potentially conflicting objectives and relationships.
- Recognition of aviation safety as the over arching objective of all controlling systems within an aviation organization

7.4   COORDINATION WITH OTHER ORGANIZATIONS

Apart from internal integration of an organization's SMS components with related control systems, such integration should be coordinated with other organizations or contractors whereby such interface with their relevant SMS or control system is necessary during the provision of services.

7.5   GAP ANALYSIS & IMPLEMENTATION PLAN

A. It is apparent that organizations would need to conduct a gap analysis of their system(s) to determine which components and elements of a safety management system are currently in place and which components or elements must be added or modified to meet SMS as well as regulatory requirements.

- The review may include comparison of the SMS elements found in this AC against the existing systems in the organization.

B. A checklist may be used to account for each of this AC and their respective sub- elements.

- Remarks for partial compliance or deviations should be made as well as actions required in order to meet the criteria.

- There should be a column for annotating existing company documentation where the requirement is addressed.

C. Once the gap analysis is complete and fully documented, the items you have identified as missing or deficient will form the basis of proposed SMS project plan.

> The first target of the plan should be compilation of the organization's SMS manual.

APPENDIX A
Development of an SMS Manual

A. This appendix is designed to help organizations document the processes and procedures required for a Safety Management System. It is intended to provide guidance for the development of a Safety Management System Manual, which can be a separate stand-alone document or it could be incorporated into an existing manual, as required. This suggested

format is one way in which an organization can meet the documentation requirements of SMS.

B. Use the SMS manual template to describe the processes for the organization SMS. Remember that small operations will have very basic and simple processes compared to a larger company.

- For example, the reporting system for a company with three employees may well be verbal in many cases.

- The important thing to remember when developing processes that rely on verbal communication is to keep a record of any hazards discussed and decisions made.

C. The guide is formatted in the following manner—

- **Yes** = Check this column if the organization has addressed the GCAA guidance.
- **Reference** = Enter the corresponding paragraph reference from the organization manual system in this column.
- **NA** = Check this column if the guidance is not applicable to the organization
- **Organization Comment** = If the organization has a comment regarding why they do have a manual reference for this guideline, that comment may be inserted in this column.

1	DOCUMENT CONTROL	YES	REFERENCE	NA	ORG COMMENT
1.1	Detailed description of how the manual will be kept up to date and ensure that all personnel have the most current version.				
1.2	Details of the methodology and media for manual distribution are provided.				
1.3	This manual with other approved documentation has been correlated with other primary user manual.				
1.4	Details of the process for periodic review of other safety management system related documentation and manuals are provided to ensure their continuing suitability, adequacy and effectiveness.				
1.5	This manual and pertinent portions are readily accessible to company personnel.				
1.6	This manual is approved by the Accountable Manager.				
2	SMS REGULATORY DISCUSSION	YES	REFERENCE	NA	COMMENT
2.1	Elaborate on current GCAA SMS regulations for necessary reference and awareness by all personnel.				
2.2	Spell out current GCAA SMS regulations/ standards. Include compliance time frame and advisory material references as applicable.				
2.3	Where, appropriate, to elaborate or explain the significance and implications of those regulations to the organization.				

2.4	Where, relevant, correlation to other safety related requirements or standards may be highlighted				
3	**SMS SCOPE & INTEGRATION**	**YES**	**REFERENCE**	**NA**	**COMMENT**
3.1	The general nature of the organization's aviation business and its position or role within the industry as a whole are described.				
3.2	Equipment, facilities, work scope, capabilities and other relevant aspects of the organization within which the SMS will apply are identfied.				
3.3	The scope of all relevant processes, operations and equipment which are a part of the organization's HIRA evaluation program are identified; especially those which are directly pertinent to aviation safety.				
3.4	If the scope of HIRA eligible process, operations and equipment is too detailed or extensive, supplementary documents are provided control the process.				
3.5	Where the SMS is operated or administered across a group of interlinked organizations or contractors, such integration and associated accountabilities is defined and documented.				
3.6	Where there are other related control and management systems within the organization such as ISO9000, HFEM, OHSAS, QMS, MEDA etc, their relevant integration into the SMS is identified and described.				
4	**SAFERY POLICY**	**YES**	**REFERENCE**	**NA**	**COMMENT**
4.1	The safety policy describe the organization's intentions, management principles, and commitment to improving aviation safety in the company.				
4.2	The safety policy should be appropriate to the size and complexity of the organization.				
4.3	The safety policy states the organization's intentions, management principles and commitment to continuous improvement in the aviation safety level.				
4.4	The safety policy is approved by the Accountable Manager by signature.				
4.5	The safety policy is promoted by the Accountable Manager.				

4.6	The safety policy is communicated to all employees with the intent that they are made aware of their individual safety obligations.				
4.7	Personnel at all levels are involved in the establishment and maintenance of the safety management system.				
4.8	Procedures are included which result in the safety policy is reviewed periodically.				
5	**SAFETY GOALS & OBJECTIVES**	**YES**	**REFERENCE**	**NA**	**COMMENT**
5.1	There is a formal process to develop a set of safety objectives and goals necessary to provide direction and impetus to the SMS.				
5.2	The safety objectives and the safety performance goals of the organization are specified in documentation.				
5.3	Performance goals are specific and measurable goals that allow the measure the degree of success of the SMS.				
5.4	Safety objectives have been established				
5.5	Safety objectives are expressed as a toplevel statement describing the organization's commitment to achieving safety.				
5.6	These objectives and goals can be supported by data based safety indicators or parameters.				
5.7	Safety objectives and goals are publicized and distributed.				
5.8	Methodology and resources have been established for achieving the objectives and goals				
6	**SAFETY ACCOUNTABILIES & KEY PERSONNEL**	**YES**	**REFERENCE**	**NA**	**COMMENT**
6.1	The safety authorities, responsibilities and accountabilities for personnel involved in the SMS are specified in detail.				
6.2	These assignments are clearly defined and documented.				
6.3	This assignments are promulgated to all personnel in key documentation and communication media.				

6.4	These assignments also includes specific requirement that Accountable Manager is responsible for ensuring that the safety management system is properly implemented and performing to requirements in all areas of the organization.				

		YES	REFERENCE	NA	COMMENT
6.5	The process for appointing the appropriate Safety Manager (office), Safety Committee or Safety Action Groups are included.				
6.6	A SMS organizational accountabilities chart is included.				
7	**NON-PUNITIVE REPORTING POLICY**	**YES**	**REFERENCE**	**NA**	**COMMENT**
7.1	Details under the system or policy under which employees are encouraged to report errors, safety deficiencies, hazards, accidents, and incidents is included.				
7.2	Policy and procedure in place that facilitate and encourage employees to report errors, safety deficiencies, hazards or occurrences.				
7.3	Conditions under which punitive disciplinary action would be considered (e.g. illegal activity, recklessness, gross negligence or willful misconduct) are clearly defined.				
7.4	This reporting policy is widely disseminated throughout the organization and appears in user-specific procedure manuals.				
8	**SAFETY REPORTING**	**YES**	**REFERENCE**	**NA**	**COMMENT**
8.1	A reporting system including both reactive (accident/incident reports etc) and proactive/ predictive (hazard reports etc) data is established.				
8.2	The details of the design of the reporting system and how it works is provided.				
8.3	The details of the incident reporting system include factors such as report format, confidentiality, data collection and analysis and subsequent dissemination of information on corrective actions, preventive measures and recovery controls.				
8.4	A process or system that provides for the capture of internal information including incidents, accidents, hazards and other data relevant to SMS is included				
8.5	The reporting process should be simple, accessible and commensurate with the size of the organization				

8.6	Procedures for review of the reports at the appropriate level of management is provided.				
8.7	A feedback process is established to notify contributors that their reports have been received and to share the results of the analysis.				
8.8	Procedures make the report form accessible across the organization				

8.9	A process to ensure that information is received from all areas of the organization within the scope of the SMS in included.				
8.10	A process is provided to monitor and analyze trends.				
8.11	A process for the systematic investigation and analysis of operational conditions or activities that have been identified as potential hazards is provided.				
9	**HAZARD ID & RISK ASSESSMENT**	**YES**	**REFERENCE**	**NA**	**COMMENT**
9.1	The details of organization's hazard identification system and related schemes and how such data are collated is included.				
9.2	These details include how the organization's process for any categorization of hazards/risks and their subsequent prioritization for a documented safety assessment				
9.3	These details include how the organization's safety assessment process is conducted and how preventive action plans are implemented.				
9.4	The structured process provides for the assessment of risks associated with identified hazards, expressed in terms of consequence (severity) and likelihood (probability of occurrence)				
9.5	Hazard identification and risk analysis procedures clearly manifest aviation safety as its fundamental context.				
9.6	There is a criterion for evaluating risk and the tolerable level of risk the organization is willing to accept together with any mitigating factors.				
9.7	The provisions for risk control strategies that include corrective, preventive and recovery action plans are included				

9.8	The process for evaluating and updating the effectiveness of the corrective, preventive and recovery measures is included.				
9.9	There are specific requirements for documentation and retention of the corrective, preventive and recovery actions, including time lines.				
10	**SAFETY PERFORMANCE MONITORING & MEASUREMENT**	**YES**	**REFERENCE**	**NA**	**COMMENT**
10.1	Procedure for the review the effectiveness of the organization's SMS.				
10.2	This procedures includes the safety performance of the organization by reviewing the safety performance indicators.				

10.3	There is a formal process to develop and maintain a set of safety performance indicators for trend, target (desired level) as well as minimum acceptable (alert) level monitoring.				
10.4	Safety alert (caution) levels which are intended to constitute the organization's minimum are established.				
10.5	Acceptable Level of Safety (ALS) shall be identified accordingly.				
10.6	These established levels are identified in this section of the manual and shall be subject to GCAA acceptance.				
10.7	Periodic planned reviews of company safety performance indicators include an examination of the company's Safety Management System to ensure its continuing suitability, adequacy and effectiveness.				
11	**SAFETY INVESTIGATION**	**YES**	**REFERENCE**	**NA**	**COMMENT**
11.1	The Process for how accidents/incidents are investigated are included.				
11.2	Provisions for reviewing contributing factors to an accident/incident are determined and how corrective action is recommended to prevent reoccurrence.				
11.3	Details of how the corrective/preventive actions are reviewed for updating any existing safety assessment or the need to initiate a safety assessment for newly uncovered hazards/risks.				

11.4	Procedures are provided that ensure reported occurrences and incidents are investigated where applicable.				
11.5	A process to ensure that such investigations include identification of active failures as well as contributing organizational factors is described.				
11.6	The details of the investigation procedure and format includes the integration of safety related findings with the SMS.				
11.7	An investigation process is provided to ensure that appropriate SMS follow up actions on related as well as unrelated hazard or risks uncovered during the course of investigations are addressed.				
12	**SAFETY TRAINING & COMMUNICATION**	**YES**	**REFERENCE**	**NA**	**COMMENT**
12.1	Description of the type of SMS and other safety related training that staff receives.				
12.2	Describe how such training procedures are documented.				

12.3	Describe the safety communication processes/channels within the organization.				
12.4	The SMS training syllabus, eligibility and requirements are included.				
12.5	There is a validation process that measures the effectiveness of training.				
12.6	The training includes initial, recurrent and update training, where applicable.				
12.7	The organization's SMS training is part of the organization's overall training program.				
12.8	Details of how SMS awareness is incorporated into employment or indoctrination program are provided.				
13	**CONTINUOUS IMPROVEMENT & SMS AUDIT**	**YES**	**REFERENCE**	**NA**	**COMMENT**
13.1	The processes for continuous improvement and review of the organization's SMS are described.				
13.2	There are provisions for regular audit/ reviews of company safety performance indicators, including an internal assessment/ audit of the company's Safety Management System to ensure its continuing suitability, adequacy and effectiveness				

13.3	All other programs contributing to continuous improvement of the organization's SMS and safety performance (e.g. MEDA, safety surveys, ISO systems) are included.				
14	**SMS DATA & RECORDS MANAGEMENT**	**YES**	**REFERENCE**	**NA**	**COMMENT**
14.1	Description of the organization's method of recording and storing all SMS related documents is provided.				
14.2	The organization's records system that ensures the generation and retention of all records necessary to document and support the SMS is included.				
14.3	That system requires the retention of records such as hazard reports, risk assessments reports, SAG/SRB meeting notes, safety performance monitoring charts, SMS audit reports, SMS training records.				
15	**MANAGEMENT OF CHANGE**	**YES**	**REFERENCE**	**NA**	**COMMENT**
15.1	Description how the organizational internal/ external/process changes that may have an impact on safety be managed.				
15.2	Details showing how such processes are integrated with the organization's SMS				

15.3	A standard procedure or policy to perform or review safety assessments for all substantial internal or external changes which may have safety implications.				
15.4	There is procedure for performing safety assessment prior to introduction of new equipment or processes which may have safety implications before they are commissioned.				
15.5	Provisions for all concerned stake holders within or without the organization are involved in such reviews.				
15.6	How such reviews are documented and approved by management.				
16	**EMERGENCY RESPONSE PLAN**	**YES**	**REFERENCE**	**NA**	**COMMENT**
16.1	Details of the organization's intentions and commitment to dealing with emergency situations and their corresponding recovery controls are provided.				
16.2	The roles and responsibilities of key personnel are outlined.				

16.3	The Emergency Response Plan has been developed and is available in the organization's manual system.						
16.4	There is an emergency plan that outlines roles and responsibilities in the event of a major incident, crisis or accident						
16.5	There is a notification process that includes an emergency call list and an internal mobilization process						
16.6	The details of the specific arrangements with other agencies for aid and the provision of emergency services are included.						
16.7	Procedures for emergency mode operations are provided where applicable.						
16.8	A procedure is provided for overseeing the welfare of all affected individuals and for notifying next of kin.						
16.9	Procedures for handling media and insurance related issues are provided.						
16.10	The accident investigation responsibilities within the organization have been defined.						
16.11	Policy/procedure requiring preservation of evidence, securing affected area and mandatory/governmental reporting is clearly stated.						
16.12	Provisions and general curriculums for the is emergency preparedness and response training for affected personnel						
16.13	A disabled aircraft or equipment evacuation plan has been developed by the organization in consultation with aircraft/equipment owners, aerodrome operators or other agencies as applicable.						
16.14	A procedure exists for recording activities during an emergency response.						

End of Appendix B

Appendix B
Self Evaluation of Incident Reporting Systems

This checklist in this appendix is provided for the organization to conduct a selfevaluation of their incident reporting system.

YES	NO	NS	NA	1	GENERAL
				1.1	Is there effective information gathering methods?
				1.2	Is there a recording of pertinent data?
				1.3	Is preliminary analysis and hazard identification implemented?
				1.4	Is a formal risk assessment process occurring, including prioritization of risks?
				1.5	Are risk control strategies being developed and discussed?
				1.6	Is the preferred risk control option being implemented for each significant hazard?
				1.7	Is there a monitoring and evaluation process to determine the effectiveness of the actions taken, the residual risks?
YES	NO	NS	NA	2	INFORMATION EXCHANGE
				2.1	Are monthly or quarterly safety reports to management?
				2.2	Are notifications of validated hazards to affected personnel?
				2.3	Is feedback to reporters to the safety incident reporting system?
				2.4	Are incident investigation reports disseminated?
				2.5	Is there promotion of specific safety issues and practices?
YES	NO	NS	NA	3	USE OF SAFETY DATA
				3.1	Trend analysis of operational events?
				3.2	Occurrence investigations?
				3.3	Hazard identification, risk assessment and risk control?
				3.4	Routine performance monitoring using FDA and LOSA data?
				3.5	Review of training programmes;?
				3.6	Reports for management (e.g. quarterly summaries, safety promotion)?
YES	NO	NS	NA	4	VERIFYING STATISICAL DATA

YES	NO	NS	NA		
				4.1	Conducting more complex statistical analytical procedures?
				4.2	Developing sampling techniques?
				4.3	Interpreting statistical outputs particularly when data samples are small?
				4.4	Advising on the use of appropriate normative data?
				4.5	Assisting in the use of specialized databases, extraction and analysis tools?
				4.6	Detecting data corruption?
				4.7	Advising on the use and interpretation of data from external sources, etc.?
				4.8	Consolidating data, checking its homogeneity and relevance?
YES	**NO**	**NS**	**NA**	**5**	**SAFETY ANALYSIS PRACTICES**
				5.1	Verify the utility and limitations of available data?
				5.2	Assist in deciding what additional facts are needed?
				5.3	Establish consistency, validity and logic?
				5.4	Ascertain causal and contributory factors?
				5.5	Assist in reaching valid conclusions; etc.?
YES	**NO**	**NS**	**NA**	**6**	**PROTECTION OF SAFETY DATA**
				6.1	Adequacy of "access to information" laws vis-à-vis long-term accident prevention requirements?
				6.2	Company policies on protection of safety data?
				6.3	De-identification, by removing all details which might lead a third party to infer the identity of individuals (flight numbers, dates/ times, locations, aircraft type, etc.)?
				6.4	Security of information systems, data storage and communication networks?
				6.5	Limiting access to databases to those with a "need to know"; and Prohibitions on unauthorised use of data?
YES	**NO**	**NS**	**NA**	**7**	**SAFETY DATABASE CAPABILITIES**
				7.1	Log safety events under various categories?
				7.2	Link events to related documents (e.g. reports and photographs)?
				7.3	Monitor trends?
				7.4	Compile analyses, charts and reports?

				7.5	Check historical records?
				7.6	Data-share with other organisations?
				7.7	Monitor event investigations?
				7.8	Apply risk factors?
				7.9	Flag overdue action responses?
				7.10	Ensure action taken to avoid reoccurrence?

End of Appendix B

APPENDIX C
Self Evaluation of SMS System

This checklist in this appendix is provided for the organization to conduct a selfevaluation of their safety management system.

YES	NO	NS	NA	1	SAFETY POLICY
				1.1	Is a safety management system in place and being followed?
				1.2	Is the safety management system appropriate to the size and complexity of the organisation?
				1.3	Is there a safety policy in place?
				1.4	Has the organisation based its safety management system on the safety policy?
				1.5	Is the safety policy approved by the accountable executive?
				1.6	Is the safety policy promoted by the accountable executive?
				1.7	Is the safety policy reviewed periodically?
				1.8	Is the safety policy communicated to all employees with the intent that they are made aware of their individual safety obligations?
YES	NO	NS	NA	2	NON-PUNITIVE SAFETY REPORTING POLICY
				2.1	Is there a policy in place that provides immunity from disciplinary action for employees that report safety deficiencies, hazards or occurrences?
YES	NO	NS	NA	3	ROLES & RESPONSIBILITIES
				3.1	Has an accountable executive been appointed with responsibility for ensuring that the safety management system is properly implemented and performing to requirements in all areas of the organisation?

YES	NO	NS	NA		
				3.2	Does the accountable executive have control of the financial and human resources required for the proper execution of his/her SMS responsibilities?
				3.3	Has a qualified person been appointed to manage the operation of the SMS?
				3.4	Does the person managing the operation of the SMS fulfill the required job functions and responsibilities?
				3.5	Are the safety authorities, responsibilities and accountabilities of personnel at all levels of the organisation defined and documented?
				3.6	Do all personnel understand their authorities, responsibilities and accountabilities in regards to all safety management processes, decisions and actions?
YES	**NO**	**NS**	**NA**	**4**	**COMMUNICATIONS**
				4.1	Are there communication processes in place within the organisation that permit the safety management system to function effectively?
				4.2	Are communication processes (written, meetings, electronic, etc.) commensurate with the size and scope of the organisation?

YES	NO	NS	NA		
				4.3	Is information established and maintained in a suitable medium that provides direction in related documents?
				4.4	Is there a process for the dissemination of safety information throughout the organisation and a means of monitoring the effectiveness of this process?
YES	**NO**	**NS**	**NA**	**5**	**SAFETY PLANNING, OBJECTIVES & GOALS**
				5.1	Have safety objectives been established?
				5.2	Is there a formal process to develop a coherent set of safety goals necessary to achieve overall safety objectives?
				5.3	Are safety objectives and goals publicized and distributed?
YES	**NO**	**NS**	**NA**	**6**	**PERFORMANCE MEASUREMENT**
				6.1	Is there a formal process to develop and maintain a set of performance parameters to be measured?
YES	**NO**	**NS**	**NA**	**7**	**MANAGEMENT REVIEW**
				7.1	Are regular and periodic, planned reviews of company safety performance and achievement including an examination of the company's Safety Management System conducted to ensure its continuing suitability, adequacy and effectiveness?
				7.2	Is there a process to evaluate the effectiveness of corrective actions?
YES	**NO**	**NS**	**NA**	**8**	**APPLICABLE REGULATIONS**
				8.1	Has a documented procedure been established and maintained for identifying applicable regulatory requirements?

				8.2	Are Regulations, Standards and Exemptions periodically reviewed to ensure that the most current information is available?
YES	**NO**	**NS**	**NA**	**9**	**DOCUMENTATION - SMS DOCUMENTATIONS**
				9.1	Is there consolidated documentation that describes the safety management system and the interrelationship between all of its elements?
				9.2	Does this information reside or is it incorporated by reference into approved documentation, such as Company Operations Manual, Maintenance Control/Policy Manual, Airport Operations Manual, as applicable, and where these approved documents are not required by regulation, the organisation includes the information in a separate, controlled document?
YES	**NO**	**NS**	**NA**	**10**	**DOCUMENTATION - RECORDS MANAGEMENT**
				10.1	Does the organisation have a records system that ensures the generation and retention of all records necessary to document and support operational requirements, and is in accordance with applicable regulatory requirements?
				10.2	Does the system provide the control processes necessary to ensure appropriate identification, legibility, storage, protection, archiving, retrieval, retention time, and disposition of records?
YES	**NO**	**NS**	**NA**	**11**	**REACTIVE PROCESSES**
				11.1	Does the organisation have a reactive process or system that provides for the capture of internal information including incidents, accidents and other data relevant to SMS?

				11.2	Is the reactive reporting process simple, accessible and commensurate with the size of the organisation?
				11.3	Are reactive reports reviewed at the appropriate level of management?
				11.4	Is there a feedback process to notify contributors that their reports have been received and to share the results of the analysis?
				11.5	Is there a process in place to monitor and analyze trends?
				11.6	Are corrective and preventive actions generated in response to event analysis?
YES	**NO**	**NS**	**NA**	**12**	**PROACTIVE PROCESSES**
				12.1	Does the organisation have a process or system that provides for the capture of internal information including hazard identification, occurrences and other data relevant to SMS?
				12.2	Is the proactive reporting process simple, accessible and commensurate with the size of the organisation?
				12.3	Are proactive reports reviewed at the appropriate level of management?
				12.4	Is there a feedback process to notify contributors that their reports have been received and to share the results of the analysis?

				12.5	Is there a process in place to monitor and analyze trends?
				12.6	Has the organisation planned self-evaluation processes, such as regularly scheduled reviews, evaluations, surveys, operational audits, assessments, etc.?
				12.7	Are corrective and preventive actions generated in response to hazard analysis?
				12.8	Is a process in place for analyzing changes to operations or key personnel for hazards?
YES	**NO**	**NS**	**NA**	**13**	**INVESTIGATION & ANALYSIS**
				13.1	Are there procedures in place for the conduct of investigations?
				13.2	Do measures exist that ensure all reported occurrences and deficiencies are investigated?
				13.3	Is there a process to ensure that occurrences and deficiencies reported are analyzed to identify contributing and root causes?
				13.4	Are corrective and preventative actions generated in response to event investigation and analysis?
YES	**NO**	**NS**	**NA**	**14**	**RISK MANAGEMENT**
				14.1	Is there a structured process for the assessment of risk associated with identified hazards, expressed in terms of severity, level of exposure and probability of occurrence?
				14.2	Are there criteria for evaluating risk and the tolerable level of risk the organisation is willing to accept?
				14.3	Does the organisation have risk control strategies that include corrective/ preventive action plans to prevent recurrence of reported occurrences and deficiencies?

				14.4	Does the organisation have risk control strategies that include corrective/ preventive action plans to prevent recurrence of reported occurrences and deficiencies?
				14.5	Does the organisation have a process for evaluating the effectiveness of the corrective/ preventive measures that have been developed?
				14.6	Are corrective/ preventive actions, including time lines, documented?
YES	**NO**	**NS**	**NA**	**15**	**TRAINING, AWARENESS & COMPETENCE**
				15.1	Is there a documented process to identify training requirements so that personnel are competent to perform their duties?
				15.2	Is there a validation process that measures the effectiveness of training?
				15.3	Does the training include initial, recurrent and update training, as applicable?

YES	NO	NS	NA		
				15.4	Is the organisation's safety management training incorporated into indoctrination training upon employment?
				15.5	Does the training include human and organisational factors?
				15.6	Is there emergency preparedness and response training for affected personnel?
YES	**NO**	**NS**	**NA**	**16**	**OPERATIONAL QUALITY ASSURANCE**
				16.1	Is a quality assurance system established and maintained and is under the management of an appropriate person?
				16.2	Does the organisation conduct reviews and audits of its processes, its procedures, analyses, inspections and training?
				16.3	Does the organisation have a system to monitor for completeness, the internal reporting process and the corrective action completion?
				16.4	Does the quality assurance system cover all functions defined within the certificate(s)?
				16.5	Are there defined audit scope, criteria, frequency and methods?
				16.6	Are there selection/training process to ensure the objectivity and competence of auditors as well as the impartiality of the audit process?
				16.7	Is there a procedure for reporting audit results and maintaining records?
				16.8	Is there a procedure outlining requirements for timely corrective and preventive action in response to audit results?
				16.9	Is there a procedure to record verification of action(s) taken and the reporting of verification results?
				16.10	Does the organisation perform periodic Management reviews of safety critical functions and relevant safety or quality issues that arise from the internal evaluation programme?
YES	**NO**	**NS**	**NA**	**17**	**EMERGENCY PREPAREDNESS & RESPONSE**
				17.1	Does the organisation have an emergency preparedness procedure, appropriate to the size, nature and complexity of the organisation?
				17.2	Have the Emergency preparedness procedures been documented, implemented and assigned to a responsible manager?
				17.3	Have the emergency preparedness procedures been periodically reviewed as a part of the management review and after key personnel or organisational change?
				17.4	Does the organisation have a process to distribute the ERP procedures and to communicate the content to all personnel?

				17.5	Has the organisation conducted drills and exercises with all key personnel at intervals defined in the approved control manual?

End of Appendix C

APPENDIX D
Frequently Asked Questions Regarding SMS

SECTION A: SMS & QUALITY SYSTEMS

A-1: How does a safety management system differ from traditional control methods?

SMS is a natural progression from traditional techniques, based on modern understanding of the nature of organizational accidents and how they occur. SMS has much in common with modern quality assurance practices, but places even more emphasis on proactive hazard

- To a large extent, the effectiveness of SMS relies on the corporate culture.
- The aim of SMS is to achieve a culture wherein each individual contributes to and is responsible for safety, and where the reporting of safety concerns is actively encouraged.

identification and risk assessment. It includes areas of the organization that may not be directly involved with day to day flight or maintenance operations, but nevertheless have the potential to affect aviation safety.

One notable difference is that while traditional safety and quality systems were managed at the certificate or divisional level - for example, having separate quality systems for flight operations and engineering, SMS looks at the enterprise as a whole. While the majority of SMS activity will continue to be directed toward particular specialist functions, the system is also concerned with how all relevant functions are integrated.

A-2: What is the relationship between SMS and QMS?

Safety Management Systems differs from Quality Management Systems in that it focuses on the safety, human and organizational aspects of an operation i.e. "safety satisfaction". Quality management focuses on the product (service) of an operation i.e. customer or "specification satisfaction".

- Safety management results in the design and implementation of organizational processes and procedures to identify hazards and control and mitigate risks in aviation operations.
- Quality management techniques provide a structured process for ensuring that organizational processes and procedures achieve their intended product (service) specifications or customer expectations.

SMS is partly built upon the same procedural principles and objectives as quality management systems. An organization's safety policy and objectives should be integrated with its quality policies.

Conversely, the coverage of quality policies should be fundamentally based upon quality in support of safety. Safety objectives should receive primacy where conflicts are identified. QMS is the main supporting structure for a SMS.

A-3: Is SMS a prescriptive regulation?

No. SMS is inherently performance based. The only prescriptive aspect is essentially the basic regulatory elements themselves. Organizations have a wide range of options for compliance, and

The Safety Management System should not be static, but should be continually evolving in response to changing needs.

are encouraged to identify the best means of compliance to meet their individual circumstances.

A-3 If most of the elements of a SMS already exist in most companies, why is GCAA requiring that companies implement this new system?

While the basic elements may be in place, a Safety Management System (SMS) is a systematic, explicit and comprehensive process for the management of safety risks, which integrates operations and technical systems with financial and human resource management, for all activities related to an enterprise. The process aims to improve the safety of an enterprise as a

whole, by identifying and correcting any potential problems/hazards that could contribute to a reduction of safety margins.

Currently, certain (or most) elements may exist in an approved organization. However, these may not be systematically or adequately integrated. Existing Quality assurance processes, functional procedures and accountability structures will need to be integrated with the SMS hazardsreporting and identification culture together with its crucial risk assessment process.

> ● The safety management system concept moves the organization into more proactive processes.
> ● Previous safety systems were predominantly reactive in nature.

A-4: To what level must an organization document its safety management system processes?

An organization must document its safety management system processes to the same level as other procedures described in the relevant company manuals (e.g., the Operations Manual and Maintenance Control Manual).

To this end, much of the detailed processes relating to each basic SMS element may remain in separate/existing supporting documents or manuals where appropriate. However, as in the case of other procedures, each element must be addressed or accounted for in the relevant sections of the main SMS document (or SMS manual) to exercise effective control and integration.

A-5: How is occupational or workplace safety related to aviation SMS?

Aviation SMS is not intended to address or oversight occupational/ workplace safety. This SMS AC addresses primarily SMS in relation to aviation safety (air transportation system and its relevant service providers).

Nevertheless, the outcomes of aviation safety may sometimes be related to occupational or workplace safety. As such, the organization should ensure that any relevant aspects of occupational and workplace safety (as with any other management systems) are integrated into the aviation SMS where appropriate.

SECTION B: IMPLEMENTATION

B-1: What is GCAA' plan for Implementation of SMS?

GCAA will adopt a two phased approach for AOC/MRO SMS implementation. The first phase is from **============**, whereby all Ghana approved aviation organizations and select service providers are encouraged to initiate or implement SMS in accordance with the guidelines of this AC.

The second phase is from ========= onwards, where SMS implementation will become a requirement. This requirement will be incorporated in AOC and AMO REQUIREMENTS nearer the 31 August deadline.

B-2: What are the main challenges in implementing a safety management system, and how can we assure its effectiveness?

While the procedural and organizational changes involved in introducing a SMS are relatively straightforward, the scope of full compliance will vary depending on the size of the organization. Implementing the system and procedures merely lays the foundation. While this may satisfy the basic intent of SMS regulation, the main challenge lies in bringing about the necessary changes in company safety culture as well as the on going discipline of making safety assessments an integral and fundamental part of the aviation business. Thus it may take up to several years for an organization's SMS to be fully matured.

A primary short to medium term challenge of SMS is the pursuit of a systematic and progressive baseline safety assessment (HIRA) accountability program for all relevant processes within the organization. Thereafter, the long term challenge will be to maintain and update all existing

safety assessments with inputs from on going organizational, operational and industry developments.

The difficulties encountered in accomplishing the necessary cultural change will vary greatly from one organization to another. Some organizations already have a healthy culture well established, while others will have some way to go. As a general rule, once the basic SMS organization and procedures are in place, there should be indications of positive safety improvement within the next full external audit cycle.

Additionally, as an enterprise-wide system, provisions must be made for the SMS processes to be subjected to internal, but independent, audits. Externally, SMS consultants are available in the industry. Apart from ICAO Doc 9859, there is also good SMS guidance material from various civil aviation websites. GCAA will also be available for consultation or guidance especially during the recommendation phase. **B-3: Will foreign AMOs be expected to implement SMS?**

Foreign AMOs whose Certificate of Approval includes compliance with AMO Requirements would be expected to implement a SMS. The scope of their SMS framework should be in line with AMO Requirements, ICAO or equivalent Ghana CAA SMS framework.

B-4: Will new AOC/AMO applicants be required to have a documented SMS?

Yes. The SMS requirements will not make any distinction between existing certificate holders or new applicants.

SECTION C: SAFETY ASSESSMENTS & AUDITS

C-1: How do we determine the scope of HIRA (Hazard Identification & Risk Analysis) eligible processes/ operations within an organization?

Different organization types would have different scope of HIRA eligible processes. The scope of an organization's processes/ operations that would be deemed as eligible (or applicable) for HIRA evaluation should be addressed by the organization as one of her immediate safety objective. All equipment, processes or operations which have the potential to harbor or generate hazards or risks should be accounted for safety assessment purpose.

Organizations with newly acquired equipment or processes with documented evidence of compliance with OEM system design risk analysis standards (e.g. MIL-STD-882D) may wish to recognize such equipment or processes as having undergone an acceptable baseline risk assessment protocol. Such HIRA eligible processes and operations should be reflected in the SMS manual.

C-2: How will the effectiveness of an individual organization's SMS be assessed?

There is a requirement for an internal SMS audit review process for the organization to assure the effectiveness of its SMS. The acceptability of an organization's SMS by GCAA will be determined through an SMS assessment protocol. The protocol comprises a set of objective questions for determining whether an organization has a functional SMS in place. A minimum performance level (%) must be achieved for the SMS to be deemed acceptable. The minimum performance criteria (as well as scope of checklist) may be escalated in phases to match the industry's SMS maturity process.

C-3: How will SMS affect the size and nature of future GCAA audits?

Upon the achievement of industry wide SMS implementation, it is possible that GCAA may evaluate how best to integrate or calibrate an organization's regulatory compliance audit with her SMS audit performance. In the long term, it is apparent that the trend is towards more performance based audit criteria as well as the concept of organizational risk profiling rather than a 'one size fits all' audit protocol.

C-4: With the introduction of SMS, who is responsible (within an organization) for performing safety (risk) assessments?

Other than preliminary identification of hazards and threats relating to specific or specialist work environments, risk assessment may be performed by duly trained staff from any part of the organization.

Large and multi-disciplinary organizations may have a specialist analysis unit devoted to this activity. Facilitation by consultants is possible. Normally, the analysis can be done by personnel from the functional department directly affected.

> Formalization of mitigation actions (preventive and recovery controls) however, should be under the authority of the applicable functional head.

- For example in the case of an AMO workshop, that will be the person responsible for workshop operations, and in the case of flight operations, it may be the Director of Flight Operations.

The functional head should be responsible for the assessment performed. All safety assessments would normally be signed by a project officer (or team leader) and approved by the departmental head or higher level management as appropriate.

C-5: How will GCAA deal with safety (risk) assessments, which could be subjective and may vary from organization to organization?

Safety assessments should be the result of sound information collection, logical analysis and thoughtful decision-making.

> A safety assessment that is seriously flawed or unsubstantiated may have to be rejected.

Safety assessments are inherently subjective, and that is not necessarily a bad thing. The variations may turn out to be reasonable and acceptable. So long as hazards identified and preventive controls promulgated are reasonable and valid (at the time of assessment), they should be deemed acceptable. It should be noted that safety assessments are meant to be a dynamic document which will be subject to subsequent routine or management of change updates.

In any case, the outside limits are established by regulatory compliance. A decision to permit obvious non-compliance with an existing regulation would be unacceptable, unless specific approval of such a particular assessment has been obtained from the relevant regulatory authority.

> Consistent failure to take reasonable action in response to identified real safety problems will be legitimate ground for a finding that the SMS is ineffective.

Short of actual noncompliance, even a decision to do nothing in a case where it might have been more prudent to have a preventive measure in place, is better than not to have evaluated the situation at all. At least, if the issue has been analyzed and documented, the company has established due diligence and awareness on the issue or situation.

SECTION D: BENEFITS

D-1: Will SMS be affordable to industry organizations who may be struggling economically, particularly for the small operators?

Apart from some initial training costs, SMS should not be particularly expensive to implement. The regulations will recognize that SMS must be tailored to the individual operation, so the changes required by a small organization should be relatively moderate and well within their financial capabilities.

The financial benefits of a safer organization are self-evident. Less incidents, accidents, time lost due to work related injuries, etc. More immediately, SMS has the potential to identify inefficient and uneconomical processes

> Rather than being an additional expense, a properly implemented SMS should result in a net improvement to a company's bottom line and organizational culture..

(besides hazardous ones), resulting in improvements in productivity, reduction in waste, etc.

D-2: With the introduction of SMS, is GCAA expecting the industry to assume greater responsibility in monitoring and correcting problems?

The industry has always rightly assumed responsibility in frontline problem solving, whether in routine operational issues or systemic problems.

> Intervention by GCAA is generally limited to issues with potential for broader fleet, industry or regulatory impact.

With the industry at its current size and complexity, the most effective use of resources is to prioritize safety management policies and objectives and ensure that they are effectively achieved. SMS facilitates this approach by allowing organizations as well as GCAA to focus more at the systems level. When an organization's safety and quality systems is duly enhanced through such emphasis, it will provide the organization the best opportunity to consolidate resources for proactive problem management rather that reacting to random or piecemeal problems or audit findings or costly incidents/accidents.

SECTION E: SAFETY CULTURE

E-1: What is meant by a reporting or generative culture?

Effective safety management requires a free exchange of safety information within an organization and between the organization and its safety partners. This applies both to actual incidents and accidents occurring within the organization, and to any hazards, accident precursors and systemic vulnerabilities that may be identified.

> The organization must not only have a reporting system in place, but must also foster a culture that actively encourages its use by staff at all levels and in all departments.

A generative culture will not only avoid disincentives, such as "blaming the messenger" or penalizing individuals who make honest errors, but will also provide staff with positive confirmation that all reports are taken seriously and subjected to an appropriate safety assessment. This is not to imply that there should be a "blame free" environment. Rather, the idea is to achieve a "fair" or "just" environment that distinguishes between errors and willful acts, acceptable and unacceptable risks.

E-2: Why would an organization disclose its internal hazards reports or safety assessments with auditors or other organizations?

One of the concepts of SMS is a free and uninhibited reporting culture that encourages information to be collected and not used against the reporter or organization in cases of unpremeditated and inadvertent violations. An auditor's inspection of an organization's internal hazard reports or safety assessment records should not be for the purpose of exposing hidden or unreported non compliances and taking enforcement actions thereof. Rather, such inspection or review is to confirm that the organization's hazard identification and safety assessment processes are valid and effective.

Inter-organization sharing of hazard reports and safety assessments is also evidence of a matured organizational safety culture. Such a scenario will ensure that safety lessons learnt by one organization will benefit other similar organizations and hence enhance the overall safety experience of the industry.

> A large number of hazard reports is not necessarily an indicator of a problem, but may well be an indicator of a healthy safety culture. Registered hazards need not be addressed all at the same time. They may be prioritized from that requiring immediate risk mitigation action to those with no action required.

3: How does a company include service providers (e.g. ground handling agents) in their SMS? Is it mandatory for a company to include contractors and service providers in their SMS?

While it may not be mandatory for a company to include all contractors and service providers in their SMS, their SMS has to factor in the risks associated with having persons other than employees accessing either aircraft or associated facilities.

> • Even outsiders who have no contact with the airside at all can affect the overall safety picture.
> • If a service provider does have a SMS, it should be possible to formally link their respective reporting systems.

Such integration should be appropriately documented. For those service providers who are not required to have a SMS, it would be beneficial if contractors and their relevant employees could be offered entry level training that could enable and facilitate their input to the approved company's SMS or reporting system. This training could stimulate activity on the contractor's part to upgrade their own management system.

SECTION F: GENERAL

F-1. What are GCAA' expectations with regard to integration of SMS documentation (SMS manual) with existing approved primary policy manuals?

For substantial organizations, the SMS manual should be an overarching separate document from other existing manuals. There should be a reference to this overarching SMS manual in the appropriate Operations, Maintenance Control or Maintenance Organization Procedures Manual. The reference may indicate that the organization's documentation of SMS elements is located in the SMS manual.

Detailed documentation or procedures associated with an SMS element and which are currently located in another manual may be appropriately cross referenced in the SMS manual.

> GCAA expects adequate document control to avoid any potential divergences on policy or procedures, omissions or conflicts that could result from having multiple manuals.

For small organizations, it is possible for the SMS program to be incorporated within an existing organization policy and procedure manual. In either case, the various SMS components and their relevant integration should be adequately and systematically documented.

F-2. What support will GCAA provide to assist organizations in implementing a safety management system?

A fundamental principle of SMS success is that the organizations build the SMS themselves. With SMS, GCAA will guide organizations in finding their own effective SMS levels. This is being done through SMS educational forums, guidance materials, SMS facilitation workshops, voluntary self assessment exercises and on-site trial assessments by GCAA.

F-3. Is having an ERP relevant for an MRO organization, especially for those servicing small or simple aviation components. Is an OSHE ERP adequate?

It is recognized that an organization's ERP is normally initiated from OSHE requirements. For purpose of aviation SMS ERP, a MRO should evaluate the nature of its services or products, and decide if it needs to include a plan for urgent response/ recovery actions in a worst case scenario with respect to safety or quality issue of its product or services. This may include the mass recall of parts, obtaining concession for continued service etc. So long as the scope of the ERP is appropriate to the nature and complexity of the organization, it should be acceptable.

F-4. Does the SMS manual require GCAA approval?

The SMS manual is subject to GCAA acceptance as part of the SMS assessment process. It may be a standalone manual or a dedicated section of the primary policy and procedure manual. Subsequent amendments shall be processed in the same manner.

End

of Appendix D

APPENDIX E
Transition Checklist: Status of SMS Implementation

This transition checklist in this appendix is provided for the organization to conduct a selfevaluation of the status of their implementation of the SMS.

> • Use this checklist at regular intervals to assess the implementation of the SMS system • Retain each completed checklist.
> • When the checklist shows all elements completed, the Safety Manger will file a copy with the GCAA and the organization files
> • All previous completed checklistx may then be destroyed.

1) For each of the elements completed, enter a "Yes," the date completed and the initials of the person making that determination.

2) Check the "No" column, if the particular element was not implemented at the time the checklist was completed.

3) The elements in each section of this checklist have assigned priority levels for implementation in the far right column—

♦ Level 1 = Organization is expected to be in compliance with this level at the present time.

♦ Level 2 = Organization is expected to be in compliance with this level no later than 31 December 2010.

♦ Level 3 = Organization is expected to be in compliance with this level no later than 31 May 2011.

STATUS OF SMS IMPLEMENTATION FOR: _____						
CHECKLIST DATE:				COMPLETED BY:		
YES	NO	DATE	Initials	1	SAFETY POLICY	Level
				1.1	There is a documented Safety Policy statement?	1
				1.2	The Safety Policy is readily visible or accessible to all personnel?	2
				1.3	There is evidence that the Safety Policy is communicated to all employees with intent that they are made aware of their individual safety obligations?	3
				1.4	The Safety Policy is appropriate to the size, nature and complexity of the organisation?	1
				1.5	The Safety Policy is endorsed by the Accountable Manager?	2
				1.6	There is a periodic review of the Safety Policy by senior management or the Safety Committee?	3
				1.7	The Safety Policy is relevant to aviation safety?	1

YES	NO	DATE	Initials			
				1.8	The safety policy do address the provision of necessary human and financial resources for its implementation?	2
YES	NO	DATE	Initials	2	ACCOUNTABLE MANAGER	
				2.1	There is a documented safety (SMS) accountability within the organisation that begins with the Accountable Manager?	1
				2.2	The accountable manager's terms of reference indicate his ultimate responsibility for the implementation and maintenance of the SMS?	2
				2.3	The accountable manager's terms of reference indicated his ultimate responsibility for all safety issues?	3
				2.4	The accountable manager has full control over financial and human resources associated with his organization?	1
				2.5	The accountable manager's terms of reference indicate his final authority over all "operations" conducted under the certificate/approvals granted to his organization by the GCAA?	2
				2.6	The Manager responsible for administering the SMS does not hold other responsibilities that may conflict or impair his role as SMS manager?	2
				2.7	The SMS Manager reports directly to the Accountable Manager, especially concerning SMS performance and improvement?	3
				2.8	The Manager performing the SMS role have relevant SMS functions included in his terms of reference?	1
				2.9	The SMS Manager is a senior management position not lower than or subservient to other operational or production positions?	3
YES	NO	DATE	Initials	3	SAFETY COMMITTEE	
				3.1	There is a Safety Committee (or equivalent meeting) for purpose of reviewing safety performance?	1
				3.2	For a large organisation, there are departmental or section Safety Action Groups that work inconjunction with the Safety Committee?	2
				3.3	The Safety Committee is chaired by the Accountable Manager or (for very large organisations) by an appropriately assigned deputy, duly substantiated in the SMS manual?	3

				3.4	The Safety Committee do include relevant operational or departmental Heads as members?	1

				3.5	There is an appointed Safety (SMS) coordinator within the Safety Action Group?	2
				3.6	The Safety Action Groups are chaired by the divisional or section Head?	3
YES	**NO**	**DATE**	**Initials**	**4**	**SAFETY OBJECTIVES & GOALS**	
				4.1	The organisation does establish safety objectives or goals relevant to its aviation operations or services?	1
				4.2	The safety objectives/ goals are compatible with the organisation's Safety Policy?	2
				4.3	There is a periodic review of the safety objectives/ goals for continuing validity where applicable?	3
				4.4	There are safety objectives/ goals which are measurable?	1
				4.5	The safety objectives/ goals are monitored for achievement?	2
				4.6	There is evidence that the safety objectives/ goals are communicated to all employees with intent that they are made aware of their individual obligations and contributions?	
YES	**NO**	**DATE**	**Initials**	**5**	**SAFETY PERFORMANCE & ALS**	
				5.1	There are safety performance indicators relevant to aviation safety?	1
				5.2	The ALS safety performance indicators are based on data relating to occurrence of some safety or quality related events or reports?	2
				5.3	There is a procedure for corrective or follow up action to be taken when there is significant abnormal trend or breach of any Acceptable Level of safety (ALS)?	3
				5.4	There are identified safety performance indicators for monitoring the organisation's minimum Acceptable Level of Safety (ALS) in the SMS manual?	1
				5.5	Safety performance indicators are reviewed by the safety committee for trend, minimum safety (alert) levels and targets (desired levels) where applicable?	2

YES	NO	DATE	Initials	6	HAZARD IDENTIFICATION	
				6.1	There is a procedure to encourage voluntary hazards/ threats reporting by all employees?	1
				6.2	In the hazard identification system, there is a clear differentiation between a hazard and risk?	2

				6.3	There is a procedure to identify hazards/ threats from internal incident/ accident investigation reports for follow up risk evaluation where applicable?	3
				6.4	There is a procedure for incident/ accident reporting by operational or production personnel?	1
				6.5	There is a policy that provides immunity from disciplinary actions (with any exceptions indicated) for all employees that report safety related deficiencies, threats or hazards?	2
				6.6	There is a procedure to review hazards/ threats from available industry service or incident/ accident investigation reports for follow up risk evaluation where applicable?	3
				6.7	There is a procedure for investigation of incident/ accidents relating to quality or safety?	1
				6.8	There is a procedure for personnel to report hazards/ threats not amounting to incident/ accidents?	3
YES	NO	DATE	Initials	7	RISK MANAGEMENT	
				7.1	There is a documented Hazard Identification and Risk Assessment (HIRA) procedure involving the use of objective risk analysis tools?	1
				7.2	Risk assessment reports are approved by departmental managers or higher level where appropriate?	2
				7.3	There is a procedure for periodic review of existing risk analysis records?	3
				7.4	There is a procedure to account for mitigation actions whenever unaccceptable risks are identified?	1
				7.5	There is a procedure to define acceptable and unacceptable risks?	2

				7.6	There is a procedure for special review of risk analysis records when there are changes that may affect their associated hazards or risks?	3
				7.7	There is a procedure for identification of operations/ processes/ facilities/ equipment which are deemed (by the organisation) as relevant for HIRA peformance?	1
				7.8	There is a procedure to define mitigation actions which require senior management approval?	2
				7.9	Recommended mitigation actions which require senior management decision or approval are accounted for and documented?	3

YES	NO	DATE	Initials	8	MANAGEMENT OF CHANGE	
				7.10	There is a program for progressive HIRA performance of all aviation safety-related operations/ processes/ facilities/ equipment as identified by the organisation?	1
				7.11	There is a procedure to prioritise HIRA performance for operations/ processes/ facilities/ equipment with identified or known safety-critical hazards/ risks?	2
				7.12	There is evidence of progressive compliance and maintenance of the organisation's HIRA performance program?	3
				8.1	There is a procedure for review of relevant existing aviation safety related facilities and equipment (including any HIRA records) whenever there are pertinent changes to those facilities or equipment?	1
				8.2	There is a procedure for review of new aviation safety related facilities and equipment for hazards/ risks before they are commissioned?	2
				8.3	There is a procedure for review of relevant existing facilities, equipment, operations or processes (including any HIRA records) whenever there are pertinent changes external to the organisation such as regulatory/ industry standards, best practices or technology?	3
				8.4	There is a procedure for review of relevant existing aviation safety related operations and processes (including any HIRA records) whenever there are pertinent changes to those operations or processes?	1

YES	NO	DATE	Initials	8.5	There is a procedure for review of new aviation safety related operations and processes for hazards/ risks before they are commissioned?	2
YES	NO	DATE	Initials	**9**	**SMS TRAINING COMMUNICATION & PROMOTION**	
				9.1	There is a documented personnel Safety (SMS) training procedure/ policy?	1
				9.2	Personnel involved in conducting risk evaluations are provided with appropriate risk management training or familiarisation?	2
				9.3	There is evidence of organisation-wide SMS education or awareness efforts?	3
				9.4	The SMS manager has undergone an appropriate SMS training course or program?	1
				9.5	Personnel directly involved in the SMS (Safety Committee/ SAG members) have undergone appropriate SMS training or familiarisation?	2

YES	NO	DATE	Initials	9.6	There is evidence of a Safety (SMS) publication, circular or channel for communicating Safety (SMS) matters to employees?	3
				9.7	The Accountable Manager has undergone appropriate SMS familiarisation, briefing or training?	1
YES	NO	DATE	Initials	**10**	**SMS MANUAL**	
				10.1	There is a documented SMS procedure or manual.which is approved by the Accountable Manager and accepted by GCAA?	1
				10.2	All 12 components of SMS regulatory requirements (are addressed in the SMS procedures?	2
				10.3	The SMS procedures do reflect the integration of the various safety related control systems within the organisation such as Occupational Safety/ Flight Safety/ Quality Control/ Environmental Control as applicable?	3
				10.4	The SMS procedures are documented in a systematic and consolidated manner?	1
				10.5	All relevant elements within each component of the SMS regulatory requirements are addressed in the SMS procedures?	2

YES	NO	DATE	Initials			
				10.6	The SMS procedures do reflect relevant coordination or integration with substantial external service providers or operators where applicable?	3
				10.7	The SMS procedures is a stand-alone controlled document or part of an existing controlled document?	1
				10.8	There is a process to periodically review the SMS documentation to ensure its continuing suitability, adequacy and effectiveness?	2
YES	**NO**	**DATE**	**Initials**	**11**	**SMS RECORDS**	
				11.1	Records pertaining to Safety Committee/ SAG meeting (or equivalent) minutes are maintained?	1
				11.2	Records pertaining to Safety Committee/ SAG meeting (or equivalent) minutes are made available to all members and the Accountable Manager?	2
				11.3	There is a documented policy with respect to generation, distribution and retention of SMS records?	3
				11.4	Records pertaining to Safety/ Risk Assessments performed are maintained?	1

YES	NO	DATE	Initials			
				11.5	Records pertaining to Safety/ Risk Assessments performed are assessible to all relevant parties?	2
				11.6	Records pertaining to periodic review of existing Safety/ Risk Assessments or special review in conjunction with relevant changes are available?	3
				11.7	Records pertaining to identified or reported hazards/ threats are maintained?	1
YES	**NO**	**DATE**	**Initials**	**12**	**AUDIT & CONTINUOUS IMPROVEMENT**	
				12.1	There is a procedure for periodic internal audit/ assessment of the SMS?	1
				12.2	There is a follow up procedure to address audit corrective actions?	2
				12.3	SMS audit/ assessment has been carried out according to plan?	3
				12.4	There is a current internal SMS audit/ assessment plan?	1

YES	NO	DATE	Initials			
				12.5	The internal SMS audit plan do cover SMS roles and procedures of all departments as defined within the scope of the SMS?	2
				12.6	SMS audit/ assessment reports are reviewed by the Accountable Manager?	3
				12.7	There is a documented internal SMS audit/ assessment checklist?	1
				12.8	The SMS audit plan do include the sampling of completed safety assessments?	2
				12.9	The SMS audit plan do cover the SMS roles/ inputs of contractors where applicable?	3
YES	**NO**	**DATE**	**Initials**	**13**	**EMERGENCY RESPONSE PLAN**	
				13.1	There is a documented Emergency Response Plan or Procedure?	1
				13.2	The ERP do include procedures for safe transition from normal to emergency and back to normal operations?	2
				13.3	The ERP do address relevant integration with substantial external service providers or operators where applicable?	3
				13.4	The ERP is appropriate to the size, nature and complexity of the organisation?	1
				13.5	There is a plan for drills or exercises with respect to the ERP?	2
				13.6	There is a procedure for periodic review of the ERP as well as after key ERP personnel or organisational changes?	3
				13.7	The ERP does include assignment of emergency responsibilities/ authority?	1
				13.8	ERP drills or exercises are carried out according to plan and result of drills carried out are documented?	2
				13.9	There is provision in ERP to address preservation of safety/ quality/ continuity of its aviation product/ services during emergency/ crisis/ AOG situations, where applicable?	3

End of Advisory Circular