Safety Management System (SMS) Manual

GCAA Air Navigation Service

Control Page

Initial Issue

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Manual Revision Record

Record of Revisions		
Number	**Date**	**Entered by**

List of Effective Pages

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1. Introduction to SMS Manual

1.1.1 Scope and Applicability

Historically, aviation safety has been built upon the reactive analysis of past accidents, and the introduction of corrective actions to prevent the recurrence of those events. With today's extremely low accident rate, it is increasingly difficult to make further improvements to the level of safety by using this approach. Therefore, a proactive approach to managing safety has been developed that concentrates more on the control of processes rather than efforts targeted toward extensive inspection and remedial actions on end products. This innovation in aviation system safety is best termed "Safety Management Systems" (SMS), a term indicating that safety efforts are most effective when made part of everyday operations. The objective of an SMS is to provide a structured management system to control risk in operations. It also provides the organizational framework to support a sound safety culture.

All Ghana Air Navigation Service employees contribute to the safety of our everyday operations. This manual is intended for the use of all employees. The Safety, Standards and Quality Assurance (SSQA) Manager and his staff have certain duties for which they have received in-depth specific training, but they alone cannot build safety into all of our operations. It is the responsibility of each employee to give strong consideration to safety in all of their actions, and to report potential hazards to the Safety Office for detailed analysis and correction.

This SMS applies to all Ghana Air Navigation Service employees, managers, contractors and related service providers who are either directly or indirectly involved in providing Air Navigation Services. This includes, but is not limited to: En-Route/Area Controllers, Approach Controllers, Aerodrome Controllers, Communication, Navigation and Surveillance (CNS) Maintenance Personnel, Aeronautical Information Managers, Airspace Planners and Search and Rescue (SAR) Personnel. All the above related service providers manuals shall interface with this SMS manual.

1.2 Manual Ownership

The Safety Management System Manual, its revisions and amendments are published and issued by the SSQA Manager or his designee. The SSQA Manager is responsible for its contents, and for keeping instructions and information up-to-date. The SSQA Manager, or his designee, shall submit proposed revisions to GCAA for review and acceptance, as required, prior to publishing a revision.

1.3 Manual Revisions

The Safety Management System (SMS) Manual will be revised on a biennial basis as required. Temporary Revisions will be issued for changes required between the biennial revisions. All Temporary Revisions will be incorporated into the SMS Manual at the time of the biennial revision.

A request for revision / change may be initiated with the SMS Manual Change Request Form (SMS Form 102). Revisions to the text of this manual will be identified by a vertical line along the left-hand margin of the page adjacent to the revised material. If the page is completely revised or added, the vertical line will be located in the left-hand margin of the page footer. Revisions are distributed in accordance with the SMS Manual Distribution List (SMS Form 100). The manual holder is responsible for reading and inserting the revisions promptly. It is the responsibility of the manual holder to notify applicable personnel of associated revisions.

Each page of this manual, and all Temporary Revisions, will include a revision date in the lower left-hand corner. The SMS Manual Revision Transmittal (SMS Form 101) will contain an issuance date for the form, the revision dates of all included pages, and an effective date for the changes. NOTE: These three dates may or may not be the same.

Revisions to the SMS Manual will be issued as replacement pages. The SMS Manual Revision Transmittal (SMS Form 101) will be addressed to each specific SMS manual holder. The Revision Record System consists of the Manual Revision Transmittal (SMS Form 101), the Revision Record page, a List of Effective Pages and the actual revised page(s) to the SMS Manual.

SMS Form 101 - This form will contain the SMS Manual revision date of each revised page, the issuance date of the form and the effective date for the change. The form is divided into two sections, one is “Remove and Destroy” and the other is “Insert”. The “Remove and Destroy” section will list the pages to be removed from the previous manual revision. Under the “Insert” column will be listed new material to be inserted. At the bottom of this page, below the dotted line, will be the return receipt for the revision. The person responsible for updating the manual will put in the required information called for on the receipt. The person will then sign his / her name on the receipt, indicating that the manual revisions have been read and understood, and

then print his / her name under the signature. This receipt will then be returned to the SSQA Manager for filing with the associated revision.

Revision Record – A page contained in each manual that is a running list of all revisions entered into the manual. Each person who replaces pages in a manual must note the SMS Form 101 issuance date; the date inserted, and initials the Revision Record as a verification of the pages that were placed into the manual. A blank Revision Record may be issued with each complete re-issuance of the manual.

List of Effective Pages (LOEP) - The List of Effective Pages is a listing of all pages in the manual, with their current revision dates, including those that have been revised since the original manual was issued. This part of the manual is noted LOEP and follows the Revision Record section. The main body of the LOEP page is divided into two columns. The first column denotes the page number or appendix contained within the manual. The second column denotes the revision date of the associated page.

In all cases the Revision Date throughout the manual will indicate the chronological date of the modification to the page in the dd mm yyyy format.

Upon receipt, the manual holder will immediately insert the new material in his manual, complete the Revision Record page, and sign and return the receipt form to the SSQA Manager, or his designee, within 15 working days.

1.4 Manual Organization

This manual is organized around the four pillars of safety management systems:

- Safety Policy (Chapters 2 and 3)
- Safety Risk Management (Chapter 4)
- Safety Assurance (Chapter 5)
- Safety Promotion (Chapters 6 and 7)

The forms used by the SMS are contained in Appendix C. The appendices also contain further clarifying information about acronyms, SMS definitions, reference materials and checklists.

1.5 References

1.5.1 Associated Company Documents

- ATS Operations Manual
- Aeronautical Information Publication (AIP)
- Aeronautical Information Management (AIM) Manual
- Search and Rescue (SAR) Manual

- CNS Operations Manual
- Procedure Design Manual
- ATM Training Manual

1.5.2 The reference documents for the Safety Management System Manual are the following:

- ICAO Annex 11, Air Traffic Services
- ICAO Doc 4444, Air Traffic Management
- ICAO Doc 9859, Safety Management Manual
- Ghana Civil Aviation Regulations
- The Civil Aviation Act 678/2004
- ICAO Annex 19, Safety Management
- ICAO Annex 13, Accident and Incident Investigation

2. SMS Policies

2.1 General/ICAO SMS Requirements

Our transition to a Safety Management System provides a new way of approaching our business. Top management has dictated that the policies contained in this manual will be incorporated into our daily operations. This SMS will permeate all facets and departments of our organization. The various departments that make up the complete scope of our organization are listed in Section 1.1 of this manual.

The goal of our SMS is to establish a level of safety in our organization that goes beyond the traditional regulatory minimums. The policies documented in this manual have been carefully planned to produce this result. These policies and their associated outputs will be recorded, monitored, measured, and analyzed to ensure that we achieve our safety targets and goals. All organizational departments, both managers and employees, will be held accountable for the implementation of the policies contained in this manual.

ICAO Document 9859 defines a Safety Management System as: An organized approach to managing safety, including the necessary organizational structures, accountabilities, policies and procedures. This new business method will now apply throughout our organization.

ICAO Annex 11 requires all Air Traffic Service providers to implement SMS in their organization. According to ICAO, the acceptable level of safety that we must achieve must be specified through periodic collaborative agreement with the regulatory authority. This acceptable level of safety will be specified as safety targets and goals for our organization.

The following excerpts on SMS are from ICAO Annex 11:

> Annex 11, Section 2.26.1. States shall implement systematic and appropriate ATS safety management programmes to ensure that safety is maintained in the provision of ATS within airspaces and at aerodromes.
>
> Annex 11, Section 2.26.2. States shall establish the acceptable level of safety and safety objectives applicable to the provision of ATS within their airspace and at their aerodromes.
>
> Annex 11, Section 2.26.4. States shall identify actual and potential hazards and determine the need for remedial action, ensure that remedial action necessary to maintain an

acceptable level of safety is implemented, and provide for continuous monitoring and regular assessment of the safety level achieved.

Annex 11, Section 2.26.5. Any safety related change to the ATS system, including the implementation of a reduced separation minimum or a new procedure, shall only be effected after a safety assessment has demonstrated that an acceptable level of safety will be met and users have been consulted.

Additional ICAO guidance on the intended scope and management of SMS is located in ICAO PANS-ATM Doc. 4444 Chapter 2.

2.2 Safety Policy

The safety policies that comprise our SMS have been defined by our top management and are described in this manual in Appendix N. These policies express our organization's commitment to the following principles:

1. We will establish an SMS and operate under the policies described in this manual.
2. We will achieve our operating goals more effectively through the implementation of our SMS.
3. We will give safety the same emphasis as the provision of air traffic services generation of products or revenues.
4. We will achieve the highest possible level of safety for our employees and customers through implementation of our SMS.
5. We will strive to achieve a continual improvement in our level of safety.
6. We will actively manage identified safety risks.
7. We will continue to comply with all ICAO Standards and Recommended Practices and all national regulatory requirements.
8. We will encourage employees to report safety issues without reprisal.
9. We will provide feedback to employees regarding results of safety analysis.
10. We will establish clear standards for acceptable behavior.
11. We will provide guidance for setting and reviewing safety objectives.
12. We will document our safety policies in this manual and reaffirm them in other company documents as appropriate.
13. We will communicate the policies, principles, and outputs of our SMS to all employees and responsible parties.
14. We will periodically review this manual to ensure it remains relevant and appropriate to the organization.

15. We will identify the responsibility and accountability of management and employees with respect to safety performance.
16. We will provide the environment, support and training necessary to achieve these goals.
17. We will supply the resources necessary for continual implementation of the SMS.
18. We will audit supporting service providers to ensure their implementation of SMS and organizational capabilities.

Our top management has created a formal statement of our commitment to SMS:

Our VISION: To achieve the highest degree of safety through the adoption of Safety Management Systems (SMS).

Our MISSION: To foster the development of structured aviation business plans that holds safety as an integral core value.

2.3 Safety Culture

Safety culture has been defined as: "An organization's values, beliefs, legends, rituals, mission goals, performance measures, and sense of responsibility to its employees, customers, and the community." Our culture consists of psychological (how people think), behavioral (how people act), and organizational elements.

It is the intention of top management to institute a positive safety culture in our organization. In order to accomplish this all staff must be responsible for and consider the impact of safety on everything they do. This way of thinking must be so deep-rooted that it truly becomes our "corporate culture." All decisions, whether by the Board of Directors or a new-hire employee, must consider the implications on safety. This culture will set the boundaries for acceptable behaviour in our organization. Every person associated with this organization must understand that, "This is how we do things here!"

The SMS policies in this manual have been designed to promote a positive safety culture in the four areas discussed below. Any observed deviations from these cultural norms should be reported to the SSQA Manager.

A. Informed Culture: Management intends to foster a culture where people understand the hazards and risks inherent in their areas of operation. Personnel are provided with the necessary knowledge, skills and job experience to work safely, and they are encouraged to identify the threats to their safety and to seek the changes necessary to overcome them.

B. Learning Culture: Learning in this organization is seen as more than a requirement for initial skills training; rather it is valued as a lifetime process. People are encouraged to develop and apply their own skills and knowledge to enhance organizational safety. Staffs are updated on safety issues by management, and safety reports are fed back to staff so that everyone can learn the pertinent safety lessons.

C. Reporting Culture: Managers and operational personnel freely share critical safety information without the threat of punitive action. Personnel are able to report hazards or safety concerns as they become aware of them, without fear of sanction or embarrassment.

D. Just Culture. While a non-punitive environment is fundamental for a good reporting culture, all employees must know what acceptable and unacceptable behaviour is. Negligence or deliberate violations will not be tolerated in this organization, even in our non-punitive environment. Our just culture recognizes that, in certain circumstances, there may be a need for punitive action and management will define the line between acceptable and unacceptable actions or activities.

Our safety culture is the product of our personal dedication and accountability of all employees. Individual efforts alone do not necessarily result in the desired outcome. Our organization realizes that a positive safety culture only develops with an aggregate attitude that is manifested by a pervasive type of safety thinking. This type of organizational thinking will permit our employees to have an inherently questioning attitude, a resistance to complacency, a commitment to excellence, and a sense of personal accountability. Our top management provides a vibrant, encouraging atmosphere in which individual growth is recognized and rewarded.

Employee SMS Recognition Programme

In order to further promote a positive safety culture throughout our organization, top management has instituted an employee SMS recognition program to honour individuals who make a significant contribution to safety. The award may be based on identifying and correcting a significant hazard, working over the course of the year in a safe and efficient manner, providing safety leadership to other employees, etc. To be considered for this award, employees may be nominated by their peers or company management using SMS Form 114. The employee's direct supervisor will endorse the nomination and forward to the Safety Committee or the SSQA Manager. Nominations will be received throughout the year.

2.4 Quality Policy

Our organization is dedicated to the principles of quality management. However, due to the limited size and complexity of our organization, the Quality Management System (QMS) is combined with the SMS under the supervision of the SSQA Manager.

2.5 Safety Planning

Top management is responsible for planning, organizing, directing, and controlling the safety management system in our organization. In order to accomplish this they have directed the preparation of this manual and approved its contents. This manual, with its various policies and procedures, constitutes the formal safety management plan of this organization and will be updated as required and used to govern the implementation and continued operation of our SMS on a daily basis.

The safety plan that governs the phased initial implementation of SMS in our organization is located in Appendix I of this manual. Detailed responsibilities of individual positions for the ongoing continued operation of the SMS are addressed in Section 3 of this manual.

2.6 Compliance with Legal and Other Requirements

It is the intent of top management that all persons in this organization will continue to comply with all ICAO Standards and Recommended Practices and all national regulatory requirements that pertain to our operations as discussed in Section 2.2 of this manual. Regulatory compliance is further assured by our policy to hire highly qualified individuals, provide effective training, and continue a collaborative partnership with our oversight organization, GCAA.

Additional systems to ensure regulatory compliance have been incorporated into the operational procedures found in the various departmental manuals. All employees are directed to report regulatory deficiencies to SSQA Manager. All regulatory deficiencies must be corrected with the urgency it requires.

2.7 Procedures and Controls

Procedures and controls with measurable criteria are essential to the successful operation of our SMS. Our organization utilizes an organization manual that incorporates our technical operating procedures. Managers will ensure the use of these procedures by review of work accomplished and through direct observation of daily operations. Records are kept to record the metrics of hazard reporting, risk analysis, risk mitigations, accidents, and incidents. These measurable

criteria are reviewed biannually to ensure that the objectives of our safety policy are being accomplished.

2.8 Emergency Preparedness and Response

Although our organization has taken every precaution to avoid mishaps and emergency situations, it is inevitable that minor incidents may still occur. In order to deal with these unexpected situations in a positive manner, we have developed an emergency preparedness and response plan. Due to the limited size and complexity of our organization our emergency response plan has not been developed as a formal separate document. Instead our emergency response plan has been incorporated into a simple checklist, which is included as Appendix K of this manual. In the event of an emergency situation requiring the use of this checklist, the Chief of Facility will utilize the checklist to ensure that its provisions are accomplished in a timely manner. Our emergency response system is occasionally tested through table top exercises and simulations.

As part of our ongoing safety assurance process, our organization has also developed an accident and incident investigation plan, and SMS Form 124, Accident and Incident Investigation form. These two items provide an organized process for the investigation of accidents and serious incidents. These documents are included in Appendix C and Appendix L of this manual.

2.9 Documentation and Records Management

Our organization maintains critical files, important records, and other information as dictated by regulatory compliance and good operating practice. These files are maintained using hard copy paper files located in file cabinets and proprietary computer systems. All records are maintained in structured systems that provide legibility, original dates, revision dates, and easy retrieval. All records are periodically reviewed, revised as necessary and approved for adequacy by authorized personnel.

The current versions of relevant documents are provided to all locations where operations essential to the functioning of the SMS are performed. Obsolete documents are promptly removed from all points of use and retained or discarded in accordance with the schedule below. The SMS revision process is described in Section 1.3 of this manual.

The following SMS records are retained:

A. SMS policies and objectives: (retained 3 years)

- The original SMS documents and subsequent revisions
- Potential Safety Hazard Reports

- Voluntary Safety Reports
- SMS Training records

B. Outputs of the SMS: (retained 10 years)

- Completed Hazard Worksheets (risk assessment & associated action plans)
- Minutes of the meetings of the safety committees
- Minutes of safety meetings
- Safety Bulletins
- Performance Indicator reports
- Annual Safety Report

C. Accident and Incidents: (retained 10 years)

- Completed accident and incident investigation reports
- If legal action is pending or anticipated accident/incident records will be kept until the legal action has been resolved.

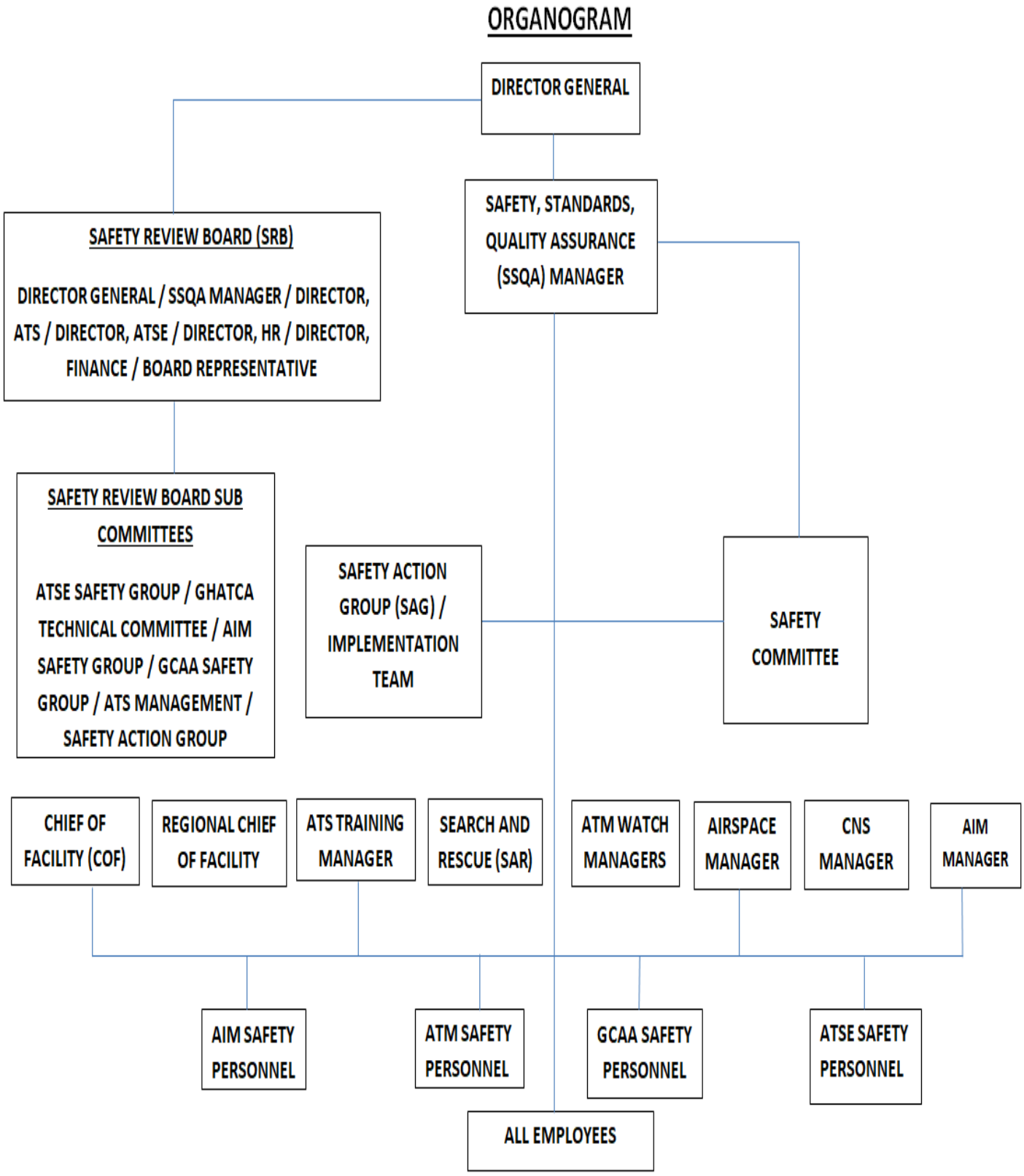
3. Organizational Structure & Responsibilities

3.1 Organization Chart

Our organization is composed of many types of employees who all contribute to our success. Each employee interacts with safety in some way, but the degree of SMS involvement varies for each position. Those employees who have more direct contact with safety management will have greater responsibilities with the SMS, while employees who are involved in more technical areas will have fewer responsibilities in the SMS. In order to specify the SMS responsibilities for each employee we have established the SMS job categories listed below.

- Top Management
- Safety, Standards and Quality Assurance (SSQA) Manager
- Safety Personnel
- Line Management
- Safety Review Board (SRB)
- All Employees
- Safety Action Group (SAG)
- Safety Committee

These positions are depicted in the organizational chart below;



3.2 Top Management

Top Management refers to the person or group of people who directs and controls the organization. Top management of this organization has ultimate responsibility for the SMS and will provide the resources necessary to implement and maintain the SMS. The responsibility and authority to accomplish the required SMS functions and tasks have been assigned to the Director General. Ultimate accountability for the SMS is still retained by top management.

The Director General fulfills the role of top management and has the responsibility to:

- Define the SMS policies and objectives
- Communicate to the organization the importance of an SMS
- Provide the resources (personnel, funding, and support) necessary to fulfill all the SMS requirements
- Facilitate implementation of the SMS across the organization
- Foster a strong safety culture within the organization
- Promote awareness of safety requirements throughout the organization
- Develop safety targets and measures
- Review safety data reports to determine the safety status of the organization

NOTE: The expectation of this section is that Top Management will have or develop an organizational structure that has the responsibility, authority and accountability assigned to it to assure the Safety Management System will function as planned. This includes an organizational chart that depicts the company structure. This organizational chart will interface with a document that includes a description of responsibilities and authorities.

Top Management will have the ultimate responsibility for the SMS and must provide resources essential to implement & maintain the SMS. Top Management may appoint a member of management who, irrespective of other responsibilities, will have responsibilities and authority that includes:

1. Ensuring that processes needed for the SMS are established, implemented and maintained.
2. Reporting to Top Management on the performance of the SMS and the need for improvement , and
3. Ensuring the promotion of awareness of safety requirements throughout the organization.
4. Aviation safety-related positions, responsibilities, and authorities must be defined, documented and communicated throughout the organization

3.3 Safety, Standards and Quality Assurance (SSQA) Manager

The SSQA Manager is responsible for accomplishing many of the daily tasks and functions of the SMS. In our organization the role and duties of the SSQA Manager discussed in this document will be fulfilled by our dedicated SSQA Manager. This person reports directly to the Director General.

The SSQA Manager is assisted by the Safety Personnel, Safety Action Group (SAG) (Implementation Team) and Safety Committee as shown in the chart above. The SSQA Manager provides direct supervision for these personnel and committee for all SMS related activities.

Safety is the responsibility of all our employees. The SSQA Manager's role is to provide safety expertise to assist all operating departments in achieving their safety targets.
The SSQA Manager coordinates SMS functions throughout the organization and is responsible for:

- Program leadership during initial implementation of the SMS
- Provide information and advice on safety matters to top management
- Provide support and consultation on safety management to all departments
- Develop and maintain specific SMS guidance materials and/or requirements
- Conduct the day to day activities associated with the SMS
- Operate the voluntary employee reporting system
- Approve safety risk management documents as delegated
- Accept certain levels of risk
- Safety planning and monitoring
- Act as Secretary to the Safety Review Board
- Chairs the Safety Action Group (SAG) and Safety Committee.
- Serve as the liaison to our oversight authority (CAA) on safety issues.
- Arrange safety training for all employees as described in Section 6 of this manual.
- Keep records of all safety related reports, incidents and accidents.
- Conduct safety audits of all departments in our organization in relation to the SMS.
- The SSQA Manager is responsible for analyzing safety data, identifying adverse trends and identifying indicators of potential safety issues.
- Investigate incidents and accidents.
- Conduct periodic audits of the SMS, operations, equipment and facilities of sub-concessions and sub-contractors.
- Conduct periodic observations and inspections of safety practices of all company operations, equipment and facilities.

Duties

- Receive employee voluntary reports.
- Receive hazards identified by audits and operational data.
- Log and track all identified hazards.
- Assist operational departments to identify risks associated with hazards.
- Assist operational departments to assess risks and develop risk controls.
- Provide communication to all employees on safety issues.
- Develop safety reports for top management.

3.4 Safety Personnel

The SSQA Manager is assisted by staff from various departments as referenced in the chart above. These staff shall serve as Safety Champions in their respective department. The Safety Manager provides direct supervision for these personnel for all SMS related activities and may assign SMS duties to these personnel, including the following:

- Receive reports from the voluntary employee reporting system.
- Receive hazards identified from audits and operational data.
- Log and track all identified hazards.
- Assist operational departments to identify risks associated with hazards.
- Assist operational departments to assess risks and develop risk controls.
- Provide communication to all employees on safety issues.
- Develop safety reports for SSQA Manger for top management.

3.5 Line Management

The management structure of our organization utilizes line managers and supervisors in one or more departments. In addition to their operational duties, all managers and supervisors are responsible for implementing and adhering to SMS guidance and processes within their span of control.
Specifically, line managers are responsible for:

- Creation of a strong safety culture within their department.
- Ensuring that all SMS training requirements are met.
- Requiring that all relevant safety information is communicated and used in decision-making.
- Ensuring that all changes are reviewed before implementation.
- Ensuring that all system-wide changes complete the risk management process before implementation.
- Identifying all hazards in their departments to the SSQA Manager

- Performing safety risk management analyses with assistance from the SSQA Manager
- Assisting the development of appropriate risk controls.
- Performing self-audits of their department.
- Cooperating with external evaluations and audits.
- Ensuring the continuing competence of the personnel within their area of responsibility.

3.6 Safety Review Board (SRB)

Our organization has established a formal Safety Review Board (SRB) to accomplish many of the duties required by the SMS. The Safety Review Board provides a forum for discussing safety-related issues from different perspectives, and thus comprised members from each of our operational departments. This multidisciplinary expertise provides a natural forum for sharing ideas and assessing safety performance from a system perspective.

The Director General will chair the Safety Review Board. This board will meet biannually and as and when necessary to discuss SMS activities and requirements.

The responsibilities of the Safety Review Board include:

- Act as a source of expertise and advice on safety matters to top management
- Review the progress of actions taken in response to identified hazards, incidents and accidents
- Accept risk control strategies that affect multiple departments
- Review internal safety audit reports for company-wide trends
- Review safety reports to be presented to top management

SRB also monitors:

- Safety performance against the safety policy and objectives
- Effectiveness of the SMS implementation and maintenance plan
- Effectiveness of the safety supervision of subcontracted operations (as applicable)

SRB ensures that appropriate resources are allocated to achieve the established safety performance goals and provides strategic direction to the Safety Action Group (SAG).

The Safety Review Board may also create sub-committees to perform detailed safety related work that is subsequently reviewed by the Board.

The following groups, in addition to their regular roles in our organization, will be considered as sub-committees of the Safety Review Board;

- ✓ ATS Management
- ✓ GHATCA Technical Group

- ✓ ATSE Safety Group
- ✓ AIM Safety Group
- ✓ Safety Action Group

3.7 All Employees

All employees and contractors are responsible for safety in this organization. Every employee, whether top management or a new-hire, must consider the safety implications of everything they do. Each individual is responsible for the safety of his or her actions. Each individual has the responsibility to communicate relevant safety-related information and to strive to achieve the highest possible level of safety in our organization.

All employees are reminded that our organization has instituted a Just Culture as described in Section 2.3 of this manual. While unintentional acts that inadvertently compromise safety will not be punished, the concealment of such information will not be tolerated. All employees must also understand that gross negligence or deliberate violations are unacceptable and may result in punitive action.

3.8 SAG - Safety Action Group (Implementation Team)

Our organization utilizes a Safety Action Group that is an integral and essential part of management at every level. The Safety Action Group serves as the action force behind a properly functioning SMS in the organization. It is important that all employees understand that a Safety Action Group is not a 'paper tiger'.

Such Safety Action Group must develop methods that encourage the flow of information including the implications of blame free reporting of unsafe behaviour. The Safety Action Group will work in close connection with the SSQA Manager and can serve as a subcommittee to it to perform specific functions and as such their decisions and actions will be monitored and reviewed.

Roles

1. Oversee operational safety in one functional area.
2. Usually report to SSQA Manager and take strategic direction from SSQA Manager.
3. Ensure identified risks are resolved.
4. Assesses the impact of operational changes.
5. Ensure implementation of corrective action plans.
6. Ensure that corrective action is taken in a timely manner.
7. Review the effectiveness of previous safety recommendations.
8. Safety promotion.

The composition of the Safety Action Group shall comprise but not limited to;

- 6 permanent member' representation from the Safety Committee of the ANS.
- 1 member' representation from the AIM section.
- 2 member' representation from the CNS section.
- 1 member representation from the organization's Human Directorate.
- 1 member representation from the organization's Finance Directorate.
- 1 member representation from the organization's ICT Directorate.

3.9 Safety Committee

The SSQA Manager is assisted by a safety committee comprising staff from the ANS as referenced in the chart above. These staff shall serve as Safety Champions and assist the SSQA Manager in the performance of his role.

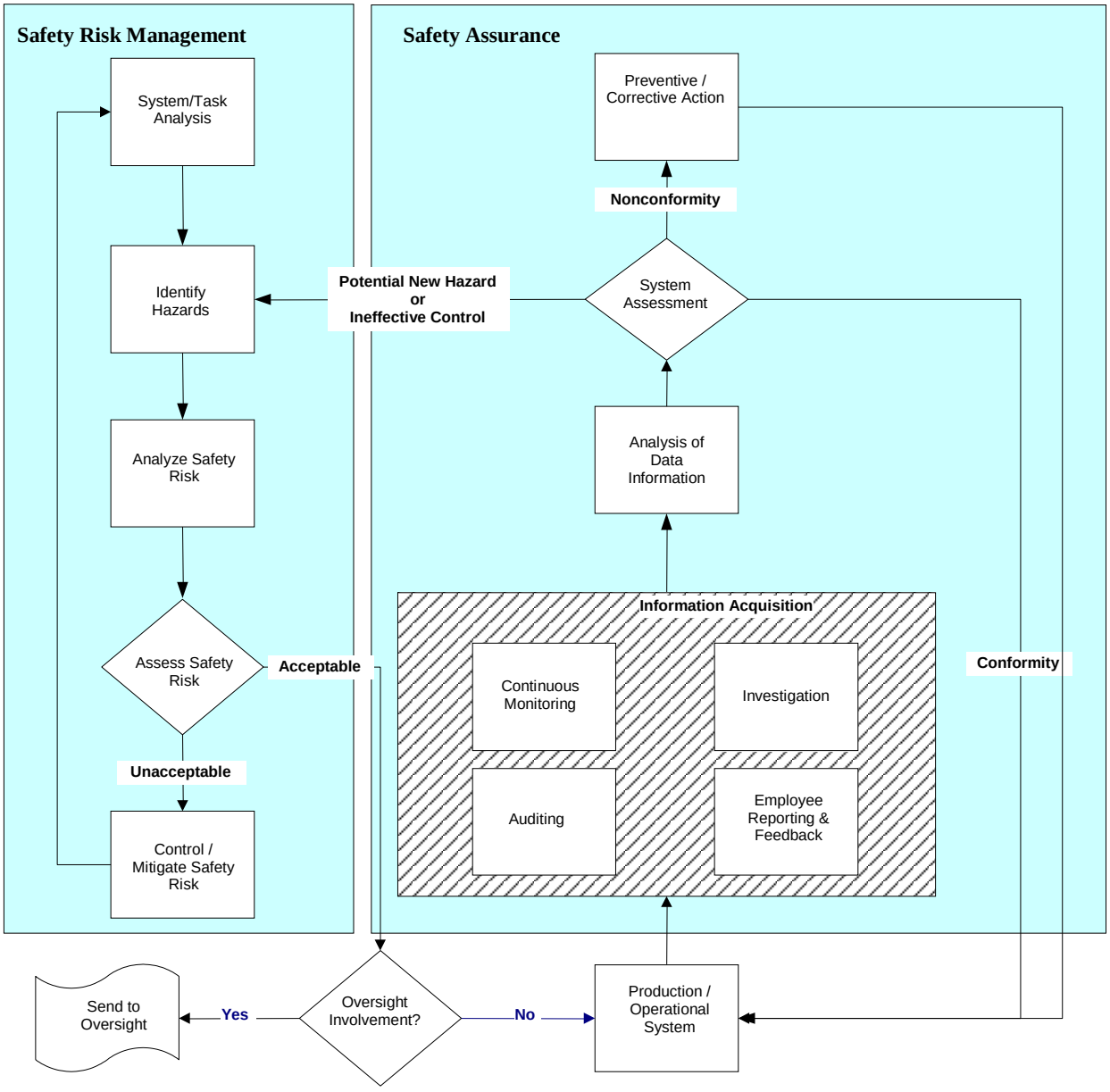
The Safety Manager provides direct supervision for the committee for all SMS related activities and may assign SMS duties to this committee, including but not limited to the following:

- Receive reports from the voluntary employee reporting system
- Receive hazards identified from audits and operational data
- Log and track all identified hazards
- Assist operational ATM Watch Manager to identify risks associated with hazards
- Assist ATM Watch Manager to assess risks and develop risk controls
- Provide communication to all employees on safety issues
- Develop safety reports for SSQA Manager
- Conduct audits, investigation and communicate reports and feedback appropriately.
- Assist in handling the Safety promotion platforms activities.

4. Safety Risk Management

4.1 Introduction

Safety Risk Management is a formal process that is used to identify hazards associated with our operations, analyze and assess the risks associated with those hazards, and to implement controls when necessary, to prevent future accidents and incidents. Our safety risk management process is both reactive and proactive. The process can also be used to prioritize the resulting process improvements to ensure the best allocation of our resources.



NOTE: The expectation of this section is that our organization creates a Safety Risk Management Programme. A Safety Risk Management Programme must include a method to identify hazards and analyze, assess, and control associated risks.

There is a reactive and a proactive aspect to Safety Risk Management. The reactive portion is accomplished by reviewing information gained through continuous monitoring, auditing, employee reporting, and investigations. Anytime there is a stimulus-response relationship, such as reacting to an employee report, the process is mostly reactive.

The proactive aspect of SRM comes from the system and task analysis discussed in Section 4.2.1 below. During this analysis you will review your existing and revised procedures to try to foresee and identify inherent risks that could cause future problems.

4.2 Hazard Identification

The purpose of hazard identification is to allow for a safety analysis of the risks associated with the hazard and the subsequent elimination of the hazard or the reduction of its risks to an acceptable level. While the identification of every conceivable hazard is impossible, all employees must exercise due diligence to identify hazards related to their operations. These hazards can be actual or foreseeable. All hazards identified to the SSQA Manager will be assigned a unique tracking number and be introduced into the Safety Risk Management process described in this chapter.

Our organization utilizes both reactive and proactive methods of hazard identification. Our traditional reactive methods of hazard identification will analyze hazards that have been identified or have already contributed to a mishap. These reactive processes include the conduct of investigations into accidents, incidents, occurrences, employee reports, and regulatory violations. Additional information on our reactive methodologies is shown below.

- Mandatory reporting programmes are described in section 4.2.3 of this manual and in Appendix N.
- Employees who are aware of hazards are required to report them to the SSQA Manager through the Voluntary Reporting Programme as described in section 4.2.4 of this manual and in Appendix N.
- The external audit process is described in section 5.3.4 of this manual.
- Our accident/incident investigation procedures are discussed in section 2.8 and Appendix N of this manual.

Our organization also utilizes proactive methods of hazard identification. Proactive methods attempt to identify and analyze hazards before they have resulted in an incident or accident. Our proactive methodologies are discussed below.

- During implementation of our SMS, all existing procedures and operations will be analyzed to identify inherent risks. This system and task analysis process is described in section 4.2.1 of this manual, and will be performed per the schedule in Appendix I.
- All significant changes to our operations will be analyzed prior to implementation to foresee new hazards and to revise the proposal to eliminate the hazards or to control the risks to an acceptable level. This process is described in section 4.2.2 of this manual.
- Continuous review of operational data and trend analysis to proactively identify hazards as described in section 5.3 of this manual.
- The internal evaluation process is described in section 5.3.3 of this manual.
- Analysis of operational watch log books to identify common trends and inherent hazards.

4.2.1 System and Task Analysis

Safety must be designed into all of our policies, procedures and operations. Our existing systems have already been designed and proven safe, but they will be reviewed to determine opportunities for improving their inherent levels of safety. Since this is a large task, the entire organization will be reviewed one department at a time, in accordance with the schedule defined in Appendix I & N: SMS Phased Implementation Plan.

The first step is to obtain or develop system and task descriptions to the necessary level of detail to allow for proper analysis. These systems consist of the organizational structures, processes, and procedures, as well as the people, equipment, and facilities used to accomplish the organization’s mission.

The system or task descriptions must be comprehensive and must cover all of our organizational processes. The descriptions should completely explain the interactions among the hardware, software, people, and environment that make up the system in sufficient detail to identify hazards and perform risk analyses. Long and excessively detailed system or task descriptions are not necessary as long as they are sufficiently detailed to perform hazard and risk analyses.

While sophisticated process development tools and methods are available, simple brainstorming sessions with managers, supervisors, and other employees which are often the most effective means will be used.

Hazards are to be identified considering procedures, human factors, equipment, training and related operational environment aspects. The analysis should also identify the

authority, responsibilities, communication interfaces, process measures, and controls, to assure that the operational tasks are accomplished as intended and that all related functions are interacted with properly. Use SMS Form 122 in Appendix C, System and Task Analysis Worksheet, to organize and record the results of this analysis.

Hazards identified by the System and Task Analysis process will go through the SRM process described in this chapter. Use SMS Form 121 in Appendix C, Hazard Worksheet, to organize the process and record the results.

NOTE: The expectation of this section is that our organization will create or review its operational policies and procedures with the intent to be able to identify and address the associated risks. This should include the following:

1. System and task descriptions developed to the level of detail necessary to identify hazards including human factors, equipment, procedures, training and related operational environment aspects.

2. System and task analyses identifying the authority, responsibilities, communication interfaces, process measures, and controls, to assure that the operational tasks are accomplished as intended and that all related functions are interacted with properly.

3. These concepts also apply to the external environment including the Air Transportation System and other companies that you contract with to purchase products/services.

4.2.2 Proposed Significant Operational Changes

When we propose to make changes to our systems, this is our chance to make sure that safety is designed into our policies, procedures and operations. Safety should be given consideration even in minor changes, but a more formal process is required for operationally significant changes.

We define an operationally significant change as the adoption of any work environment, condition, equipment, or procedure that is new to a department, or any change to an existing situation that affects more than one employee.

These significant changes must undergo Systems and Task Analysis (section 4.2.1) to identify hazards which will be entered into the Safety Risk Management Process for analysis and implementation of controls, as necessary, before introducing the change into

our operations. The goal is to eliminate or control all hazards and their associated risks before the organization is subjected to them.

The Chief of Facility (COF) of the department will report significant changes to the SSQA Manager at least thirty days before the change is scheduled to be put into effect. The SSQA Manager is responsible to manage the Systems and Task Analysis process with assistance provided by other operational manager(s).

4.2.3 Mandatory Reporting Programmes

Mandatory incident reporting systems require the reporting of certain types of events (e.g. serious incidents, runway incursions). This necessitates implementation of detailed regulations identifying the reporting criteria and scope of reportable occurrences. Mandatory reporting systems tend to collect more information related to high-consequence technical failures than other aspects of operational activities.

By regulation, we are required to participate in several mandatory reporting programmes. These programmes will continue, but will now become incorporated into our SMS as evidence in Appendix N. This means that all reports will still be made to the GCAA per standard procedures, but copies of the report will also be supplied to the SSQA Manager for inclusion into the Safety Risk Management process as appropriate.

4.2.4 Voluntary Reporting Programme

Employees who work daily in the operational areas of the organization are in the best position to be aware of hazards and incidents. Thus, all personnel are strongly encouraged to report all current or potential hazards, as well as actual incidents where our procedures did not adequately ensure the proper level of safety. Also, reports should be made when procedures were not followed for either inadvertent or intentional reasons. Reports may be made verbally to any staff member of the Safety Office as evident in Appendix N, but it is preferred that the report is made in writing to the SSQA Manager using SMS Form 120 with a full explanation of all related details, from which an analysis can be conducted. Any staff member of the Safety Office who receives a verbal report will complete SMS Form 120 for submittal to the SSQA Manager.

The Voluntary Reporting Programme is a confidential programme that protects the identity of the reporter as evident in Appendix N. Only the SSQA Manager, or his designee, will know the identity of the reporter and will keep that identity confidential. The SSQA Manager, or his designee, may contact the reporter to obtain additional

information necessary to fully analyze the situation. Further use of the reported information outside of the Safety Office will not contain any facts that can identify the reporter. The SSQA Manager may report the supplied information to the regulator, without revealing the identity of the reporter.

Additionally, the Voluntary Reporting Programme is a non-punitive programme that does not use the reported information to punish employees, but is instead focused upon developing process improvements to eliminate the identified hazards or control the risks associated with the report. It is recognized that the vast majority of incidents and accidents are due to inadequate procedures or the training given to employees about the procedures, so there is no benefit in allocating personal blame in these cases. However, this non-punitive policy does not apply to illegal acts or blatant disregard of regulations or procedures.

All reporters will receive a confidential confirmation of receipt of their report from the SSQA Manager. Upon resolution of the issue, the reporter will also receive a confidential summary of the actions taken. These corrective actions may also be communicated to the entire organization, but the identity of the reporter will remain confidential.

Our organization also maintains a suggestion box located at designated areas. Although employees are encouraged to use the dedicated reporting systems described above, any employee is also free to deposit hazard observations and safety information in the suggestion box.

Additional voluntary reporting models include reports made to airports, airlines, ATC, government agencies, and other independent organizations.

Reports collected through our voluntary reporting programme will be submitted to the SSQA Manager. Hazards identified from these reports will be submitted to our safety risk management process.

4.2.5 Operational Data Analysis

Data about the operation of our company is available from many sources. Operational data is data collected for both business and safety management purposes. This data includes ATCO logs, equipment logs, reliability data, etc. This operational data will be monitored and analyzed for trends and other indications of inherent hazards.

All identified hazards will be entered into the Safety Risk Management process by submitting SMS Form 121 to the SSQA Manager.

4.3 Risk Analysis

All incoming reports will first be screened to ensure they are not simple process quality problems that can be handled without risk analysis.

Trained personnel will evaluate each identified hazard, and the system state(s) in which it exists, to determine what controls exist to prevent or reduce the effect(s) of the hazard. The analysis will include events or conditions that could cause the hazard to reduce system operability or safety levels. Each hazard will be analyzed to determine its potential to cause damage or harm, known as risk. SMS Form 121, Hazard Worksheet, is used to organize the risk analysis process and record the results.

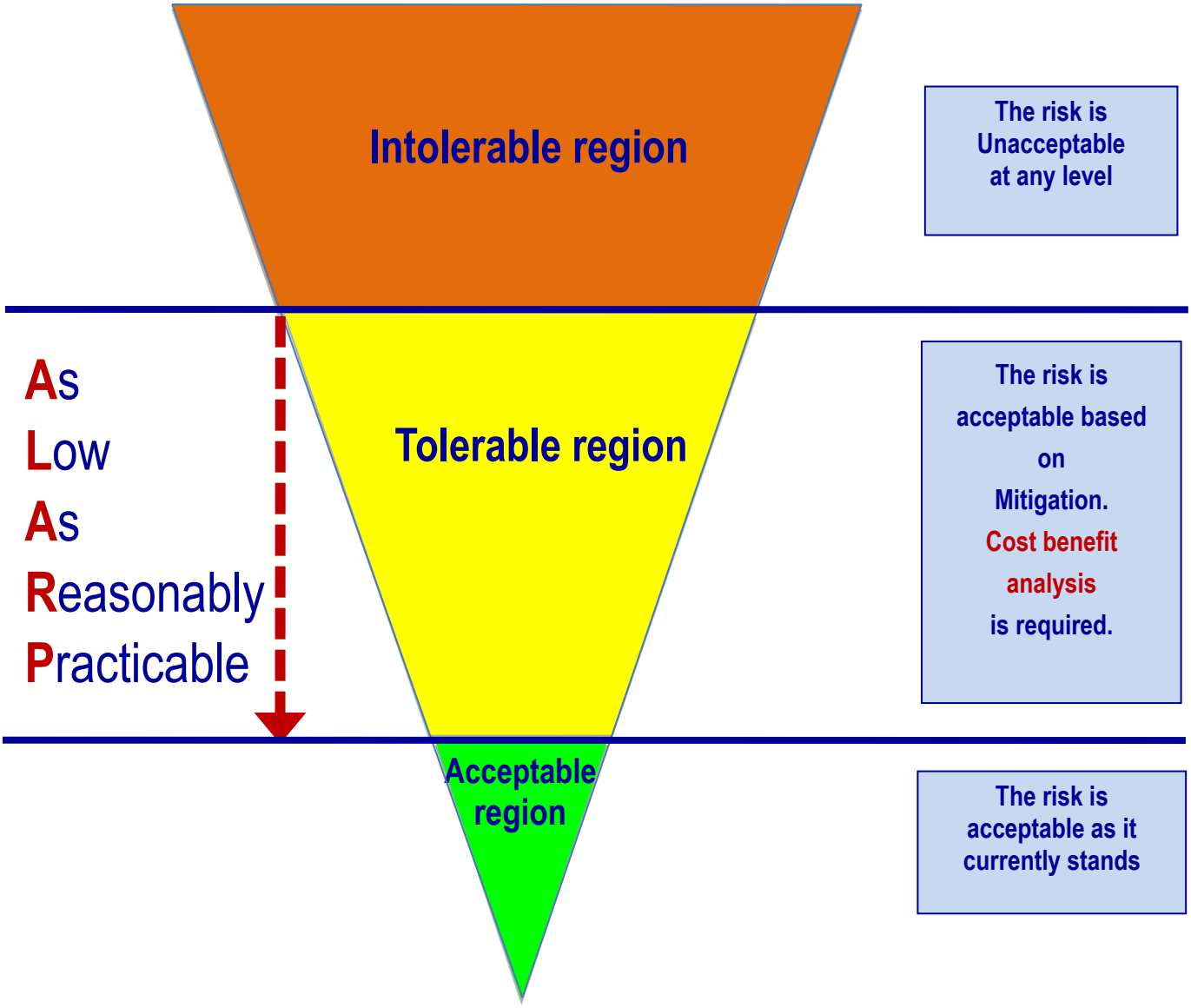
Each identified hazard has one or more associated risks. It is important for the risk analysis to first identify all reasonable risks arising from each hazard. Each risk can then be defined in terms of its predicted severity and its probability of occurrence.

The severity of each risk is determined by its worst credible outcome. Less severe effects may also need to be included so that they can also receive proper assessment. It is important that the probability of the severity of the effect is not considered at this time. A chart explaining the severity levels is shown in the table below.

The probability of outcomes is determined by statistical analysis or by expert opinion in the absence of other data. A chart explaining the probability definitions is shown in the table below.

Risk determination follows a simple three step process of condition (hazard), consequence (event), and risk (the probability and severity of the event.)

All the components are individually analyzed and accessed using the severity and probability of the worst potential effect. The composite of each component analysis is combined to assess the hazard. The conditions were determined to be probable, leading to hazardous conditions in each case**.**



Probability of Occurrence		
Qualitative definition	**Meaning**	**Val**
Frequent	Likely to occur many times *(has occurred frequently)*	**5**
Occasional	Likely to occur some times *(has occurred infrequently)*	**4**
Remote	Unlikely, but possible to occur *(has occurred rarely)*	**3**
Improbable	Very unlikely to occur *(not known to have occurred)*	**2**
Extremely Improbable	Almost inconceivable that the event will occur	**1**

4.4 Risk Assessment

To accomplish a risk assessment, our organization will plot the results of each analyzed risk on the Risk Assessment Matrix shown below. This will be accomplished only by trained personnel. The location of the risk on the matrix will determine the priority of corrective actions.

Severity Probability	Catastrophic A	Hazardous B	Major C	Minor D	Negligible E
Frequent 5	5A	5B	5C	5D	5E
Occasional 4	4A	4B	4C	4D	4E
Remote 3	3A	3B	3C	3D	3E
Improbable 2	2A	2B	2C	2D	2E
Extremely Improbable 1	1A	1B	1C	1D	1E

Unacceptable Risk
Acceptable with Mitigation
Acceptable Risk

4.4.1 Unacceptable Risk

Actual hazards with risks falling in this range require immediate action to eliminate the hazard or control the factors leading to its higher probability or severity. The SSQA Manager must receive immediate notification of such assessments. In some cases, it may be necessary to suspend certain operations until the implementation of adequate controls.

Potential hazards with unacceptable risks will require the development of controls within the normal course of business. For planned changes, the system with the controls in place will then undergo the full Safety Risk Management process to ensure the effectiveness of the controls and that no new hazards are introduced.

4.4.2 Acceptable with Mitigation

Actual hazards with risks falling in this range require the implementation of controls as expeditiously as possible within existing resource constraints. Continued Monitoring will be required to ensure the effectiveness of the implemented controls. Potential hazards in this range should result in revised operations or procedures to further reduce risk if economically feasible.

4.4.3 Acceptable Risk

Risks in this range may be accepted without further action. However, the objective of this SMS is to reduce risk to as low a level as practicable if it is economical to do so.

4.5 Risk Acceptance & Controls

The risk assessment of section 4.4 may indicate that controls need to be designed and implemented. These controls may be additional or changed procedures, new supervisory controls, addition of organizational hardware or software aids, changes to training, additional or modified equipment, changes to staffing arrangements, or any of a number of other system changes.

Risk acceptance and control will be accomplished in our organization using the Hazard Worksheet, SMS Form 121, found in Appendix C of this manual. This form must be generated and retained in company files for every risk that completes the risk assessment process.

4.5.1 Hierarchy of Controls

The process of selecting or designing controls will be approached in a structured manner. System safety technology and practice has provided a hierarchy or preferred order of control actions that range from most to least effective. Depending on the hazard under scrutiny and its complexity there may be more than one action or strategy that may be applied. Further, the controls may be applied at different times depending on the urgency of the required action and the complexity of developing more effective controls. For example, it may be appropriate to post warnings while a more effective elimination of the hazard is developed.

The hierarchy of controls is:

(a) Design the hazard out – modify the system (this includes hardware/software systems involving physical hazards as well as organizational systems).

(b) Physical guards or barriers – reduce exposure to the hazard or reduce the severity of consequences.

(c) Warnings, advisories, or signals of the hazard.

(d) Procedural changes to avoid the hazard or reduce probability or severity of associated risk

(e) Training to avoid the hazard or reduce the probability of an associated risk.

All controls will be clearly and fully documented to allow for further analysis, tracking and post-implementation validation.

4.5.2 Residual and Substitute Risk

It is seldom possible to entirely eliminate risk, even when highly effective controls are used. After these controls are designed but before the system is placed on line, an assessment must be made of whether the controls are likely to be effective and/or if they introduce new hazards to the system. The latter condition is referred to as "substitute risk," a situation where "the cure is worse than the disease."

4.5.3 Risk Acceptance

The approval of the SSQA Manager, or his designee, is required for the acceptance of risk. Risks that fall in the *Acceptable* range may be approved without further action, but prior efforts should be made to reduce the risk to as low a level as practicable if it is economical to do so. Risks that require controls may be submitted for approval when the developed controls have been deemed effective. Upon receipt of the risk acceptance from the SSQA Manager, the system may be placed into operation.

4.6 Risk Control Tracking

Risk control tracking will be accomplished in our organization using the Hazard Worksheet, SMS Form 121, found in Appendix C of this manual. These forms will be retained as specified in section 2.9 of this manual to provide a lasting record of our actions.

Each hazard is uniquely identified which allows us to validate that our risk controls were fully implemented and that they were found to be effective. The next process, safety assurance, uses auditing, analysis, and review systems to further monitor our risk controls to ensure they continue to be implemented as designed and continue to be effective in our changing operational environment. Any control that is found to be deficient or ineffective will have its associated hazard re-entered into the safety risk management process for the development of more effective controls.

5. Safety Assurance and Internal Evaluation

5.1 General Requirements

The primary purpose of our safety assurance process is to assure the performance and effectiveness of our risk controls. Safety assurance includes safety reviews, evaluations, audits, and inspections, as well as data tracking and analysis and investigations. Audits and evaluations support the essential function of the SMS by ensuring that safety objectives have been met. Internal audits are carried out within each department by departmental personnel. External audits will be performed of all organizations that provide service to us.

As our SMS matures, our existing Quality Management System audits will be phased into this Safety Management System. Our SMS will then include all functions accomplished by this earlier programme. This will expand our safety efforts to a much more comprehensive level.

5.2 System Description

Safety assurance and evaluation are proactive functions that look for safety issues and hazards that could lead to incidents and accidents. If personnel identify that existing risk controls have not been fully implemented, or are not being properly followed, they work with the department management to arrive at corrective actions to reinstate the control. In some cases, the resolution or corrective action could constitute a change to established procedures. Such proposed changes must be communicated to the SSQA Manager for analysis using the SRM process, prior to implementation. This is accomplished in conjunction with the System and Task Analysis process described in Section 4.2.1 of this manual.

5.3 Information Acquisition

Information relevant to a safety audit or evaluation can be acquired from a variety of sources, including:

a) Physical examination of the equipment used. This may include examining the front-line equipment used, its components, and the workstations and equipment used by supporting personnel.
b) Documentation spanning a broad spectrum of the operation, for example:
   1) maintenance records and logs;
   2) personal records/logbooks;
   3) certificates and licenses;
   4) in-house personnel and training records and work schedules;
   5) operator’s manuals and SOPs;

6) training manuals and syllabi;
7) manufacturers' data and manuals; and
8) regulatory authority records.

c) Interviews conducted with individuals. These can provide a principal source of information for any investigation. In the absence of measurable data, interviews may be the only source of information.

d) Direct observation of actions performed by operating or maintenance personnel in their work environment. This can reveal information about potential unsafe conditions. However, the persons being observed must be aware of the purpose of the observations.

g) Specialist advice. Investigators cannot be experts in every field related to the operational environment. It is important that they realize their limitations. When necessary, they must be willing to consult with other professionals during an audit or evaluation.

Our organization utilizes the following specific sources of information:

1. Mandatory reporting programmes as described in section 4.2.3 and Appendix N of this manual.
2. Voluntary Reporting Programme as described in section 4.2.4 and Appendix N of this manual.
3. The external audit process as described in section 5.3.4 of this manual.
4. Accident and incident investigation as discussed in section 2.8 and Appendix L & N of this manual.
5. System and task analysis as described in section 4.2.1 of this manual.
6. Change management as described in section 4.2.2 of this manual.
7. Continuous review of operational data as described in section 5.3 of this manual.
8. Internal evaluation as described in section 5.3.3 of this manual.

5.3.1 Continuous Monitoring

Our organization actively seeks the information necessary to confirm the successful operation of our SMS processes. Continuous monitoring involves analysis of operational data as it becomes available. The operational data listed in section 4.2.5 is continually monitored to discover any pertinent trends. The SSQA Manager is responsible to monitor this information and accomplish this review on a quarterly basis.

NOTE: The expectation of this section is that our organization will monitor operational data and data from the employee safety feedback system. The monitoring process shall include a method to determine the current system's effectiveness. The process must

include identification of hazards, and the effectiveness of safety risk controls. Products and services received from subcontractors must also be monitored.

5.3.2 Internal Audits by Operational Departments

Internal auditing (or self-audit) is a tool we employ to measure safety margins in our organization. Internal audit checklists are provided in Appendixes D and E to this manual. SSQA Manager will use these self-audit checklists to identify events, policies, procedures or practices that may be indicative of safety hazards. This will be accomplished annually.

5.3.3 Internal Evaluation

Internal evaluation is an on-going process that monitors the pulse of all organizational functions, including the SMS. Deficiencies, hazards, and associated risks identified by this process are then alerted to top management for action. Internal evaluation can identify problem areas before they result in a mishap and therefore contribute to our *proactive* hazard identification processes.

In our organization the Deputy Director Air Traffic Services is responsible to accomplish the internal evaluation function in conjunction with the management review function. The internal evaluation process is accomplished by direct sampling of organization operations on an ongoing basis.

5.3.4 External Auditing of the SMS

External audits of our organization are conducted by various national regulatory authorities and GCAA. External audits are used to review the results of organization's operations. Because this process generally identifies problems that have already occurred, external audit is part of our *reactive* hazard identification process.

Due to the size and complexity of our organization we feel that it is beneficial to also contract with external audit organizations to conduct intensive reviews of our operations. These external audits are accomplished by GCAA.

These external audits are normally accomplished on an annual basis. The details of these audits are specified in written contractual agreements.

All external audits and safety inspections provide us with valuable information that we can use to improve safety in our daily operations. All deficiencies identified through this process are entered into the SRM processes described in this manual.

5.3.5 Accident and Incident Investigation

Our organization investigates accidents, incidents, occurrences, and regulatory violations. These investigations are used to facilitate the implementation of more effective risk controls in our operation. These investigations are not intended to be a chase for the guilty party, but rather a move toward effective risk mitigation. This ensures the cooperation of those involved in the event and facilitates discovery of the underlying causes. The short-term expediency of finding someone to blame is detrimental to our long-term goal of preventing future mishaps.

Most incidents do not warrant investigation by either the State investigative or regulatory authorities. Many incidents are also not required to be reported to the State. Nevertheless, such incidents may be indicative of potentially serious hazards — perhaps systemic problems or latent conditions that will not be revealed unless the occurrence is properly investigated. In our organization, all these events are investigated and then enter our SRM process for hazard identification, tracking, and control.

When a mishap occurs, the SSQA Manager or team will investigate the event using our Accident and Incident Investigation Plan as evident Appendix N. Upon conclusion the investigator will document all findings and hazards discovered using SMS Form 124, Accident/Incident Investigation Form. These documents are located in Appendix C and Appendix L of this manual.

Further information on investigations can be found in section 2.8 and Appendix N of this manual. All incident and accident reports will be retained for the periods of duration specified in section 2.9 of this manual.

5.4 Analysis of Data

A critical component of our SMS is tracking and analyzing safety data to enhance our awareness of potentially hazardous situations. This screening and decision process will evaluate the data for significance and s applied to all incoming data. We collect and analyze safety data as described in this manual and support the sharing of the data to continually improve our level of safety.

This safety information is used to:

- Identify risks and verify the effectiveness of implemented controls
- Identify areas in which safety could be improved
- Contribute to accident and incident prevention
- Assess the effectiveness of training

The SSQA Manager is responsible to analyze safety data to identify adverse trends and to identify indicators of potential safety issues. Over time this data will help identify indicators that point to potential problems in the system. We also use safety data to assess the effectiveness of the SMS by tracking safety metrics.

5.5 System Assessment

Following the analysis of data accomplished in section 5.4, our SSQA Manager will accomplish a system assessment of our organization's operations. This will be accomplished on a semi-annually basis. The SSQA Manager may enlist the assistance of appropriate individuals throughout the organization for this purpose.

The system assessment will be accomplished by conducting a careful evaluation of the data collected by our SMS. The SSQA Manager and his team will render an opinion or judgment of the effectiveness and efficiency of the organization and the maturity of the SMS. These findings will then be compared to our safety performance goals. Action plans will be generated to improve deficient areas as discussed in section 5.6 below.

Whereas the internal audit process discussed in section 5.3.2 above is used to obtain objective evidence that existing policy, procedures or requirements have been met, the information obtained through the system assessment will be used to benchmark our performance against our system-wide goals and the best practices of our industry. These results will then be used to improve the performance of our organization.

The system assessment will be conducted using SMS Form 123, System Assessment Checklist, located in Appendix C of this manual. This form will organize the process and record the results of the assessment.

5.6 Preventive/Corrective Action

Following each audit cycle or system assessment described in this chapter, our organization will take action to address identified non-conformances and deficient areas. This response will include both preventive and corrective actions.

Preventive action is taken to eliminate the cause of a potential nonconformity or other undesirable potential situation.

Corrective action is taken to eliminate the cause of a detected nonconformity or other undesirable situation. There can be more than one cause of nonconformity. Corrective action is taken to prevent recurrence whereas preventative action is taken to prevent occurrence.

During the preventive/corrective action process, the SSQA Manager will present the observations of the audit or assessment verbally or written to the manager of the unit or section being audited. This initial process will be used to solicit additional information and correct any misunderstandings. Dates for issuing interim reports and for receiving comments will be mutually agreed upon.

After the comment period, planned remedial actions will be generated and documented for all identified areas of safety concern. Each departmental manager has the responsibility to develop a corrective action plan setting out the actions to be taken to resolve identified deficiencies or safety shortcomings. Each action item will be assigned an agreed time period for completion.

Implementation of the corrective action plan will be accomplished by the appropriate department manager with the assistance of the SSQA Manager. Final audit or assessment reports will include these corrective actions taken and detail any follow-up audit action proposed.

The manager of the area being audited is responsible for ensuring the timely implementation of the appropriate corrective actions. Any corrective actions that introduce new procedures or equipment must be submitted to the SSQA Manager for introduction into the SRM process prior to implementation.

5.7 Management Reviews

Top management shall review the SMS at planned intervals to ensure its continuing suitability, adequacy and effectiveness. This review shall include assessing opportunities for improvement and the need for changes to the SMS, including policy and objectives of the SMS.

The input to the management reviews shall include, at least, information on:

1. Results of audits, evaluations, and assessments
2. Customer feedback
3. Process performance and product conformity
4. Status of preventive and corrective actions
5. Follow-up actions from previous management reviews
6. Changes that could affect the SMS
7. Recommendations for improvement

***NOTE*:** The expectation of this section is that Top Management will conduct regular reviews of the SMS, including outputs of Safety Risk Management (Section 4), Safety Assurance (Section 5); and Lessons Learned (Section 7.4). Top Management must determine the reporting requirements (inputs) to support this review function.

Management reviews must include assessing the effectiveness of the organization's operational processes and the need for possible changes. Action items from previous Management Reviews must also be reviewed.

Top Management must document the outputs of the Management Review.

5.8 Continual Improvement

We are committed to continually improving our SMS and our overall level of safety. Actions that we will take to achieve continual improvement include the following:

1. Analyze and evaluate the existing situation to identify areas for improvement
2. Establish objectives for improvement
3. Search for solutions to achieve the objectives
4. Evaluate solutions and make a selection
5. Implement the selected solution
6. Measure, verify, analyze and evaluate results of the implementation to determine that the objectives have been met
7. Formalizing changes

Results of the above processes are reviewed as necessary to determine further opportunities for improvement. In this way, improvement is a continual activity. Feedback from customers and other interested parties, audits and review of the SMS can also be used to identify opportunities for improvement.

6. SMS Training

We will provide SMS training to all employees commensurate with their level of responsibility and their impact on the safety of our service. Training consists of initial SMS training and further recurrent training. Appendix N of the manual provides various training programmes. Aviation safety-related positions, responsibilities and authorities are defined, documented and communicated throughout the organization. To ensure currency, our training programme is reviewed and updated periodically.

6.1 Introduction

Successful operation of our organization's SMS is tied to the success of our safety management system training programme. All personnel must understand our safety philosophy, policies, procedures and practices. They must understand their roles and responsibilities within that safety management framework. Accordingly, safety training will begin with each employee's initial indoctrination and continue throughout the term of employment.

We are committed through SMS training to provide all of our employees with the skills and competencies to work safely and effectively.

To accomplish this we will:

- Identify skill requirements through SMS training needs and risk assessment
- Develop SMS training programmes in co-operation with employees and work areas
- Deliver SMS training programmes in a timely fashion
- Maintain records of all completed training

NOTE: Top Management must promote the growth of a positive safety culture through the organization's policies by assuring that employees receive initial and recurrent training commensurate with their positions.

Our organization will evaluate and document the effectiveness of training. For each safety-related job, the training standard must retain currency through periodic reviews and updates. This could require additional training if the job content changes significantly.
If investigation identifies an individual not meeting the performance standards, the investigation should determine the area of knowledge lacking and remedial training may be required.

Training is essential to any corporate improvement effort and the Safety Management System is no exception. Initial and recurrent training will be needed to provide the common philosophy, direction, expectations, and procedural requirements necessary for the Safety Management System to be effective.

The specific SMS training programmes utilized at our organization are discussed in the sections below.

6.2 Personnel Requirements (Competence)

Competency is the result of knowledge, skills, and abilities that are obtained by education, training, and experience. In order to ensure competency in our organization we have developed minimum qualification standards for all personnel and we will provide training to ensure that each individual meets or exceeds that standard.

Our organization provides initial and recurrent SMS training for all employees. The level of training provided will range from general safety familiarization to expert level for safety specialists. Training will be delivered in accordance with employee's SMS job category as discussed in section 3.1 of this manual. In our organization we utilize the SMS job categories listed below.

- Top Management
- SSQA Manager
- Safety Review Board
- Line Management
- Safety Personnel
- All Employees

Our SSQA Manager will collaborate with departmental managers of each employee to review job descriptions and determine the safety responsibilities of each position. These safety responsibilities will then be added to the associated job description. The SSQA Manager will conduct a training needs assessment to identify any special training needs associated with the position.

Initial SMS training will be provided in accordance with each employee's SMS job category. Ongoing SMS training will be incorporated into the employee's normal recurrent training programme. Details of the SMS specific training content are provided below. This training will be periodically reviewed and updated.

The following items also govern the application of SMS training at our organization:

1. Recurrent training will be accomplished in accordance with the procedures specified in section 6.2 above.
2. Records will be generated during all course offerings and retained to certify training completion and to facilitate a review or audit of training activities.
3. Additional specialized training may also be provided to any employee whenever it is warranted or deemed appropriate.
4. All employees must successfully complete required SMS training prior to further assignment.

NOTE: The expectation of this section is that Top Management will promote the growth of a positive safety culture by developing and documenting competency requirements for those positions identified as safety related. The organization must ensure that those individuals in safety related positions meet competency requirements for those positions. Competency is knowledge, skills, and abilities as obtained by education, training, and experience.

6.3 Top Management

SMS training for Top Management will be appropriate to a busy executives' schedule. This training will address the seven critical elements shown below.

1. Definition of SMS
2. Safety culture and value
3. The push for change
4. Legal implications of SMS
5. Front line involvement and committee process
6. Response to events and emergencies (i.e. safety decision making that may require accepting financial loss for benefit of Facility/Organization)
7. Implementing change (and the obstacles to change)

After these basics are covered, top management will then complete training on the implementation of SMS specific to our organization. This will include the items listed below.

a. The organization's SMS manual
b. Allocation of adequate resources to the SMS
c. Communication and promotion of SMS standards throughout the organization
d. Reporting procedures and responsibilities

6.4 Safety Personnel

SSQA Manager

The SSQA Manager must be familiar with all aspects of our SMS and its impact on the activities of all personnel. The SSQA Manager will complete all of the SMS training prescribed for every SMS job category. This will allow him to assess the quality of the training provided and to adjust the curriculum accordingly.

Additional technical training provided to the SSQA Manager must include at least the items listed below.

a. Operation of safety management systems
b. Familiarization with aircraft, fleets, types of operations, routes, etc.
c. Crisis management and emergency response planning
d. Accident and incident investigation
e. Safety promotion
f. Communications skills
g. Computer skills such as word-processing, spreadsheets, and data base management
h. Specialized training or familiarization (such as Flight Data Analysis, Safety Audits, Team Resource Management, or Normal Operations Safety Surveys)
i. Investigating safety occurrences
j. Monitoring safety performance
k. Performing safety assessments
l. Managing safety databases
m. Performing safety audits
n. Human factors training
o. Search and Rescue training

The training curriculum for the position of SSQA Manager is included in Appendix H of this manual.

Safety Specialist Training

Safety specialist training will be provided to employees who work in the Safety Office, serve on safety committees, or to any employee requiring this additional training. It is important that staff performing these functions receive adequate training in the special methods and techniques involved. This training may be provided from within our organization with the assistance of any

of our various departments, or may be provided externally by contract arrangement. Safety Specialist training items are listed below.

a. Investigating safety occurrences
b. Monitoring safety performance
c. Identifying hazards
d. Performing safety assessments
e. Managing safety databases
f. Performing safety audits
g. Operational data collection
h. Human factors training
i. Search and Rescue training
j. Computer skills such as word-processing, spreadsheets, and data base management
k. Specialized training or familiarization (such as Flight Data Analysis, Safety Audits, Team Resource Management, or Normal Operations Safety Surveys)

6.5 Line Management

Line management at our organization includes all supervisors and department managers. These supervisory and leadership personnel must have a thorough understanding of the principles on which our safety management system is based. They must also be aware of their particular SMS responsibilities that are associated with their department. Additional training will be provided to these individuals to ensure that they are conversant with their special role in the operation of the SMS. The additional training provided will address at least the items listed below.

- Specific SMS responsibilities and accountabilities of their position and department.
- Specific SMS responsibilities of their department and the employees they supervise
- Legal issues involved, for example, their legal liabilities.

6.6 All Organization Employees

All employees will receive an overview training on SMS that includes at least some of the following items:

a. Basic principles of safety management
b. Overview of this SMS manual
c. Proper safety culture
d. Importance of complying with the safety policy and procedures that comprise the SMS
e. Our organization’s past safety record, including areas of systemic weakness

f. Our safety goals and objectives;
g. Our voluntary and mandatory reporting systems
h. Requirement for ongoing internal assessment of organizational safety performance (e.g. summary of employee surveys, focus groups, safety audits and assessments)
i. Reporting accidents, incidents and perceived hazards
j. Safety promotion and dissemination of organization information
k. Human and Organizational Factors
l. Safety awards programmes
m. Safety audits
n. Familiarization of the layout and operations
o. Emergency procedures, assembly points, and escape routes
p. First aid facilities
q. Fire safety

7. Safety Promotion

7.1 Introduction

Safety Promotion refers to the collection of activities undertaken by our organization to promote a positive safety culture, to communicate the outputs of our SMS, and to ensure the application of safety lessons learned in order to foster the continuous improvement of safety in our operations. Safety Promotion is one of the four pillars of a SMS.

Our organization is committed to ensuring that all personnel are informed about our safety policies and goals, how well we are meeting those goals, results of accident and incident investigations, new safety practices, and other matters dealing with safety.

The SSQA Manager has been assigned the responsibility to ensure that the duties of this section are accomplished. Additional duties assigned to the SSQA Manager are described in Section 3.3 of this manual.

Internal evaluation and audit of the safety promotion functions within our organization will be accomplished semi-annually by the SSQA Manager. Details of our internal evaluation and audit programmes can be found in sections 5.3.2 and 5.3.3 and Appendix N of this manual.

7.2 Safety Culture

Safety is a core value of this organization and we strive for continual improvement. In order to promote the positive safety culture that we desire in our organization, top management has directed that all employees are responsible for and must consider the impact of safety in everything they do.

It is the stated purpose of our Top Management to ensure the growth of a positive safety culture throughout our organization. To this end we have established an *informed culture* in our organization where people understand the hazards and risks inherent in their areas of operation. This is accomplished through high quality training, On-the-Job Training (OJT), and continued coaching to ensure that all personnel are provided with the necessary knowledge and skills to work safely. For further information on technical training see the various department training programmes. Training specific to our SMS is described in Section 6 of this manual.

Our organization has also established a robust *reporting culture* that encourages every employee to contribute to our corporate safety knowledge base. The reporting programmes that have been implemented in our organization are described in Section 4.2 of this manual.

Top management has instituted a *just culture* in our organization where all employees are treated fairly and with respect, though still held accountable for their actions.

In order to ensure the growth of a *learning culture* in our organization, the outputs from our SMS, hazards identified, and safety lessons learned, are communicated to all employees through the methods described in this section. This information is also shared outside our organization with CAA and other stakeholders in accordance with established programmes and agreements.

In order to achieve the growth of a positive safety culture, we have implemented the following programmes:

1. A formal Safety Policy Statement has been published. This statement is included in Appendix G & N of this manual.
2. Management is committed to allocating resources that are required to operate and maintain our SMS.
3. Safety responsibilities for all organization's personnel have been specified in Section 3 of this manual.
4. All personnel must complete training on our Safety Management System as described in Section 6 of this manual.
5. The employee safety feedback system described in Section 4.2.4 of this manual is in operation 24 hours a day and provides for complete confidentiality.
6. Internal safety audits are completed by all departments on a regular basis as described in Section 5.3.2 of this manual.
7. The safety office maintains a database of safety information collected from every available source as described in Section 4.6 of this manual. This data is regularly analyzed, assessed, and applied to improve safety in our organization.
8. Clear channels of communication have been established throughout the organization and open, honest communications will be rewarded.
9. Safety issues are discussed at all staff meetings and other organization gatherings to provide for the open exchange of ideas.

10a. A safety newsletter is published regularly to keep all employees current on the status of our organization's activities, the operation of our SMS, hazards identified, safety actions taken, safety lessons learned, and significant events. This newsletter is distributed by email and posted to the organization website, magazine and is available to all employees.

10b. The organization maintains a Safety Bulletin Board where safety information is posted for all employees. Safety Bulletins describing new hazards and interim procedures are distributed immediately to affected personnel.

11. The organization undertakes safety promotional campaigns when necessary to promote system-wide awareness of important safety issues. These campaigns utilize various media such as posters, videos, displays, seminars, meetings, social media and/or workshops.
12. Safety Surveys; A safety culture survey will be conducted to test the level of our safety culture. This will be updated on a biennial basis to measure the improvements in our organizational culture resulting from the use of our SMS. The survey will reveal these major facets of the organization and how it behaves:
    - The difference in the way managers and workers see the culture.
    - Targets for resources.
    - A benchmark to measure any changes to procedures against a later survey.
    - The survey questionnaire form is found in Appendix F.
13. Our organization also presents an annual award to the employee that has had the greatest positive impact on our safety. For further information on our award programme, see section 2.3 of this manual.
14. The lessons learned from safety reports will be fed back to all concerned.

Our safety culture is discussed in more detail in Section 2.3 and Appendix N of this manual.

NOTE: The expectation of this section is that Top Management will promote the growth of a positive safety culture through the organization's safety policy. Top Management must document and demonstrate their commitment to safety, which must be visible to all employees. This commitment would include the allocation of resources, which is essential to the implementation and maintenance of your organization's SMS.

For Top Management's commitment to safety to be credible it must develop and implement an effective and non-punitive employee safety feedback system that provides confidentiality and fosters a climate, which welcomes criticisms, comments, and feedback from all levels.

Visible management commitment should help to promote a safety culture that is proactive toward risk reduction. Top Management must communicate the safety related responsibilities for the organization's personnel including clear and regular communication of safety policy, goals, objectives, and standards.

The SMS by virtue of Documentation and Records Management (section 2.9 of this manual) will provide a safety information system that includes an accessible and efficient means to retrieve information. This objective is best met by maintaining a software database.

7.3 Communication and Awareness

Successful Safety Management Systems are marked by good communication between all interested parties. This enhances safety, lifts morale, and improves productivity, efficiency, and profitability.

As communication failures are commonly identified as a source of problems for organizations, it is our intent to maintain a focus on improving communication so that we can improve performance on all levels. To achieve this we have initiated the communication and information dissemination programmes discussed in section 7.2 above.

NOTE: The expectation of this section is that Top Management will communicate the output of the organization's SMS to its employees. The organization should provide access to the outputs of the SMS to its oversight organization, in accordance with established agreements and disclosure programmes**.** When information is being disseminated a de-identification system must be used in order to maintain confidentiality

7.4 Safety Lessons Learned

Our organization has established a *learning culture* wherein the information contained in reports, audits, investigations, and other data sources is analyzed to generate safety recommendations which are then implemented in our daily practice. These *lessons learned* form the basis of our commitment to continuous improvement. The processes that transform raw data into meaningful safety actions are fully described in the sections on Safety Risk Management, Safety Assurance, and Training, Sections 4, 5, and 6 of this manual. These outputs from our SMS and lessons learned are then disseminated to all interested persons by the processes described in section 7.2 above.

NOTE: The expectation of this section is that our organization promotes continuous improvement of the SMS by using safety lessons learned and communicating them to all personnel.

Appendix A: Acronyms

AME	Aircraft Maintenance Engineer/Mechanic/or Technician
AMJ	Advisory Material Joint
AMO	Approved Maintenance Organization
ASAP	Aviation Safety Action Programs
ATC	Air Traffic Control
ATS	Air Traffic Service(s)
CAA	Civil Aviation Authority
CASS	Continuing Analysis and Surveillance System
CEO	Chief Executive Officer
FAA	Federal Aviation Administration (U.S.)
FBO	Fixed Base Operation
FDA	Flight Data Analysis
FDM	Flight Data Monitoring
FDR	Flight Data Recorder
FOD	Foreign Object Debris
FOQA	Flight Operations Quality Assurance
GANS	GCAA Air Navigation Service
GCAA	Ghana Civil Aviation Authority
G-VOCORS	GCAA Voluntary and Confidential Reporting System
G-MARS	GCAA Mandatory Reporting System
ICAO	International Civil Aviation Organization
IEP	Internal Evaluation Program
ISO	International Organization for Standardization
LOEP	List Of Effective Pages
LOSA	Line Operations Safety Audit
OJT	On-the-job Training
PANS-ATM	Procedures for Air Navigation Services — Air Traffic Management
SSQA	Safety, Standards & Quality Assurance Manager
SMM	Safety Management Manual
SMS	Safety Management System(s)
SOPs	Standard Operating Procedures
SRM	Safety Risk Management

Appendix B: Definitions

Accident – an unplanned event or series of events that results in death, injury, occupational illness, damage to or loss of equipment or property, or damage to the environment.

Analysis – the process of identifying a question or issue to be addressed, modeling the issue, investigating model results, interpreting the results, and possibly making a recommendation. Analysis typically involves using scientific or mathematical methods for evaluation.

Assessment – process of measuring or judging the value or level of something.

Audit – scheduled, formal reviews and verifications to evaluate compliance with policy, standards, and/or contractual requirements. The starting point for an audit is the management and operations of the organization, and it moves outward to the organization's activities and products/services.

> **Internal audit** – an audit conducted by, or on behalf of, the organization being audited.
>
> **External audit –** an audit conducted by an entity outside of the organization being audited.

Aviation Safety Action Programs (ASAP) – A program that encourages air carrier and repair station employees to voluntarily report safety information that may be critical to identifying potential precursors to accidents. Identifying these precursors is essential to further reducing the accident rate. Under an ASAP, safety issues are resolved through corrective action rather than through punishment or discipline. The ASAP provides for the collection, analysis, and retention of the safety data that is obtained. ASAP safety data, much of which would otherwise be unobtainable, is used to develop corrective actions for identified safety concerns, and to educate the appropriate parties to prevent a reoccurrence of the same type of safety event. An ASAP is based on a safety partnership that will include the CAA and the certificate holder, and may include a third party, such as the employee's labor organization. To encourage an employee to voluntarily report safety issues, even though they may involve the employee's possible noncompliance with regulations, enforcement-related incentives have been designed into the program.

Aviation system – the functional operation/production system used by the service provider to produce the product/service.

Continuous monitoring – uninterrupted watchfulness over the system.

Corrective action – action to eliminate or mitigate the cause or reduce the effects of a detected nonconformity or other undesirable situation.

Documentation – information or meaningful data and its supporting medium (e.g., paper, electronic, etc.). In this context it is distinct from records because it is the written description of

policies, processes, procedures, objectives, requirements, authorities, responsibilities, or work instructions.

Evaluation – a functionally independent review of company policies, procedures, and systems. If accomplished by the company itself, the evaluation should be done by an element of the company other than the one performing the function being evaluated. The evaluation process builds on the concepts of auditing and inspection. An evaluation is an anticipatory process, and is designed to identify and correct potential findings before they occur. An evaluation is synonymous with the term systems audit.

Flight Data Analysis (FDA) – A proactive and non-punitive program for gathering and analyzing data recorded during routine flights to improve flight crew performance, operating procedures, flight training, air traffic control procedures, air navigation services, or aircraft maintenance and design. FOQA is an example of a FDA program.

Flight Operations Quality Assurance (FOQA) – the routine downloading and systematic analysis of FDR data for quality assurance purposes.

Hazard – any existing or potential condition that can lead to injury, illness, or death to people; damage to or loss of a system, equipment, or property; or damage to the environment. A hazard is a condition that is a prerequisite to an accident or incident.

Incident – a near miss episode with minor consequences that could have resulted in greater loss. An unplanned event that could have resulted in an accident, or did result in minor damage, and indicates the existence of, though may not define, a hazard or hazardous condition.

Just Culture – an important aspect of a positive safety culture that ensures that while employees will be held accountable for their actions, they will at all times be treated fairly and with respect.

Learning Culture – an important aspect of a positive safety culture that ensures that the information contained in reports, audits, investigation, and other data sources is analyzed to generate safety recommendations which are then implemented in the organization.

Lessons learned – knowledge or understanding gained by experience, which may be positive, such as a successful test or mission, or negative, such as a mishap or failure. Lessons learned should be developed from information obtained from within, as well as outside of, the organization and/or industry.

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

Line management – management structure that operates the aviation system. This term is used for a position in a hierarchical organization. A line manager is concerned with making the resources available for a project or program by maintaining a pool of experts and a line manager

is responsible for financial management. A line manager always has authority of the employees he/she is responsible for. A line manager can decide on hiring and firing people.

Nonconformity – non fulfillment of a requirement (ref. ISO 9000). This includes but is not limited to noncompliance with Federal regulations. It also includes company requirements, requirements of operator developed risk controls or operator specified policies and procedures.

Operational life cycle – period of time spanning from implementation of a product/service until it is no longer in use.

Operationally significant change – the adoption of any work environment, condition, equipment, or procedure that is new to a department, or any change to an existing situation that affects more than one employee. (From Section 4.2.2.)

Operationally significant hazard – any identified hazard that has the potential to cause bodily harm or property damage. (From Section 4.2.5.)

Oversight – a function that ensures the effective promulgation and implementation of the safety-related standards, requirements, regulations, and associated procedures. Safety oversight also ensures that the acceptable level of safety risk is not exceeded in the air transportation system. Safety oversight in the context of the safety management system will be conducted via oversight's safety management system (SMS-O).

Preventive action – action to eliminate or mitigate the cause or reduce the effects of a potential nonconformity or other undesirable situation.

Probability – the estimated probability or frequency, in quantitative or qualitative terms, of an occurrence related to the hazard. Same as *likelihood.*

Procedure – specified way to carry out an activity or a process.

Process – set of interrelated or interacting activities which transforms inputs into outputs.

Product/service – anything that might satisfy a want or need, which is offered in, or can be purchased in, the air transportation system. In this context, administrative or licensing fees paid to the government do not constitute a purchase.

Product/service provider – any entity that offers or sells a product/service to satisfy a want or need in the air transportation system. In this context, administrative or licensing fees paid to the government do not constitute a purchase. Examples of product/service providers include: aircraft and aircraft parts manufacturers; aircraft operators; maintainers of aircraft, avionics, and air traffic control equipment; educators in the air transportation system; etc. (Note: any entity that is a direct consumer of air navigation services and or operates in the U.S. airspace is included in this classification; examples include: general aviation, military aviation, and public use aircraft operators.)

Records – evidence of results achieved or activities performed. In this context it is distinct from documentation because records are the documentation of SMS outputs.

Reporting Culture – an important aspect of a positive safety culture that cultivates the willingness of every member to contribute to the organization's knowledge base.

Residual safety risk – the remaining safety risk that exists after all control techniques have been implemented or exhausted, and all controls have been verified. Only verified controls can be used for the assessment of residual safety risk.

Risk – The composite of predicted severity and probability of the potential effect of a hazard in the worst credible system state.

Risk Control – refers to steps taken to eliminate hazards of to mitigate their effects by reducing severity and/or probability of risk associated with those hazards.

Safety assurance – SMS process management functions that systematically provide confidence that organizational products/services meet or exceed safety requirements.

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

Safety Management – the deliberate application of management practices to mitigate or reduce safety risks associated with flight operations and related ground operations to achieve high levels of safety performance. (CASA 2001)

A Safety Management System – an integrated set of work practices, beliefs and procedures for monitoring and improving the safety and health of all aspects of your operation. It recognizes the potential for errors and establishes robust defenses to ensure that errors do not result in incidents or accidents. (CASA 2002)

Safety Management System (SMS) – the formal, top-down business-like approach to managing safety risk. It includes systematic procedures, practices, and policies for the management of safety (as described in this document it includes safety risk management, safety policy, safety assurance, and safety promotion).

Product/Service Provider Safety Management System (SMS-P) – the SMS owned and operated by a product/service provider.

Oversight Safety Management System (SMS-O) – the SMS owned and operated by an oversight entity.

Safety objectives – something sought or aimed for, related to safety.

NOTE 1: Safety objectives are generally based on the organization's safety policy.

NOTE 2: Safety objectives are generally specified for relevant functions and levels in the organization.

Safety planning – part of safety management focused on setting safety objectives and specifying necessary operational processes and related resources to fulfill the quality objectives.

Safety risk – the composite of predicted severity and probability of the potential effect of a hazard.

Safety risk control – anything that reduces or mitigates the safety risk of a hazard. Safety risk controls must be written in requirements language, measurable, and monitored to ensure effectiveness.

Safety risk management (SRM) – a formal process within the SMS composed of describing the system, identifying the hazards, assessing the risk, analyzing the risk, and controlling the risk. The SRM process is embedded in the processes used to provide the product/service; it is not a separate/distinct process.

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

Severity – the consequence or impact of a hazard in terms of degree of loss or harm.

Substitute risk – risk unintentionally created as a consequence of safety risk control(s).

System – an integrated set of constituent elements that are combined in an operational or support environment to accomplish a defined objective. These elements include people, hardware, software, firmware, information, procedures, facilities, services, and other support facets.

Top Management – The person or group of people who directs and controls an organization. Same as *senior management*. See also: ISO 9000-2000 definition 3.2.7.

Voluntary Self-Disclosure Program – any program that encourages persons and companies in the aviation industry to voluntarily report inadvertent violations of established regulations. Violations reported under this program will normally be closed out with an administrative action instead of a monetary penalty.

Appendix C: SMS Forms

GENERAL

This appendix lists the forms used by the Ghana Air Navigation Service Safety Management System. This Appendix is arranged by form number. The Forms Index Reference reflects the Form No., Name, Revision date, and associated SMS Manual section referenced. Not all forms contain written in-depth instructions due to the self-explanatory nature of the form.

POLICY

All forms must be completed in ballpoint ink (Preferably BLACK ink). For reasons involving record keeping, completed forms are occasionally reproduced and distributed interdepartmentally and to outside agencies.

1. Information must be presented in a legible manner.
2. Signature and employee number (if applicable) must be legible.
3. Scribbling over with the intent to obliterate what has already been written violates professional standards and regulations. It is acceptable to draw one line through the error and state "entered in error" or words similar and initial adjacent to the error.

SMS FORMS INDEX REFERENCE

NUMBER	NAME	REVISION DATE	MANUAL SECTION
100	Manual Distribution List	DEC / 2019	1.3
101	Manual Revision Transmittal	DEC / 2019	1.3
102	Manual Change Request	DEC / 2019	1.3
110	Qualified Internal Auditors	DEC / 2019	6.2
111	Individual Employee Training Log	DEC / 2019	6.2
112	Individual Employee Training Record	DEC / 2019	6.2
113	Course Attendance Record	DEC / 2019	6.2
114	Employee SMS Recognition Nomination	DEC / 2019	2.3
120	Hazard Identification Report	DEC / 2019	4.2.4
121	Hazard Worksheet	DEC / 2019	4.3
122	System & Task Analysis Worksheet	DEC / 2019	4.2.1
123	System Assessment Checklist	DEC / 2019	5.5
124	Accident & Incident Investigation	DEC / 2019	2.8
125	ATS Occurrence Report Form A – Tower	DEC/ 2019	C
126	ATS Occurrence Report Form B – ACC / Approach	DEC / 2019	C
127	ATS Occurrence Report Form C – Equipment Serviceability	DEC / 2019	C
128	ATS Watch Managers Monthly Report Form D	DEC / 2019	C
129	Voluntary / Confidential Reporting Form	DEC / 2019	C27

MANUAL DISTRIBUTION LIST – SMS FORM 100

Manual Control No.	Division / Organization	Name	Comments

MANUAL REVISION TRANSMITTAL – SMS FORM 101

Issuance Date: _____Effective Date:_____

Each manual holder issued a Safety Management System Manual is responsible for keeping it up to date with revisions and amendments. The revision must be inserted into the manual within fifteen (15) days of receipt.

Review this Revision and file the pages in your Manual in accordance with the following instructions.

SIGN OFF REVISION RECORD AT FRONT OF YOUR MANUAL AND BELOW:

REMOVE & DESTROY		INSERT		
VOLUME / CHAPTER / SECTION	PAGE	PAGE	REV. DATE	REMARKS

Date Received: _____ Date Inserted: _____

I have inserted all pages included in this transmittal and have recorded it on the Revision Record Sheet. I have read the Revisions, understand the information contained in the Revision and have retained a copy of this form for my records.

Date:…….
Station: ……...
Manual Control No.:…….....
Name:……..
Signature:……..

PLEASE RETURN TO:
SSQA MANAGER:
BY:

MANUAL CHANGE REQUEST – SMS FORM 102

Manual / Document Title: Ghana Air Navigation Service Safety Management System Manual	
Chapter / Section Title:	**Subject:**
Revision Date:	**Page No.:**
Brief Description of Change Subject:	
References:	
Department:	**Date:**
Name:	**Signature:**
NOTE: Upon completion, send to : **SSQA MANAGER**	
Internal Evaluation Review Summary:	
Accept: ☐ Yes ☐ No ☐ Further Review	
If rejected, state reason(s):	
Accomplished By Title Date	
Temporary Revision Required: ☐ Yes ☐ No	
To be incorporate in Revision:	
Response to Originator Date:	

QUALIFIED INTERNAL AUDITORS – SMS FORM 110

Employee No.	Name	Qualified Date

INDIVIDUAL EMPLOYEE TRAINING LOG – SMS FORM 111

Name _____ Employee # _____ Sta. _____

Job Title _____ Date of Hire _____

Date	Description of Training	Hours	Score	Instructor

INDIVIDUAL EMPLOYEE TRAINING RECORD – SMS FORM 112

Name:_____ Employee # _____

License # _____ Training Sta. _____
(If applicable)

Training Date _____ Hours _____ Score _____

Type of Training: Initial ☐ Recurrent ☐

☐ Internal Evaluation Program Indoctrination

☐ Internal Auditing Process

☐ Regulator Regulations Familiarization

☐ College Courses Type _____

☐ Home Study course material Type _____

☐ Industry-sponsored seminars / workshops Type _____

☐ In-House (Computer Based Training, etc.) Type _____

☐ On the Job Training Type _____

☐ Other Description _____

_____

_____

Instructor:_____ _____
Name **Organization**

_____
Signature

COURSE ATTENDANCE RECORD – SMS FORM 113

Course Title _____ Hours _____

Class Dates _____ To _____ Location _____

EMPLOYEE NO:	STUDENT NAME
1. _____	_____
2. _____	_____
3. _____	_____
4. _____	_____
5. _____	_____
6. _____	_____
7. _____	_____
8. _____	_____
9. _____	_____
10. _____	_____
11. _____	_____
12. _____	_____

INSTRUCTOR

Name	Signature	Organization
_____	_____	_____

EMPLOYEE SMS RECOGNITION NOMINATION – SMS FORM 114

Nominator's Name:		**Department(s):**	
Nominee's Name:		**Nominee's Department:**	
Nominee's Supervisor:		**Supervisor's Signature:**	
Description of action(s) worthy of recognition:			
Date and place observed:			
To be completed by the Safety Committee:			
Date received:		**Date reviewed:**	
Additional information:			
Nomination Accepted:	**Yes or No**	**Date:**	**Comments:**
Award Level Granted:		**Date**	**Comments:**

HAZARD IDENTIFICATION REPORT – SMS FORM 120

Your Name (optional):	**Department:**
Telephone:	
The above information is confidential. This portion will be removed from the form and returned to you as a receipt. No record of your identity will be kept. You may be contacted for additional information prior to submitting the information into the SMS process.	
✂ –	
Description of the issue or hazard (If additional space is needed please write on a separate plain sheet and attach):	
Date and place observed:	
How do you recommend fixing the problem?	
To be completed by the SSQA Manager:	
Hazard Tracking Number Assigned:	
Investigator Assigned:	**Date assigned:**
Action taken by Safety Team:	

Actions Accepted:	**Yes or No**	**Date:**	**Comments:**
Further Action Required:	**Yes or No**	**Date**	**Comments:**

HAZARD WORKSHEET – SMS FORM 121 (page 1)

Existing Safety Controls	
Probability / Rationale	
Severity/ Rationale	
Possible Effect(s)	
System State	
Causes	
Hazard Description	
Hazard #	

HAZARD WORKSHEET – SMS FORM 121 (page 2)

Follow-up Audit Date	
Control Implemented Date	
Control Planned Date	
Control Assigned To:	
Residual Risk	
Recommended Safety Controls	
Initial Risk	

SYSTEM & TASK ANALYSIS WORKSHEET – SMS FORM 122

Job Title:	**Job Location:**
Analyst Name:	**Date:**

Job Step	Job Step Description	Hazard(s)	Hazard Controls	Comments

SYSTEM ASSESSMENT CHECKLIST – SMS FORM 123

Analyst Name:			**Date:**	
Safety Goal Description	**Safety Goal Target**	**Current Performance**	**Status (Green, Yellow or Red)**	**Comments**

ACCIDENT & INCIDENT INVESTIGATION – SMS FORM 124

Type of Incident: ☐ Injury ☐ Weather ☐ Equip ☐ Field ☐ Terminal				**Case #:**	
Employee Name:				**Employee #:**	
Supervisor:				**Dept:**	
Field Location of Incident:				**Movement area Y/N:**	
Hospital (if applicable:					
Date of Incident:		**Time of Incident:**		**Date Reported:**	
Type of Occupational Injury/Illness or Damage:					
Part of Body Injured or Equipment Damaged:					
Probable Cause of Incident:					
Incident Site/Location of Occurrence:					
Type of Equipment involved (if applicable):					
Related Act/Condition:					
Weather Conditions at Time of Incident:					
Description of Incident ***(Describe the incident in detail):***					
Investigation ***(Provide following information when applicable: Who was interviewed, what was photographed or diagrammed, what procedures were reviewed, what training records were reviewed, reenactments, etc.):***					
Area Supervisor (name of person responsible for the area the incident occurred in):					
Date of Analysis:		**This Form Completed By:**			

Accident/Incident Investigation Data Collection Form

ACCIDENT & INCIDENT INVESTIGATION – SMS FORM 124 (page 2)

List Contributing Factors:

1.	
2.	
3.	
4.	
5.	

Corrective Actions:
List Corrective Actions for Each Contributing Factor:

Corrective Action 1	**Owner:**		**Est. Completion Date:**	
Corrective Action 2	**Owner:**		**Est. Completion Date:**	
Corrective Action 3	**Owner:**		**Est. Completion Date:**	
Corrective Action 4	**Owner:**		**Est. Completion Date:**	
Corrective Action 3	**Owner:**		**Est. Completion Date:**	
Corrective Action 5	**Owner:**		**Est. Completion Date:**	

Analysis Checklist:

☐ **Photographs** ☐ **Witness Statement(s)** ☐ **Employee Statement(s)**

☐ **Diagrams** ☐ **Equipment History** ☐ **Walk-around Checklists**

☐ **Supervisor Statement(s)** ☐ **Checklists** ☐ **Training Records** ☐ **Police Reports**

Additional Comments:

ATS OCCURRENCE REPORT FORM A – SMS FORM 125

Ref No……..

A Data

1. Aircraft Cal Sign …….. 2. Aircraft type ……

3. Operator ……

4. Phase of Flight: ☐ Taxiing ☐ Landing ☐ Rolling ☐ Stationary

B The Incident

1. Date of incident ……Time …… Place …….

2. Detailed Description of Incident / Accident
(If additional space is needed, please write on a plain sheet and attach to this form)

……..

……..

……..

……..

……..

……..

Name of Controller …… Signature ……

Supervisor ……Signature…….Date/Time……..

C. Official Action

Chief of Facility (Comments / Actions Taken)

……..

……..

……..

Submitted to SSQA Manager Date ……..Time …….

SSQA Manager (Comments/Action Taken) …….

……..

……..

Investigator ……. Date ……..Time ……

ATS OCCURRENCE REPORT FORM B – SMS FORM 126

Ref No…….

A Data

1. Aircraft Cal Sign …… 2. Aircraft type ……

3. Registration …… 4. Operator ……..……

5. Place of Departure …….. . 6. Time Of Departure ……...

7. Destination ……...8. ETA …… 9. Route ……..

7. Phase of Flight: ☐ Climbing ☐ Descending ☐ Cruising

B The Incident

1. Date of Incident/Accident …….Time …… Place ……

2. Status of facilities …….

3. Detailed description of Incident/Accident
(If additional space is needed, please write on a plain sheet and attach to this form)

……..

……..

……..

……..

Name of Controller …… Signature ……Date…… Time……..

C. Official Action

Watch Manager's Comments/Actions Taken……..

……..

Chief of Facility (Comments / Actions Taken)……

……..

Submitted to SSQA Manager Date ……..Time ……

SSQA Manager (Comments/Action Taken) ……..……...

……..

Investigator …….. Date ……..Time ……

ATS OCCURRENCE REPORT FORM C – SMS FORM 127

Ref No……

1. Date …… Time …….

2. Facility/Equipment ……

3. Occurrence ……

……..

……..

……..

……..

Name of Controller ……... Signature …….

Supervisor……... ……..... Signature …….

Submitted to Chief of Facility Date ……Time…….

Chief of Facility (Comments / Actions Taken)…….

……

……

Submitted to Engineering Department

Received By ……Date ……..Time……

Action by Engineering Department

……

……

Form Return to Chief of Facility Date ……Time……...

Serviceability Checks by Chief of Facility / Watch Manager (Comments)……

……..

……..

Name …….Signature ……..Date ……..Time ……

ATC WATCH MANAGER MONTHLY REPORT FORM D – SMS FORM 128

Ref No……

1. Name …….....

2. Date …… Period …….....

PERSONNEL: Attendance / Movement	
EQUIPMENT: Serviceability Repair / Change	
OCCURENCES / INCIDENTS	
AERODROME	
MISCELLANEOUS Environment / Telephone Computer etc.	
GEERAL REMARKS	

Submitted To Chief of Facility Date ……Time……...

Received by Chief of Facility Date ……Time……...

VOLUNTARY AND CONFIDENTIAL REPORTING FORM – SMS FORM 129

Ref No…….

A AIRCRAFT RELATED EVENTS

1. Aircraft Cal Sign …… 2. Aircraft type ……

3. Registration …… 4. Operator ……..……

5. Place of Departure …….. . 6. Time Of Departure ……...

7. Destination ……...8. ETA …… 9. Route ……..

7. Phase of Flight: ☐ Climbing ☐ Descending ☐ Cruising ☐ Taxiing
☐ Landing ☐ Rolling ☐ Stationary

B. OTHER EVENTS ☐ Equipment /Facility ☐ Procedures ☐ Personnel ☐ Others

C. THE OCCURRENCE

1. Date of Occurrence…….Time …… Place ……...

2. Status of facilities …….

3. Detailed Description of Occurrence
(If additional space is needed, please write on a plain sheet and attach to this form)

……..

……..

……..

……..

……

Name of Controller (Optional) ……Telephone ……

Signature …….Date…… Time…….

C. Official Action

Submitted to SSQA Manager Date ……..Time ……

SSQA Manager (Comments/Action Taken)……..

……

……

Assigned Investigator ……... Date ……Time ……..

Appendix D: SMS Audit and Internal Evaluation Checklist

These checklists are applicable to all internal and external audits.

Audit Information	
Person /Organization undertaking audit	
Organization being audited	
Information Sources	
Documents Reviewed	(list all documents reviewed in course of the audit) Note: This includes all Safety Reports and Safety Checklists pertaining to the operator to be audited for the previous 12 months.
Individuals Interviewed	(list all persons interviewed including title)
Operations Assessed	(list all operations that were observed during the course of the audit- e.g. fuelling of a B-747 on air bridge) Note; For the observation phase of the audit use Safety Checklists.

Management:

Is senior management committed to the SMS Programme?	
Is there a formal safety policy statement?	
Does the policy statement explicitly address apron and aircraft safety?	
Is the safety policy statement endorsed by the Board?	
Is the safety policy statement reviewed and revised at suitable intervals	
Is the safety policy publicized within the organization?	
Are safety performance indicators defined?	
Are levels of safety reviewed to check that they are still appropriate?	
Is the organization's SMS readily available to staff?	
Does the safety policy state that each individual has a responsibility for safety?	
Does the safety policy state who is ultimately accountable for safety in the organization?	
Does the organization have a SSQA Manager?	
Does the SSQA Manager report directly to Top Management?	
Is the SSQA Manager an enthusiast for his or her job?	
How, and by whom, are internal safety standards and procedures developed?	
Are Safety Standards and procedures reviewed regularly?	
How is non-compliance with organizational safety standards and procedures identified and dealt with?	
How is non-compliance with safety standards and procedures identified and dealt with?	
Are safety accountabilities reviewed after an organization change has taken place?	
If the organization is a subsidiary or division of a parent organization, is safety accountability and reporting linked into the parent organization? How?	
Does the organization have a safety committee?	
What processes are in place for staff to raise safety concerns with senior management?	
How, and by whom, are safety improvement suggestions investigated?	
How, and by whom, are all proposed changes to operations or equipment assessed to determine their safety impact?	
Are the roles and responsibilities of the personnel in the Safety Management System documented?	
Are sufficient resources (financial, human, hardware) made available for the Safety Management System?	
Is there an appropriate Emergency Response Plan?	

Safety Risk Management

Is there an effective ongoing hazard identification programme?	
Does the hazard identification program include a confidential reporting system?	
Are confidential reports properly de-identified?	
Are hazards associated with contracted agencies included in the Hazard Reporting	

System?	
Is there a procedure established for acknowledging safety-related reports?	
Is there a process whereby the hazards are continuously assessed for their risk potential (probability and severity)?	
Are the defences against the hazards identified?	
Does the process include the identification of the need for further defences or for hazard avoidance?	
Are the results of hazard reports and safety suggestions made available to the initiator?	
Are the results of hazard reports and safety suggestions made widely available within the Organization?	
Is the process for risk assessment and management fully documented?	
Does the Aviation Management System require the recording of identified hazards and defences?	

Internal Accident/Incident Investigation

Does a process exist for investigating accidents and/or incidents?	
Is the process investigating safety significant occurrences defined?	
How are accidents/incidents reported? By whom?	
How are reports of Accidents/incidents investigated and recorded? By Whom?	
Who decides if corrective action is necessary?	
How are corrective actions monitored to ensure implementation?	
Is there a requirement for safety audits within the organization?	
Who determines the need for corrective actions arising from the results of safety audits?	

Training

Is there a supply of safety-related literature (e.g., periodicals, magazines, books, articles, posters, videos) readily available to all employees who have safety responsibilities?	
Are employees encouraged and assisted in attending training courses and seminars related to safety?	
Are employees trained in the procedures and policy of the Safety Management System?	
Are new employees given sufficient training and checking in their technical duties prior to being permitted to operate either supervised or unsupervised?	
Are staffs given re-currency training to ensure that they can maintain their competency following periods of significant absence?	
Do staff members receive training prior to the introduction of any new equipment or new procedures?	
Is the continuation of training and checking of all employees adequate?	

Are trainers and checkers adequately trained and checked, both for competence and standardization?	

Supervision

Are safety responsibilities defined for each individual?	
How are the competency requirements determined for safety responsibilities? By whom? Consider equipment operation, driving on airside etc.	
Where are the competency requirements for safety responsibilities recorded?	
How is it decided if a member of staff meets the competency requirements for safety responsibilities?	
How often are staff competencies reviewed to ensure that the staffs remain competent for their safety responsibilities?	
What process is followed if it is determined that a member of staff is not fully competent for the safety responsibilities assigned?	
Are practices and procedures that affect safety routinely monitored?	
What arrangements are in place to enable detection of safety deviations from policy, standards and procedures?	
Is sufficient staff available to meet current and future operational requirements?	
Is the supervision proportionate to the safety requirements of the practice or procedure?	
Is the level of supervision proportionate to the safety requirements of the unit?	
Does the unit have adequate operational and supervisory staff to provide safe services?	
Have there been any recent changes to procedures or equipment used to perform employee tasks?	
Are practices and procedures that affect safety routinely monitored?	
Are current procedures appropriate for current work loads?	
Are employees well rested before beginning their work?	
What arrangements are in place to enable detection of safety deviations from policy, standards and procedures?	
Do all personnel have valid licenses and ratings in accordance with ICAO Annex 1 requirements?	
Do all personnel have valid licenses as required by State and local requirements?	

Equipment Maintenance

Is there a procedure for determining if equipment meets safety requirements?	
What is the frequency of the equipment checks for safety requirements? What is checked?	
What training is given to drivers who operate on airport ramp areas? How is it recorded?	

Who determines the training requirements? What are these requirements based on?	
Who monitors vehicle operation on airport ramp areas to ensure that authorized drivers are following proper safety practices and procedures?	
Do drivers inspect safety systems and equipment in vehicles prior to operation? How is this recorded?	
How often do ramp drivers inspect the maneuvering surfaces? How are deficiencies or safety hazards reported? Review reports for last 12 months	
How are driver reports followed-up? Are records kept?	
For airport fuel concessionaires: are hoses regularly pressure checked?	
Are safety checks conducted of airport ramp equipment? Are formal records kept? Review a sample of the records.	
Do staff members have reliable and adequate equipment and systems?	
Is there a procedure for determining if all equipment meets safety requirements?	
Are written records maintained when safety-critical equipment fails? Review all records.	

Engineering & Maintenance (E&M)

Does the maintenance management system define Critical Systems and equipment that are required for safe operations? Review Maintenance management system documents.	
Are safety critical systems and equipment inspected on a regular basis? How often?	
How are safety critical maintenance deficiencies reported? How are actions taken on them? How many have occurred in the past 12 months?	
How and who follows up on sub-contractor repairs of safety critical systems and equipment?	
If replacement or major repair of safety critical systems is required how is this programmed?	
What authorities are required for the capital replacement of safety critical systems or equipment?	
Are regular condition reports prepared for mission critical equipment noting any safety deficiencies? How are these reports followed-up? By whom?	
Are risk assessments of identified and potential hazards undertaken/ By whom?	
Have E&M staffs received safety training? How is this recorded?	
Have any safety incidents/accidents occurred in the previous 12 months where equipment, systems or infrastructure was determined to be a part of the causal factors? How were these followed –up?	
Are vehicles and equipment subject to a check of safety systems on a regular basis? What is the frequency?	

Sub - Contractors

Does the contract state that sub-contractors must satisfy our safety management standards and procedures?	
How are the safety requirements for sub-contractors determined and by whom?	
How, and by whom are safety requirements communicated to the sub-contractors?	
How, and by whom, is it decided whether the sub-contractor has an acceptable SMS in place?	
What procedures are in place to check that sub-contractors comply with our safety requirements?	
How is the competence of sub-contractors' staff checked? (Check records of re-training to utilize equipment, drive on airside etc.)	
Does the sub-contractor have a safety committee?	
How is the competence of sub-contractor staff checked?	
What process is followed if it is determined that a member of the sub-contractor staff is not fully competent for the safety responsibilities assigned?	
What arrangements are in place to enable detection of safety deviations from policy, standards and procedures?	
Is the supervision proportionate to the safety requirements of the practice or procedure?	
Are practices and procedures that affect safety routinely monitored?	

Appendix E: Alternate Audit and Internal Evaluation Checklists

Management and Organisation

Management Structure

1. Does the Organization have a formal, written statement of corporate safety policies and objectives?
2. Are these adequately disseminated throughout the organization? Is there visible senior management support for these safety policies?
3. Does the Organization have a safety department and/or SSQA Manager or similar position?
4. Is this department or SSQA Manager effective?
5. Does the department/SSQA Manager report directly to senior corporate management, to the Director General or the Board of Directors?
6. Does the Organization support periodic publication of a safety report or newsletter?
7. Does the Organization distribute safety reports or newsletters from other sources?
8. Is there a formal system for regular communication of safety information between management and employees?
9. Are there periodic company-wide safety meetings?
10. Does the Organization actively participate in industry safety activities?
11. Does the Organization actively and formally investigate incidents and accidents? Are the results of these investigations disseminated to other managers? To other operating personnel?
12. Does the Organization have a confidential, non-punitive incident-reporting program?
13. Does the Organization maintain an incident database?
14. Is the incident database routinely analysed to determine trends?
15. Does the Organization use outside resources to conduct safety reviews or audits?

Management and Corporate Stability

1. Have there been significant or frequent changes in ownership or senior management within the past three years?
2. Have there been significant or frequent changes in the leadership of operational divisions within the organization in the past three years?
3. Have any manager of operational divisions resigned from the Organization because of disputes about safety matters, operating procedures or practices?

Financial Stability of the Organization

1. Has the Organization recently experienced financial instability, a merger, an acquisition or major reorganisation?
2. Was explicit consideration given to safety matters during and following the period of instability, merger, acquisition or reorganisation?
3. Are safety-related technological advances implemented before they are dictated by regulatory requirement, i.e., is the Organization proactive in using technology to meet safety objectives?

Management Selection and Training

1. Is there a formal management-selection process?
2. Are there well-defined management-selection criteria?
3. Is management selected from inside or outside the Organization?
4. Is operational background and experience a formal requirement in the selection of management personnel?
5. Are first-line operations managers selected from the most operationally qualified candidates?
6. Do new management personnel receive formal safety indoctrination or training?
7. Is there a well-defined career path for operations managers?
8. Is there a formal process for the annual evaluation of managers?
9. Is the implementation of safety programs a specific management objective considered in the evaluation?

Work Force

1. Have there been recent layoffs by the Organization?
2. Are a large number of personnel employed on a part-time or contract basis?
3. Does the Organization have formal rules or policies to manage the use of contract personnel?
4. Is there open communication between employees and management?
5. Is there a formal means of communication among management, the work force and labour unions about safety issues?
6. Is there a high rate of personnel turnover in operations and maintenance?
7. Is the overall experience level of operations and maintenance personnel low or declining?
8. Is the distribution of age or experience level within the Organization considered in long-term Organization plans?
9. Are the professional skills of candidates for operations and maintenance positions evaluated formally in an operational environment during the selection process?
10. Are multicultural processes and issues considered during employee selection and training?
11. Is special attention given to safety issues during periods of labour-management disagreements or disputes?
12. Are the safety implications of deteriorating morale considered during the planning and implementation of reduction in work force or other destabilising actions?
13. Have there been recent major changes in wages or work rules?
14. Does the Organization have an all comprising employee health maintenance program that includes annual medical examinations?
15. Does the Organization have an employee-assistance program that includes treatment for drug and alcohol abuse?

Organization Training

1. Does the Organization have written standards for satisfactory performance?
2. Does the Organization have a defined policy for dealing with unsatisfactory performance?
3. Does the Organization maintain a statistical database of trainee performance?

4. Is this database periodically reviewed for trends?
5. Do instructors receive specialized training, recurrent training, and evaluation?
6. Is there a periodic review of training and checking records for quality control?
7. Are training and checking performed by formally organised, independent departments?
8. How effective is the co-ordination between operational departments?
9. Is English proficiency training provided?
10. Are English proficiency skills evaluated during training and checking?

Relationship with the Regulatory Authority

1. Are Organization safety standards set primarily by the Organization or by the appropriate regulatory authority?
2. Does the Organization set higher safety standards than those required by the regulatory authority?
3. Do the Organization's safety standards meet or exceed GCA Regulations criteria?
4. Does the Organization have a constructive, co-operative relationship with the regulatory authority?
5. Has the Organization been subject to recent safety-enforcement action by the regulatory authority?
6. If licenses are required, does the regulatory authority refuse to recognise the licenses issued by some other countries?
7. Does the Organization evaluate the licensing requirements of other countries when deciding whether to hire personnel who hold licenses issued by those countries?
8. Does the Organization consider the differing experience levels and other licensing standards of other countries when reviewing applications for employment?
9. Does the regulatory authority routinely evaluate the Organization's compliance with required safety standards?

Appendix F: Safety Culture Survey

Circle the appropriate number (1 to 5) in its box for each of the 25 questions below. If you **strongly disagree** with the statement, **circle 1**. If you **strongly agree, circle 5**. If your opinion is somewhere in between these extremes, **circle 2, 3** or **4** (for **disagree**, **unsure** or **agree**).

Please respond to every question. Adding all the responses gives a safety culture score for the company, which is checked against known benchmarks.

Question Number	**STATEMENT**	**ORGANIZATION RATING**				
		Strongly Disagree				Strongly Agree
1	Employees are given enough training to do their tasks safely.	1	2	3	4	5
2	Managers get personally involved in safety enhancement activities	1	2	3	4	5
3	There are procedures to follow in the event of an emergency in my work area.	1	2	3	4	5
4	Managers often discuss safety issues with employees.	1	2	3	4	5
5	Employees do all they can to prevent accidents.	1	2	3	4	5
6	Everyone is given sufficient opportunity to make suggestions regarding safety issues	1	2	3	4	5
7	Employees often encourage each other to work safely.	1	2	3	4	5
8	Managers are aware of the main safety problems in the workplace.	1	2	3	4	5
9	All new employees are provided with sufficient safety training before commencing work.	1	2	3	4	5
10	Managers often praise employees they see working safely.	1	2	3	4	5
11	Everyone is kept informed of any changes, which may affect safety.	1	2	3	4	5
12	Employees follow safety rules almost all of the time.	1	2	3	4	5
13	Safety within this Organization is better than in other Organizations.	1	2	3	4	5
14	Managers do all they can to prevent accidents.	1	2	3	4	5
15	Accident investigations attempt to find the real cause of accidents, rather than just blame the people involved.	1	2	3	4	5

Question Number	STATEMENT	ORGANIZATION RATING				
		Strongly Disagree				Strongly Agree
16	Managers recognise when employees are working unsafely.	1	2	3	4	5
17	Any defects or hazards that are reported are rectified promptly.	1	2	3	4	5
18	There are mechanisms in place in my work area for me to report safety deficiencies.	1	2	3	4	5
19	Managers stop unsafe operations or activities.	1	2	3	4	5
20	After an accident has occurred, appropriate actions are usually taken to reduce the chance of reoccurrence.	1	2	3	4	5
21	Everyone is given sufficient feedback regarding this Organization's safety performance.	1	2	3	4	5
22	Managers regard safety to be a very important part of all work activities.	1	2	3	4	5
23	Safety audits are carried out frequently.	1	2	3	4	5
24	Safety within this Organization is generally well controlled.	1	2	3	4	5
25	Employees usually report any dangerous work practices they see.	1	2	3	4	5
	SAFETY CULTURE TOTAL:					

Notes

Several separate results are obtained from a safety culture survey using this form:

1. A 'benchmark' safety culture score that can be compared with similar Organization world-wide.
2. A means of comparing the views of management with those of staff regarding the Organization's safety culture.
3. A means of evaluating the results of any changes made to the Organization's safety management system when a follow-up survey is carried out.
4. Identification of areas of concern, indicated by "1" and "2" responses which can assist in the allocation of safety resources.
5. A means of comparing the safety culture of different departments and/or operational bases.

The higher the value, the better the safety culture rating. Use the following as a guide only but an average Organization safety culture score of 93 is considered a minimum. Anything less would suggest that improvements are needed.

Poor safety culture	25-58
Bureaucratic safety culture	59-92
Positive safety culture	93-125

Organisations with a **poor safety culture** treat safety information in the following way:

Information is hidden
Messengers are shot
Responsibility is avoided
Dissemination is discouraged
Failure is covered up
New ideas are crushed

Organisations with a **bureaucratic safety culture** treat safety information in the following way:

Information may be ignored
Messengers are tolerated
Responsibility is compartmentalised
Dissemination is allowed but discouraged
Failure leads to local repairs
New ideas present problems

Organisations with a **positive safety culture** treat safety information in the following way:

Information is actively sought
Messengers are trained
Responsibility is shared
Dissemination is rewarded
Failure leads to inquiries and reforms
New ideas are welcomed

Appendix G: Safety Policy Statement & Objectives

Corporate Safety Policy Statement

Safety is the first priority in all our activities. We are committed to implementing, developing and improving strategies, management systems and processes to ensure that all our activities uphold the highest level of safety performance and meet national and international standards.

Our fundamental safety beliefs are:
1. Safety is a core business and personal value of this organization.
2. Safety is a source of our competitive advantage. Our business will be strengthened by making safety excellence an integral part of all our activities.
3. Accidents and serious incidents are preventable through the implementation of Just Culture.
4. All levels of management are accountable for our safety performance, starting with the Director General.

Our top management has created a formal statement of our commitment to SMS:

Our VISION: To achieve the highest degree of safety through the adoption of Safety Management Systems (SMS).

Our MISSION: To foster the development of structured aviation business plans that holds safety as an integral core value.

Safety Objectives

Our commitment is to:

a. Develop and embed a safety culture in all our activities that recognizes the importance and value of effective safety management and acknowledge at all times that safety is paramount;
b. Clearly define for all staff their accountabilities and responsibilities for the development and delivery of safety strategies and performance;
c. Provide adequate resources for effective SMS;
d. Identify hazards and minimize the risks associated with our operations to a point that is as low as reasonably practicable;
e. Ensure that externally supplied systems and services that impact upon the safety of our operations meet appropriate safety standards;
f. Actively develop and improve our safety processes to conform to world-class standards and exceed legislative and regulatory requirements and standards;
g. Ensure that all personnel are resourced with adequate and appropriate aviation safety information and training to implement safety strategy and policy;
h. Establish and measure our safety performance against realistic objectives and/or targets;

i. Achieve the highest levels of safety, standards and performance in all our activities and continually improve our safety performance;
j. Conduct safety and management reviews and ensure that relevant action is taken; and
k. Develop and implement quality management systems in line in its principles. However, due to the limited size and complexity of our organization, the Quality Management System (QMS) is combined with the SMS under the supervision of the SSQA Manager.

The core elements of our approach to safety are:

1. Senior Management and all personnel will be trained in their safety responsibilities and will be held accountable for their safety performance. Safety performance as an important part of our employee evaluation system will be recognized, rewarded and lessons learned shared with others.
2. Managers will ensure that regular safety audits, focusing on the behavior of people, as well as conditions of the workplaces are conducted.

Appendix H: SMS Training Curricula

OVERVIEW

Safety training is required for **ALL** Ghana Air Navigation Service personnel. The depth of training for each individual will be commensurate with his or her job duties.

The SSQA Manager and other safety specialists will receive training in all areas, including the design, implementation and maintenance of an SMS.

Top Management will receive training in at least Modules 1, 2, 3, 5, 6, & 11.
Line Management will receive training in at least Modules 1, 2, 3, 4, 5, 6, & 11.
All employees will receive training in at least Modules 2, 3, 5, & 6.

TRAINING CONTENT

The Course will address the following twelve features of an SMS. Each feature will be taught as a separate unit of study with reference to the overview above. It is important that the SSQA Manager learns how each unit works in conjunction with every other unit. Problem based learning is encouraged. The units, together with their purpose, learning outcomes and assessment methods are as follows:

UNIT ONE – SENIOR MANAGEMENT COMMITMENT:

Unit Rationale:
The purpose of this unit is to educate the student on the importance of top management commitment to, providing initiative to, and application of an SMS and how to achieve these management objectives.
Learning Outcomes:

- Assist senior management to demonstrate commitment to the SMS to employees by a variety of techniques including leading by example; and
- Inform and update senior managers' knowledge of an organization's SMS.
- *Assessment Methods:*
- The student should be assessed by:
- Problem based questions;
- Demonstration of techniques for communicating with senior management; and
- Practical exercises.

UNIT TWO – RESPONSIBILITY FOR THE SMS

Unit Rationale:
The purpose of this unit is to educate the student on their organizational role and how they should interact with the other people and groups within the organization. This includes understanding the functions of a SSQA Manager alongside other responsibilities when required (especially useful for a small General Aviation (GA) operator where the SSQA Manager may also be, for example the head of flying operations). Managers who understand their own responsibilities may then implement a system in which everyone in the organization can perform their role in the SMS.
Learning Outcomes:

- Determine an organization's structure efficiently and accurately including lines of communication and authority within an organization; and
- Design systems for the maintenance and revision of the SMS, within a wide range of organizational structures, including inputs, outputs and feedback from all staff.
- *Assessment Methods:*
- The student should be assessed by:
- Problem based questions;
- Observations; and
- Demonstration of the ability to formally report on an organization's management structure (flow charts etc).

UNIT THREE – ESTABLISHMENT OF A SAFETY ACTION GROUP

Unit Rationale:
It is important for an organization to have a Safety Action Group that is an integral and essential part of management at every level. It is important that all employees understand that a Safety Action Group is not a 'paper tiger'.
Learning Outcomes:

- The links between a SMS, the role of the Safety Action Group and an organization's safety culture (including the effects of a poorly functioning safety action group) and be able to determine if the organization's structure is such that a formalized Safety Action Group is appropriate.
- Identify those in an organization who should constitute a Safety Action Group from time to time.
- Develop systems to implement a Safety Action Group's decisions and monitor that implementation.

- Be aware of methods to encourage the flow of information to the Safety Action Group including the implications of blame free reporting of unsafe behaviour (covered in more detail in Unit 5).

Assessment Methods:

The student should be assessed by:

- Preparing sample documentation for reporting etc;
- Designing systems to support safety action groups;
- Questioning;
- Observations; and
- Practical exercises.

UNIT FOUR – HAZARD IDENTIFICATION AND RISK MANAGEMENT

Unit Rationale:

Hazard Identification and Risk management are crucial to understanding the practical threats to safety in an organization. It is essential that these two processes are part of an Organization's SMS so that the maximum increases in safety can be achieved.

Learning Outcomes:

- Determine "safety hazard" and "safety risk";
- Identify hazards and risks using a variety of tested methods;
- Identify who to include in discussion groups who work to identify, prioritize and manage hazards and be aware of methods to assist these groups in their decision making processes;
- Enlist the assistance of any employee or manager to assist in mitigating a particular hazard – remembering that safety improvement is the obligation of all members of an organization; and
- Demonstrate the ability to develop and utilize an effective Risk Management Tool.

Assessment Methods:

The student should be assessed by:

- Problem based questions;
- A report on a method for hazard identification and hazard management that identifies the method's strengths and weaknesses;
- Observation; and
- Practical exercises.

UNIT FIVE – ONGOING OCCURRENCE AND HAZARD REPORTING SYSTEM

Unit Rationale:

It is important to maximize the quality and flow of safety hazard information. An important strategy, though one which is often difficult to implement, is to deal with reports of unsafe behaviours in a way which does not discourage further reporting.

Learning Outcomes:

- Take advantage of existing reporting systems and develop further improvements to suit new situations, as appropriate;
- Determine what needs to be reported and by whom;
- Establish systems to ensure that reports are disseminated and acted upon;
- Avoid "shooting the messenger" to promote future reporting; and
- Develop and implement Data Management and Analysis processes.

Assessment Methods:

The student should be assessed by:

- Problem based written questions;
- Observation; and
- Practical exercises.

UNIT SIX – ESTABLISHING AND MAINTAINING A POSITIVE SAFETY CULTURE

Unit Rationale:

The purpose of this unit is to educate the student on what a safety culture is and the various approaches to establishing a safety culture. In particular, the student should understand how an SMS can alter an organization's safety culture.

Learning Outcomes:

- Establish communication systems and understand communication techniques;
- Discuss with staff the nature of a positive safety culture and its theoretical foundations;
- Apply methods for assessing safety culture and appreciate their limitations;
- Know how to promote a positive safety culture within the context of every aspect of a SMS;
- Manage expectations, given the often gradual nature of cultural change; and
- When responding to system reports, distinguish between an employee who may have been a victim of organizational deficiencies or improper management pressures from an employee who conducted themselves negligently or unsafely of their own volition and to respond appropriately.

Assessment Methods:

The student should be assessed by:

- Problem based questions on methods of cultural change;
- Questioning; and
- Practical exercises

UNIT SEVEN – SAFETY INDUCTION AND RECURRENT TRAINING

Unit Rationale:
It is crucial to promote the application of SMSs and for every employee to be involved.
Learning Outcomes:

- Record and review the current level of training, achievements and acceptance of SMS by every employee;
- Realize that the form and content of safety training will have an impact on safety culture;
- Train all employees to work on managing their own safety as active SMS members; and
- Recognize and use informal opportunities to instruct employees and management on safety.

Assessment Methods:

- Problem based questions;
- Observations; and
- Demonstration of technique.

UNIT EIGHT – SAFETY AUDIT/ASSESSMENT

Unit Rationale:
Safety assessments are an important part of an SMS. It is important for safety Managers and auditors to remain conscious of the overall objectives of an audit so that they are focused on safety improvement and not punishment. Further, audits represent an opportunity to demonstrate management commitment to the SMS. Within the context of an SMS, for example, an auditor should wear all appropriate personal protective equipment. A SSQA Manager must be aware of these issues.
Learning Outcomes:

- Plan an audit, prepare an audit checklist, conduct, report and evaluate the audit;
- Conduct audits in a way that is non-punitive and identifies successes as well as deficiencies;
- Realize the potential, which audits have, to impact upon safety culture and to complement all of the processes of the SMS; and
- Manage the SMS administrative processes and apply audit data to improve safety within the SMS.

Assessment Methods:
Students should:

- Demonstrate safety audit skills;
- Conduct a practical exercise; and
- Solve problems arising out of sample safety audit data.

UNIT NINE – OCCURRENCE REPORTING AND EVALUATION (INCLUDES QUALITY, AUDIT, COMPLIANCE, HAZARDS)

Unit Rationale:
It is important for every organization to comply with relevant legislation and regulations on reporting. At the same time, reporting and evaluation outcomes can assist the organization to properly manage and learn from occurrences, incidents and accidents.
Learning Outcomes:

- Interpret and comply with laws that apply to reporting of occurrences, incidents and accidents;
- Analyze occurrence, incident and accident reports to improve organizational safety.

Assessment Methods:

- Problem based questions; and
- Demonstration of reporting and evaluation techniques.

UNIT TEN – SMS REVIEW AND EVALUATION

Unit Rationale:
It is essential to continually review and evaluate an SMS for the purpose of sustaining and improving it. It is important that the SSQA Manager works on helping all members of an organization to maintain interest in and commitment to the SMS.
Learning Outcomes:

- To critically evaluate the SMS to determine its effectiveness;
- Seek out constructive criticism internally or from external sources as required; and
- Promote the SMS using appropriate techniques and to analyze the impact of these techniques on the safety culture. (For example, rewards for a reduction in incidents may simply stifle reporting).

Assessment Methods:

- Critical evaluation of sample SMS scenarios and development of solutions; and
- Problem based questions.

UNIT ELEVEN – EMERGENCY RESPONSE PLAN

Unit Rationale:
It is important that all employees know their role in an emergency. Safety Managers should have the skills to develop an emergency response plan.
Learning Outcomes:

- Develop a plan and support it with appropriate education, signs and appropriate contacts with emergency services;

- Recognize the psychological impact of disasters on employees, their families and the public, and know what to do; and
- Be aware of how to deal with the media

Assessment Methods:

- Develop a component of an emergency response plan;
- Problem based questions; and
- Practical exercises

UNIT TWELVE – DOCUMENTATION

Unit Rationale:

Documentation is good evidence of safety practices and it is an excellent source of data for reviews and comparisons with past performance. The SMS must be relevant to all employees and management, and therefore the SMS documentation must be clearly expressed and readily accessible.

Learning Outcomes:

- Prepare, update and maintain SMS documentation;
- Record and retain (in a way which renders them useful) all safety related reports and management actions; and
- Establish database systems or direct and advise experts to establish them.

Assessment Methods:

- Problem based questions;
- Observations; and
- Preparation of sample documentation.

Appendix I: SMS Phased Implementation Plan

Phase 1 – Planning & Organization

In phase 1, basic planning and assignment of responsibilities are conducted. Phase 1 begins with a gap analysis. From this gap analysis we will determine the current status of our safety management processes. From here, detailed planning for development of the remaining processes will be done. Phase 1 ends with the completion of an SMS implementation plan.

1. Identify and assign safety responsibilities to managers. Date: _____
    a. Management commitment and responsibility
    b. Safety responsibilities of managers
2. Identify the person responsible for implementing the SMS. Date: _____
    a. Appointment of key safety personnel
3. Conduct a gap analysis of existing resources compared to SMS requirements. Date: _____
4. Start developing a SMS implementation plan. Date: _____
5. Develop documentation relevant to safety policy and objectives. Date: _____
6. Develop and establish means for safety communication. Date:_____
7. Publish CEO or Corporate Safety Policy Statements Date:_____
8. Communicate the SMS implementation to all employees. Date:_____
9. Develop an initial training plan for all employees. Date:_____
    a. Personnel Competence, Training, and Education

Phase 2 – Reactive Processes

The objective of phase 2 is to correct known deficiencies in safety management practices and operational processes. These may be based on a variety of sources including past inspection and audit reports, accident and incident investigations and employee reports, among others. For this reason, this phase is considered reactive. In order to perform these processes in a systematic fashion, basic safety information management and analytical processes must be in place. At the end of phase 2, most of the essential safety management structure and basic functions will be in

place. However, because the forward looking systems and task analyses have not yet been conducted, the system is still functioning at a reactive level.

1. Develop and implement basic safety information management and analytical processes for reactive safety management processes Date:_____
    a. Information acquisition
    b. Information technology: interactive database with analysis capability
    c. Analysis of data
    d. System assessment
    e. Preventive and corrective actions
    f. Management reviews
2. Implement safety risk management (SRM) for reactive processes. Date:_____
    a. Hazard identification process
    b. Risk assessment and mitigation processes
    c. Internal safety investigations
3. Perform training relevant to SMS implementation plan and SRM components. Date:_____
4. Develop documentation relevant to SMS implementation plan and SRM components (reactive processes). Date:_____
5. Initiate a non-punitive voluntary employee reporting system. Date:_____

Phase 3 – Proactive and Predictive Processes

During phase 3, systems and task analyses are initiated for all of our operational systems. The results of these analyses are, in turn, used in a hazard analysis to determine potential problems with the operational processes, their documentation, training, etc. that could pose safety risk. The results of these analyses are then passed through the SRM process, including development of any risk controls and associated process re-design that may be deemed necessary. Information management and analytical processes are refined as necessary. Performance of system and task analyses for all of our organization is a long-term project that will be conducted per the schedule below:

1. Implement safety risk management for proactive and predictive processes. Date:_____

a. Hazard identification process

b. Risk assessment and mitigation processes

c. Internal safety investigations

2. Perform training relevant to proactive and predictive processes. Date:_____

3. Develop documentation relevant to proactive and predictive processes. Date:_____

4. Perform system and task analyses on all organizations per the following schedule:

Organization	Analysis Start Date	Analysis Completion Date

5. Incorporate hazards from system and task analyses into SRM process. Date:_____

6. Refine safety information management and analytical processes to incorporate proactive safety management processes Date:_____

a. Information acquisition

b. Analysis of data

c. System assessment

d. Preventive and corrective actions

e. Management reviews

7. Develop policies and procedures for safety assurance. Date:_____

Phase 4 – Operational Safety Assurance and Continuous Improvement

Phase 4 is the final mature phase of the SMS. In this phase, continuing operational safety is assessed through the implementation of periodic auditing, feedback, and continuous corrective action to maintain both existing risk controls as well as adaptation of operational systems to meet changing needs.

1. Implement an operational safety assurance program Date:_____

a. Safety performance monitoring and measurement

b. Continuous improvement of the safety system

2. Develop acceptable levels of safety. Date:_____

3. Develop safety indicators and targets. Date:_____
4. Perform training relevant to operational safety assurance. Date:_____
5. Develop documentation relevant to operational safety assurance. Date:_____

ICAO Implementation Checklists from Doc. 9859 (Original Version)

Confirmation Checklist #1 - PLANNING

- A safety planning group and safety manager have been designated.
- The planning group:
  - comprises an appropriate experience base;
  - meets regularly with senior management; and
  - receives resources (including time for meetings).
- The planning group develops a realistic strategy and implementation plan for an SMS that will meet the organization's safety needs.
- Senior management endorses the plan.

Confirmation Checklist #2 - SENIOR MANAGEMENT'S COMMITMENT TO SAFETY

- Senior management is involved in, and committed to, the SMS.
- Senior management has approved the organization's safety policy and safety objectives, the SMS implementation plan and operational safety standards.
- These are communicated to all staff, with visible endorsement by senior management.
- The safety policy has been developed by management and staff and signed by the Director General. The safety policy:
  - enjoys the commitment and involvement of all staff;
  - aligns with other operational policies;
  - provides direction for implementing the policy;
  - states the responsibilities and accountabilities for directors, managers and other employees;
  - is reflected in the actions and decisions of all staff;
  - has been communicated to all staff; and is reviewed periodically.
- Safety objectives and goals are practical and achievable, and they are regularly reviewed for relevance.
- Performance standards (including deadlines) are established.
- Responsibilities for actions are clearly understood.
- Managers follow through and hold those responsible to account for their progress towards the safety goals.
- Appropriate resources are allocated to support the SSQA Manager.
- Senior management commits resources to correct hazards posing unacceptable risks.
- Senior management has established an appropriate reporting chain for safety issues.
- Senior management actively encourages participation in the various safety programmes of the SMS.
- Senior management promotes a positive safety culture whereby:

- safety information is actively sought;
- personnel are trained for their safety responsibilities;
- safety is a shared responsibility;
- safety-related information is disseminated to all affected personnel;
- potential system failures and hazards lead to prompt managerial inquiries and any necessary reforms;
- a formal programme is in place to regularly assess safety performance; and
- new ideas related to safety are welcomed.

Confirmation Checklist #3 - ORGANIZATION

- The organizational structure facilitates:
  - lines of communication between the SSQAM and the DG and with the line managers;
  - a clear definition of authorities, accountabilities and responsibilities, thereby avoiding misunderstanding, overlap and conflict (e.g. between the SSQA and line management); and
  - hazard identification and safety oversight.
- An SSQAM (with appropriate competencies and capacity) has been appointed.
- The roles and responsibilities of the SSQAM (and any staff) are clearly defined and documented.
- A safety committee meets regularly to review safety results and make recommendations to senior management.
- The SSQAM (and any staff) has (have) received appropriate safety training.
- Staff and management understand and support the roles of the SSQAM, and the SSQAM receives the DG's support.

Confirmation Checklist #4 - HAZARD IDENTIFICATION

- Formal mechanisms (such as safety assessments and safety audits) are in place for the systematic identification of hazards.
- An occurrence reporting system is in effect, including a voluntary incident reporting system.
- Management has provided adequate resources for hazard identification.
- Staffs receive necessary training to support the hazard identification programmes.
- Competent personnel administer the hazard identification programmes, keeping them relevant to current operations.
- Staff involved in any recorded or reported incidents is aware that they will not be penalized for normal errors; a non-punitive (just culture) environment is fostered by management.
- All identified hazard data are systematically recorded, stored and analyzed.
- Security measures are in place to protect sensitive materials.

Confirmation Checklist #5 - RISK MANAGEMENT

- Criteria are established for assessing risks.
- Risks are analyzed and ranked by competent personnel (including experienced staff representatives).
- Viable risk control measures are evaluated.
- Management takes action to reduce, eliminate or avoid the risks.
- Staffs are aware of the actions taken to avoid or eliminate identified hazards.
- Procedures are in place to confirm that the actions taken are working as intended.

Confirmation Checklist #6 - INVESTIGATION CAPABILITY

- Key operational staffs have received formal training in safety investigations.
- Each hazard and incident report is evaluated with further safety investigation as necessary.
- Management supports the acquisition and analysis of safety information.
- Management takes an active interest in investigation findings and applies risk management procedures for identified hazards.
- Safety lessons learned are widely disseminated.
- The regulatory authority is informed of significant safety concerns potentially affecting other operators or requiring action by the regulatory authority.

Confirmation Checklist #7 - SAFETY ANALYSIS CAPABILITY

- The SSQA is experienced or has received training in analytical methods, or has access to competent safety analysts.
- Analytical tools (and specialist support) are available to support safety analyses.
- The organization maintains a credible safety database.
- Other information sources are accessible.
- Hazard information and performance data are routinely monitored (trend analysis, etc.).
- Safety analyses are subject to a challenge process (peer review).
- Safety recommendations are made to management, and corrective actions are taken and tracked to ensure that they are appropriate and effective.

Confirmation Checklist #8 - SAFETY PROMOTION AND TRAINING

- Management recognizes that all levels of the organization require training in safety management and that the needs vary across the organization.

- Job descriptions reflect competency requirements.
- All personnel receive safety indoctrination training and participate in specific ongoing training for safety management.
- The organization has an effective programme for the timely promotion of safety issues.
- Staff are aware of their role in the elements of the SMS pertinent to their duties.
- Additional safety awareness training is provided when the operating environment changes (seasonal changes and changes in operational conditions, regulatory requirements, etc.).
- Staff understand that safety management has nothing to do with attributing blame.

Confirmation Checklist #9 - SAFETY MANAGEMENT DOCUMENTATION AND INFORMATION MANAGEMENT

- Management supports the need for careful documentation and data control.
- The SMS is well documented in a safety management manual.
- Documents are updated regularly and are readily available to those who need them.
- Credible measures have been taken for the protection of sensitive safety information.
- Appropriate equipment and technical support are available for managing safety information.
- Safety databases are used to support safety analyses and performance monitoring.
- Appropriate staff have access to safety databases.
- Staff have received the necessary training for using and maintaining the safety information management system.

Confirmation Checklist #10 - SAFETY OVERSIGHT AND SAFETY PERFORMANCE MONITORING

- Safety performance indicators are agreed upon and realistic safety targets established.
- Adequate resources are allocated to the safety oversight and safety performance monitoring functions.
- Staff input is sought and provided without fear of repercussion.
- Regular safety audits are conducted in all operational areas of the organization (including the activities of contracting agencies).
- Safety oversight includes the systematic review of all available feedback, for example, safety assessments, quality assurance programme results, safety trend analyses, safety surveys and safety audits.

Appendix J: Findings are communicated to staff, and reform measures are implemented as required to Model Gap Analysis Form

1. Background

This model gap analysis form is intended to assist with the implementation of a Safety Management System (SMS) in accordance with the Standards and Recommended Practices (SARPs) contained in ICAO Annex 6 — *Operation of Aircraft, Part I — International Commercial Air Transport — Aeroplanes, and Part III — International Operations — Helicopters,* ICAO Annex 11 — *Air Traffic Services,* and ICAO Annex 14 — *Aerodromes, Volume I — Aerodrome Design and Operations.*

A gap analysis is conducted against generally accepted SMS concepts and components. This model form provides, in checklist format, information to assist the evaluation of the components of a safety system presently in place, and the identification of those components of an SMS that will need to be developed.

2. ICAO Safety Management Systems Framework

The ICAO SMS framework is outlined below. The framework lists six components and 14 corresponding elements.

ICAO SMS FRAMEWORK

1. **SAFETY POLICY AND OBJECTIVES**

1.1 – MANAGEMENT COMMITMENT AND RESPONSIBILITY
1.2 – SAFETY ACCOUNTABILITIES OF MANAGERS
1.3 – APPOINTMENT OF KEY SAFETY PERSONNEL
1.4 – SMS IMPLEMENTATION PLAN
1.5 – COORDINATION OF THE EMERGENCY RESPONSE PLAN
1.6 – DOCUMENTATION

2. **SAFETY RISK MANAGEMENT**

2.1 – HAZARD IDENTIFICATION PROCESSES
2.2 – RISK ASSESSMENT AND MITIGATION PROCESSES
2.3 – INTERNAL SAFETY INVESTIGATIONS

3. **SAFETY ASSURANCE**

3.1 – SAFETY PERFORMANCE MONITORING AND MEASUREMENT
3.2 – THE MANAGEMENT OF CHANGE
3.3 – CONTINUOUS IMPROVEMENT OF THE SAFETY SYSTEM

4. SAFETY PROMOTION

4.1 – TRAINING AND EDUCATION

4.2 – SAFETY COMMUNICATION

The implementation of an SMS requires an analysis of our systems 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 the requirements. The analysis involves comparing the SMS requirements against our existing systems.

The model gap analysis form can be used as a template to conduct a gap analysis. Each analysis question is designed for a "yes" or "no" response. A "yes" answer indicates that our organization already meets the criteria for that particular SMS component or element. A "no" answer indicates that a gap exists between the stated criteria and our policies, procedures or processes.

If the response is '"yes", the third column of the analysis form can be used to indicate where (in organization documentation) the requirement is addressed. If the response is "no", the same column can be used to indicate how and/or where the policy, procedure or process will be further developed to bring us into compliance with the requirement.

Once the gap analysis is complete and fully documented, the items identified as missing or deficient will form one basis of the SMS implementation plan (Appendix I). Each item will be assessed to determine how we will create or modify policies, procedures or processes to incorporate the required SMS components and elements. Components and elements can be grouped into larger projects and assigned to project manager(s) who will oversee the development and implementation of that project. Each component, element or project will be assigned milestones including a termination date to ensure that completion does not fall outside acceptable time limits.

Model Gap Analysis Form

ICAO SMS Framework	**Response (*Yes/No*)**	**If *yes*, state where the requirement is addressed. If *no*, record SMS processes that need further development**
Safety Policy and Objectives		
Is a safety management system with defined components established, maintained and adhered to?		
Is the safety management system appropriate to the size and complexity of the organization?		
Is there a safety policy in place?		
Have safety objectives been established?		
Are safety objectives publicized and distributed?		
Is there a formal process to develop a coherent set of safety goals?		
Is there a formal process to develop and maintain a set of safety performance indicators?		
Has the organization based its safety management system on the safety policy?		
Is the safety policy approved by the accountable executive?		
Is the safety policy promoted by the accountable executive?		
Is the safety policy reviewed periodically?		

Is there a policy in place that ensures that employees are free to report safety deficiencies, hazards or occurrences without being subject to unjust discipline?		
Does the accountable executive have responsibility for ensuring that the safety management system is properly implemented and performing to requirements in all areas of the organization?		
Does the accountable executive have control of the financial and human resources required for the proper execution of their SMS responsibilities?		
Has a qualified person been appointed to oversee the operation of the SMS?		
Does the person overseeing the operation of the SMS fulfill the required job functions and responsibilities?		
Are the safety authorities, responsibilities and accountabilities of personnel at all levels of the organization defined and documented?		
Do all personnel understand their authorities, responsibilities and accountabilities in regards to all safety management processes, decisions and actions?		

Does the organization have an emergency response procedure appropriate to the size, nature and complexity of the organization?		
Have the emergency response procedures been documented, implemented and assigned to a responsible manager?		
Have the emergency response procedures been periodically reviewed as part of the management review of the SMS, and after key personnel and organizational change?		
Does the organization have a process to distribute the emergency response procedures and to communicate the content to all personnel?		
Has the organization conducted drills and exercises with all key personnel at specified intervals?		
Has a documented procedure been established and maintained for identifying applicable regulatory requirements?		
Are regulations, standards and exemptions periodically reviewed to ensure that the most current information is available?		
Is there consolidated documentation that describes the SMS and the interrelationships between all its components?		

Does this information reside or is it incorporated into approved documentation, such as Organization Operations Manual, Maintenance Control/Policy Manual, Airport Operations Manual, as applicable, and where these approved documents are not required by regulation, the organization includes the information in a separate, controlled document?		
Does the organization 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 and industry best practices?		
Does the system provide the control processes necessary to ensure appropriate identification, legibility, storage, protection, archiving, retrieval, retention time, and disposition of records?		
Safety Risk Management		
Does the organization have a reactive process or system that provides for the capture of internal information including incidents, accidents and other data relevant to safety and risk management?		

Is the reactive reporting process simple, accessible and commensurate with the size of the organization?		
Are reactive reports reviewed at the appropriate level of management?		
Is there a feedback process to notify contributors that their reports have been received and to share the results of the analysis?		
Is there a process in place to monitor and analyze trends?		
Are corrective and preventive actions generated in response to event analysis?		
Does the organization have a process or system that provides for the capture of internal information including hazard identification, occurrences and other data relevant to safety?		
Is the proactive reporting process simple, accessible and commensurate with the size of the organization?		
Is there a structured process for the assessment of risk associated with identified hazards, expressed in terms of severity, and probability of occurrence?		

Are there criteria for evaluating risk and the acceptable level of risk the organization is willing to accept?		
Does the organization have risk management strategies that include corrective/ preventive action plans to prevent recurrence of reported occurrences and deficiencies?		
Safety Assurance		
Are regular and periodic, planned reviews conducted regarding company safety performance, internal audit results, hazard and occurrence investigations, hazard and occurrence analysis results, internal/external feedback analysis/results, status of corrective actions, follow-up actions from previous management reviews, changes that could affect safety, recommendations for improvement and sharing of best practices across the organization?		
Is there a process to evaluate the effectiveness of corrective actions?		
Are proactive reports reviewed at the appropriate level of management?		

Is there a feedback process to notify contributors that their reports have been received and to share the results of the analysis?		
Is there a process in place to monitor and analyze trends?		
Has the organization planned self-evaluation processes, such as regularly scheduled reviews, evaluations, surveys, operational audits, assessments, etc.?		
Are corrective and preventive actions generated in response to risk analysis?		
Is a process in place for analyzing changes to operations or key personnel for risks?		
Are there procedures in place for the conduct of investigations?		
Do measures exist that ensure all reported occurrences and deficiencies are investigated?		
Is there a process to ensure that occurrences and deficiencies reported are analyzed to identify all associated hazards		
Are corrective and preventative actions generated in response to event investigation and risk analysis?		

Does the organization have a process for evaluating the effectiveness of the corrective/ preventive measures that have been developed?		
Are corrective/ preventive actions, including timelines, documented?		
Does the organization conduct reviews and audits of its processes, its procedures, analyses, inspections and training?		
Does the organization have a system to monitor the internal reporting process and the associated corrective actions?		
Is there an operationally independent audit function with the authority required to carry out an effective internal evaluation program?		
Does the audit system cover all functions, activities and organizations within the company?		
Are there defined audit scope, criteria, frequency and methods?		
Are there selection/training process to ensure the objectivity and competence of auditors as well as the impartiality of the audit process?		

Is there a procedure for reporting audit results and maintaining records?		
Is there a procedure outlining requirements for timely corrective and preventive action in response to audit results?		
Is there a procedure to record verification of action(s) taken and the reporting of verification results?		
Does the organization perform periodic Management reviews of safety critical functions and relevant safety or quality issues that arise from the internal evaluation program?		
Safety Promotion		
Are there communication processes in place within the organization that permit the safety management system to function effectively?		
Are communication processes (written, meetings, electronic, etc.) commensurate with the size and scope of the organization?		
Is information established and maintained in a suitable medium that provides direction in related documents?		

Is there a process for the dissemination of safety information throughout the organization and a means of monitoring the effectiveness of this process?		
Is there a process in place to monitor and analyze trends?		
Are corrective and preventive actions generated in response to event analysis?		
Is there a documented process to identify training requirements so that personnel are competent to perform their duties?		
Is there a process that measures the effectiveness of training?		
Is the organization's safety training incorporated into indoctrination training upon employment?		
Is there emergency response and response training for affected personnel?		

Appendix K: Emergency Response Plan

1.0 Purpose

It is vital for every aviation organisation to implement and develop contingency plans to manage a crisis effectively. To accomplish this every organization must develop a crisis management plan. This document will serve as an emergency response plan or checklist to deal with unexpected events. Larger and more complex organizations should prepare a dedicated *Emergency Response Manual*.

2.0 Practice Exercises

The emergency response plan will be exercised at regular intervals to ensure its completeness and suitability. This will include both table top exercises and full scale simulations as appropriate.

3.0 Responsible Person & Office

In our organization, the Director, ATS or SSQA Manager will be responsible for directing the company's emergency response and crisis management procedures.

4.0 Telephone

Upon notification of a mishap, arrangement will be made to receive public calls and media enquiries and also ensure that an adequate number of trained staff can be made available to respond.

5.0 Website

The organization's web-site will provide a link to a dedicated web page or separate website to provide information regarding the emergency event.

6.0 Airport Plan

ICAO Annex 14 states that before operations commence at an airport an emergency plan should be in place to deal with an aircraft accident occurring on or in the vicinity of the airport. This plan will specify the airport authority's role and show the details of any local organization that could assist and would include, for example:

- Police, fire and ambulance services
- Hospitals and mortuaries
- Armed (military) services
- Religious and welfare organisations (like Red Cross)
- Transport and haulage contractors
- Salvage companies
- Foreign embassies, consulates and legations

The airport authority normally will establish an Emergency Co-ordination Centre (ECC) through which all post-accident activities are organised and controlled. It will also provide a reception area to temporarily house survivors, their family and friends.

7.0 Airline Plan
It is each airline's responsibility to maintain familiarity with emergency plans at all airports where operations are conducted. If an accident occurs, senior representatives of the airline must report to the airport's ECC to co-ordinate its activities with the airport authority and representatives of other agencies responding.

7.1 The organisation's own emergency response procedures must be implemented immediately. These procedures must include the following:

- Removal and salvage of the aircraft and any wreckage
- Providing information on any dangerous goods carried as cargo on board the aircraft
- Co-ordination of media coverage relating to the incident
- Notifying local Customs, Immigration and Postal authorities

7.2 Victim support. A senior official of the organization must be made responsible for:

- Directing relatives to the designated survivor's reception area
- Providing overnight accommodation as required
- Being in attendance at hospitals to provide assistance for accident victims
- Notifying survivors' next-of-kin, other family members and friends
- In some States, an airline involved in an accident is also responsible for notifying the deceased's next-of-kin.
- Making arrangements for transporting relatives to a location near the accident site
- Returning deceased victim's remains to the country of domicile

8.0 Crisis Facilities. To fulfil the above responsibilities the organisation must establish and equip the following three areas of response:

- A Crisis Management Centre (CMC) at HQ
- A Local Incident Control Centre (LICC) at the airport to co-ordinate activities with HQ and the airport authority's Emergency Control Centre

- A mobile support and investigation team. Activation and dispatch of the company's Incident Support Team.

8.1 Crisis Management Centre (CMC):
A secured HQ office space will need to be allocated to house a CMC, which may be sub-divided into:

- Incident Control Centre (ICC)
- Media Information Centre (MIC)
- Passenger Information Centre (PIC)
- LICC (Local Incident Control Centre) liaison
- Engineering liaison

8.2 The CMC team will typically consist of some or all of the following:

- CEO
- Director of Operations (who may be designated in-command)
- Commercial Director
- Marketing Director
- Director of Support Services (i.e. legal, insurance and administration)
- Head of Safety
- Head of Security
- Head of Engineering
- Head of Public Relations
- Head of Customer Relations

8.3 The CMC is responsible for co-ordinating all external and internal information, communication and response to the accident. It will:

- Arrange any special flights required
- Brief and dispatch the mobile support team
- Respond to public enquiries
- Prepare statements to the media
- Liase with the accident site and nearest airport to the site
- Collect and analyse all relevant information concerning the possible cause of the accident, its consequences and casualty assessment

8.4 In addition to office furniture and stationary supplies the CMC must be equipped with:

- An ARINC/SITA facility with a dedicated address
- Sufficient telephones and fax machines (unlisted) for all users
- PC equipment
- Investigation and field kit for issue to the mobile response team
- All relevant company manuals
- Internal and external telephone directories
- Accurate wall clocks to indicate the time in UTC, at HQ and at the accident site
- Televisions tuned to an all-news channel and an all-weather channel
- Aeronautical charts

8.5 The CMC must be maintained in a constant state of preparedness. It should be borne in mind that once activated, the CMC will require 24-hour manning for an unspecified period, and therefore alternative members should be nominated to provide shift coverage.

9.0 Local Incident Control Centre (LICC): This will be an extension of normal duties for the Station Manager or a company agent at the incident airport. The LICC must be equipped with adequate communications facilities for liaison with the CMC and the airport Emergency Control Centre. It will be necessary to reinforce the station's staff in order to man the LICC on a shift basis in addition to maintaining routine operations. In the early stages this can be accomplished by utilising off-duty personnel until the mobile team arrives.

10.0 Mobile Investigation and Support Team will be made up of:

- Flight Safety Officer or representative
- Engineering specialists
- Representative for aircraft type fleet and/or Training Manager (ideally both)
- Volunteers who can support staff at the incident airport in the handling of the incident (LICC duties, for example) and assist with maintaining normal operations plus members of the State's air accident investigating authority and victim identification team (see the notes at the end of this section).

10.1 The Mobile Support and Investigation Team will travel by the fastest possible means and must be prepared for an extended period of absence. They must also be equipped for work in the field.

11.0 RESPONSE GUIDELINES

Flight Operations Control will most likely receive first notification of an accident. Keep in mind; first notification of an accident may come from someone totally disassociated with the primary organisation involved. Quite often, the first notification has been from the media or a news reporter. Call-out of key personnel must then be initiated beginning with the members of the CMC. This in turn leads to a call-out cascade to all other people and organisations involved.

11.1 The media cannot and must not be treated curtly or rudely. The first inquiries by the media may catch organisation personnel off-guard and may seem prying or over-zealous, however reporters may be referred to the organisation spokesperson or a simple statement may suffice temporarily, such as:

> "We have just received word concerning one of our aircraft being involved in an incident. As soon as we here at __(XYZ Airlines Headquarters)____ gather the details, we will release the information to the media. "

The person answering the initial call from the media should try not to sound surprised or "thrown-off" by the questions. If they are unable to maintain composure, they should pass the phone call quickly to someone else, after placing the reporter on hold temporarily. It is important that the flight organization sound and appear on camera as though business is being handled professionally and thoughtfully throughout the entire crisis.

11.2 Establish control of media communications by trying to be the best source of information. As soon as possible, provide a means for the public to obtain accurate information, such as a toll-free telephone line and/or a web site that is frequently updates.

11.3 Be readily available. Be well prepared. Be accurate. Be co-operative.

11.4 Do not talk "off the record".

12.0 CORPORATE ACCIDENT RESPONSE TEAM GUIDELINES (CARE):

One method that many corporate aviation departments use to ensure all-important tasks are completed is " C.A.R.E. " which stands for "Confirm, Alert, Record, and Employees.

Appendix L: Accident & Incident Investigation Plan

ACCIDENT/INCIDENT INVESTIGATION & REPORTS

1.1 DEFINITIONS

- **Accident**: An occurrence associated with the operation of an aircraft which takes place between the time any person boards the aircraft with the intention of flight until such time as all such persons have disembarked, in which a person is fatally or seriously injured as a result of:
  - Being in the aircraft
  - Direct contact with any part of the aircraft, including parts which have become detached from the aircraft
  - Direct exposure to jet blast except when the injuries are from natural causes, self-inflicted or inflicted by other persons, or when the injuries are to stowaways hiding outside the areas normally available to the passengers and crew, or
  - The aircraft sustains damage or structural failure which:
    - Adversely affects the structural strength, performance or flight characteristics of the aircraft, and would normally require major repair or replacement of the affected component, except for engine failure or damage, when the damage is limited to the engine, its cowlings or accessories; or for damage limited to propellers, wing tips, antennas, tires, brakes, fairings, small dents or puncture holes in the aircraft skin; or
    - The aircraft is missing or completely inaccessible.
- **Causes:** Actions, omissions, events, conditions, or a combination thereof, which led to the accident or incident.
- **Incident:** An occurrence, other than an accident, associated with the operation of an aircraft which affects or could affect the safety of operation.
- **Investigation:** A process conducted for the purpose of accident prevention which includes the gathering and analysis of information, the drawing of conclusions, including the determination of causes and, when appropriate, the making of safety recommendations.
- **Investigator-in-charge:** A person, commission or other body charged, on the basis of his/her/their qualifications, with the responsibility for the organisation, conduct and control of an investigation.
- **Serious incident:** An incident involving circumstances indicating that an accident nearly occurred. The difference between an accident and a serious incident lies only in the result.

1.2 POLICY

1.2.1 All incidents are investigated through follow-up of occurrences. It should be part of operational policy to conduct an in-house independent & formal investigation following an accident or incident even though it may also be the subject of a Government investigation.

1.3 OBJECTIVES

1.3.1 The investigation should seek to determine not only the immediate causes, but the underlying causes and inadequacies in the safety management system.
1.3.2 The appropriate prevention and intervention procedures should then be developed and remedial action is taken.
1.3.3 Clearly detailed investigation of each accident/incident concentrates on the way the key aspects of accident causation are inherently interrelated with the accident/incident.

1.4 INCIDENT/ACCIDENT NOTIFICATION

1.4.1 Incident Notification & Investigation

1.4.1.1 An aircraft incident can be defined as any occurrence, other than an accident, which places doubt on the continued safe operation of the aircraft and:

- Has jeopardised the safety of the crew, passengers or aircraft but which has terminated without serious injury or substantial damage
- Was caused by damage to, or failure of, any major component not resulting in substantial damage or serious injury but which will require the replacement or repair of that component
- Has jeopardised the safety of the crew, passengers or aircraft and has avoided being an accident only by exceptional handling of the aircraft or by good fortune
- Has serious potential technical or operational implications
- Causes trauma to crew, passengers or third parties
- Could be of interest to the press and news media

1.4.3 International Investigations

1.4.3.1 When an aircraft operated by one State crashes in a foreign State, the procedures involving investigation are set out in Annex 13 to the ICAO Convention. The procedures are complex, but the basic points are:

- The two countries can agree on a procedure not specifically covered in Annex 13
- The State in which the accident occurs always has the right to appoint a person to conduct the investigation and prepare the subsequent accident report. If the accident occurs in international waters then this right reverts to the State of registry of the aircraft
- The State of registry has the right to send an accredited representative to participate in the investigation. This person is authorised to be accompanied by advisers who may represent the aircraft operator, the manufacturer or employee trade unions;
- The State of registry is obliged to provide the State of occurrence with information on the aircraft, its crew and its flight details
- The accredited representative and any advisers should be entitled to:
    - Visit the scene of the accident

- Examine the wreckage
- Question witnesses
- Gain access to all relevant evidence
- Receive copies of all pertinent documents
- Make submissions to the investigation
- Receive a copy of the final report

- There is no entitlement for the State of registry to take part in the analysis of the accident or the development of its cause(s). This is the right of the State conducting the investigation.

1.4.4 All staff have the responsibility to report an incident to the Operations Control Centre or other company required contact point by the most expeditious way.

1.4.5 In case of reportable incidents, an investigation will commence at the earliest possible opportunity and shall be undertaken by the responsible line manager.

1.4.9.2 In order to instigate appropriate action, Aircraft Commanders are requested to:

- If in communication with ATC, advise of any incidents
- Complete an Air Safety Report
- Inform Flight Operations as soon as possible by the most expeditious means

1.5 INCIDENT/ ACCIDENT EXAMPLE GROUP FLOWCHART & LIST OF RESPONSIBILITIES

1.5.1 Create a flowchart to illustrate departments and responsibilities.

1.6 INCIDENT/ACCIDENT INVESTIGATION PROCEDURE

1.6.1 In case of accident or serious incident, and whenever the operator decides that an investigation into an incident is required, the SSQA Manager who heads the safety department/section shall decide on the level of the investigation.

The Investigator-in-charge could be one of the following:

- SSQA Manager
- A safety investigator representing him

1.6.2 A trade representative of the concerned association can attend the appropriate interviews and the investigation process as an observer provided he/she maintains confidentiality and refrain from releasing any information. Should he/she have any reservation he/she should raise it with the investigator-in-charge or with the head of the investigation committee. If not satisfied he/she can raise it to the Accountable Manager.

1.6.3 The investigator-in-charge should investigate and report to the accountable manager any aspect considered to be relevant to an understanding of the incident by examining the circumstances surrounding the incident in order to discover the likely latent and active causes that lead to it.

1.8 ACCIDENT INVESTIGATION REPORT

The investigator-in-charge report should be written under the following suggested headings, as per the ICAO Annex 13 Appendix:

1. FACTUAL INFORMATION

1.1 History of the flight. A brief narrative giving the following information:

- Flight number, type of operation, last point of departure, time of departure (local time or UTC), point of intended landing.
- Flight preparation, description of the flight and events leading to the accident, including reconstruction of the significant portion of the flight path, if appropriate.
- Location (latitude, longitude, elevation), time of the accident (local time or UTC), whether day or night.

1.2 Injuries to persons. Completion of the following (in numbers):

Injuries Crew Passengers Other
Fatal
Serious
Minor/None

Note: Fatal injuries include all deaths determined to be a direct result of injuries sustained in the accident. Serious injury is defined in Chapter 1 of Annex 13.

1.3 Damage to aircraft. Brief statement of the damage sustained by aircraft in the accident (destroyed, substantially damaged, slightly damaged, no damage).

1.4 Other damage. Brief description of damage sustained by objects other than the aircraft.

1.5 Personnel information.

a) Pertinent information concerning each of the flight crewmembers including: age, validity of licenses, ratings, mandatory checks, flying experience (total and on type) and relevant information on duty time.
b) Brief statement of qualifications and experience of other crewmembers.
c) Pertinent information regarding other personnel, such as air traffic services, maintenance, etc., when relevant.

1.6 Aircraft information.

a) Brief statement on airworthiness and maintenance of the aircraft (indication of deficiencies known prior to and during the flight to be included, if having any bearing on the accident).
b) Brief statement on performance, if relevant, and whether the mass and centre of gravity were within the prescribed limits during the phase of operation related to the accident. (If not, and if of any bearing on the accident give details).
c) Type of fuel used.

1.7 Meteorological information:

a) Brief statement on the meteorological conditions appropriate to the circumstances including both forecast and actual conditions, and the availability of meteorological information to the crew.
b) Natural light conditions at the time of the accident (sunlight, moonlight, twilight, etc.).

***1.8 Aids to navigation*.** Pertinent information on navigation aids available, including landing aids such as ILS, MLS, NDB, PAR, VOR, visual ground aids, etc., and their effectiveness at the time.

***1.9 Communications*.** Pertinent information on aeronautical mobile and fixed service communications and their effectiveness.

***1.10 Aerodrome information*.** Pertinent information associated with the aerodrome, its facilities and condition, or with the take-off or landing area if other than an aerodrome.

***1.11 Flight recorders*.** Location of the flight recorder installations in the aircraft, their condition on recovery and pertinent data available therefrom.

***1.12 Wreckage and impact information*.** General information on the site of the accident and the distribution pattern of the wreckage; detected material failures or component malfunctions. Details concerning the location and state of the different pieces of the wreckage are not normally required unless it is necessary to indicate a break-up of the aircraft prior to impact. Diagrams, charts and photographs may be included in this section or attached in the appendices.

***1.13 Medical and pathological information*.** Brief description of the results of the investigation undertaken and pertinent data available therefrom.

Note: Medical information related to flight crew licenses should be included in 1.5 Personnel Information.

1.14 Fire. If fire occurred, information on the nature of the occurrence, and of the firefighting equipment used and its effectiveness.

1.15 Survival aspects. Brief description of search, evaluation and rescue, location of crew and passengers in relation to injuries sustained, failure of structures such as seats and seat-belt attachments.

***1.16 Tests and research*.** Brief statements regarding the results of tests and research.

1.17 Organisational and management information. Pertinent information concerning the organisations and their management involved in influencing the operation of the aircraft. The organisations include, for example, the operator; the air traffic services, airway, aerodrome and weather service agencies; and the regulatory authority. The information could include, but not be limited to, organisational structure and functions, resources, economic status, management policies and practices, and regulatory framework.

1.18 Additional information. Relevant information not already included in 1.1 to 1.17 above.

1.19 Useful or effective investigation techniques. When useful or effective investigation techniques have been used during the investigation, briefly indicate the reason for using these techniques and refer here to the main features as well as describing the results under the appropriate subheadings 1.1 to 1.18.

2. ANALYSIS

Analyse, as appropriate, only the information documented in 1. - Factual information and which is relevant to the determination of conclusions and causes.

3. CONCLUSIONS

List the findings and causes established in the investigation. The list of causes should include both the immediate and the deeper systemic causes.

4. SAFETY RECOMMENDATION

As appropriate, briefly state any recommendations made for the purpose of accident prevention and any resultant corrective action.

APPENDICES

Include, as appropriate, any other pertinent information considered necessary for the understanding of the report.

Note: All the above should be included in the report in the same sequence. If not relevant to the accident/incident they should be included and the term not relevant mentioned next to them whenever appropriate.

1.9 ACCIDENT INVESTIGATOR'S KIT

1.9.1 An investigator's kit should always be available in the company to be used by all Air Safety Investigator's whenever they are exercising their duties. It should contain at least the following:

- Clothing & Personal Items:
- Personal Protective Equipment (PPE Disposable)
- Personal Protective Equipment (Non-Disposable)
- Waterproof trousers and overjackets
- Coveralls
- Fluorescent tabards
- Vinyl gloves
- Industrial work gloves
- Industrial work boots
- Rubber boots
- Face masks
- Woollen hats
- Lightweight overjackets and trousers
- Passport & extra photos
- Tickets
- Credit cards
- Immunisation records
- Cash, traveller's cheques, and/or letter of credit
- Business cards
- Travel authorisation
- Medical kit
- Sun/reading/safety glasses
- Insect repellent
- Toiletries
- Towelettes
- Stationery

- Clipboards
- Waterproof coloured marker pens
- Felt-tipped pens, ball pens and pencils
- Assorted clear plastic envelopes
- Pocket notepads
- Staplers and spare staple packs
- Assorted office envelopes
- Tie-on labels
- String (500m)
- Map or plan of area - preferably highly detailed with topographic information
- Company Emergency Procedures manual
- File folder
- Chalk
- Eraser
- Cellophane tape
- Paperclips & rubber bands
- Pins
- Ruler
- Hardware:
- Torches (Flashlights) and spare batteries
- Battery-mains tape recorder
- Camera - Polaroid or digital, with spare film/memory
- Camera - 35mm roll-film camera with flashgun and spare film
- Camera - video
- Mobile UHF radios with spare battery packs and charger unit
- 100-metre measuring tape
- Valises for carrying equipment
- Labels and Signs
- Cellular Phone - modem capable with spare battery packs
- Laptop with fax and e-mail modem with spare battery packs
- Calculator
- Compass
- Binoculars
- Knife
- Telephone lists
- Matches
- Can opener
- Plotter

- Padlock
- Mirror
- Tape measure
- Magnifying glass
- Water container & cup
- Whistle
- Tools
- Plastic bags & ties
- Magnet

1.9.2 Investigator Departure Checklists

- Briefings
- Accident Locale & weather
- Rendezvous location & contact info
- Management and legal trip duration
- Personal security (as required)
- Travel plans
- Make reservations (always get
- round trip tickets
- Money, traveller's checks, credit
- cards
- Pay cheque disposition
- Visa
- Learn if required (travel office or
- airline can advise)
- Delay if necessary
- Medical items
- Get travel medical kit
- Doxycyclene
- Personal medications
- Hand-carry valuables and essentials
- Check remaining luggage (label
- inside & outside)
- Use "Go Kit" Checklist
- Cancel Appointments
- Business
- Personal
- Medical

1.9.2 All accident investigators should have received the HBV vaccination and completed the Blood borne Pathogens training programme.

Appendix M: SMS Calendar of Regular Scheduled Events

This table will help to organize those recurring aspects of our SMS that must be accomplished on a regular basis.

Item	SMS Manual Section	Scheduled frequency	Dates to accomplish this
Internal Audits by Operating Departments	1.3.2		
Internal Evaluation of SMS	1.3.3		
External Audit of SMS	1.3.4		
System Assessment	1.5		
Management Review of SMS Outputs	1.7		
Emergency Response exercise	Appendix K		

Appendix N: OUR SMS DOCUMENTS

SAFETY POLICY STATEMENT & OBJECTIVES

Corporate Safety Policy Statement

Safety is the first priority in all our activities. We are committed to implementing, developing and improving strategies, management systems and processes to ensure that all our activities uphold the highest level of safety performance and meet national and international standards.

Our fundamental safety beliefs are:

1. Safety is a core business and personal value of this organization.
2. Safety is a source of our competitive advantage. Our business will be strengthened by making safety excellence an integral part of all our activities.
3. Accidents and serious incidents are preventable through the implementation of Just Culture.
4. All levels of management are accountable for our safety performance, starting with the Director General.

Our top management has created a formal statement of our commitment to SMS:

Our VISION: To achieve the highest degree of safety through the adoption of Safety Management Systems (SMS).

Our MISSION: To foster the development of structured aviation business plans that holds safety as an integral core value.

Safety Objectives

Our commitment is to:

l. Develop and embed a safety culture in all our activities that recognizes the importance and value of effective safety management and acknowledge at all times that safety is paramount;

m. Clearly define for all staff their accountabilities and responsibilities for the development and delivery of safety strategies and performance;

n. Provide adequate resources for effective SMS;

o. Identify hazards and minimize the risks associated with our operations to a point that is as low as reasonably practicable;
p. Ensure that externally supplied systems and services that impact upon the safety of our operations meet appropriate safety standards;
q. Actively develop and improve our safety processes to conform to world-class standards and exceed legislative and regulatory requirements and standards;
r. Ensure that all personnel are resourced with adequate and appropriate aviation safety information and training to implement safety strategy and policy;
s. Establish and measure our safety performance against realistic objectives and/or targets;
t. Achieve the highest levels of safety, standards and performance in all our activities and continually improve our safety performance;
u. Conduct safety and management reviews and ensure that relevant action is taken; and
v. Develop and implement quality management systems in line in its principles. However, due to the limited size and complexity of our organization, the Quality Management System (QMS) is combined with the SMS under the supervision of the SSQA Manager.

The core elements of our approach to safety are:

1. Senior Management and all personnel will be trained in their safety responsibilities and will be held accountable for their safety performance. Safety performance as an important part of our employee evaluation system will be recognized rewarded and lessons learned shared with others.
2. Managers will ensure that regular safety audits, focusing on the behavior of people, as well as conditions of the workplaces are conducted.

Signed

SIMON ALLOTEY
DIRECTOR-GENERAL
GHANA CIVIL AVIATION AUTHORITY

SMS IMPLEMENTATION PLAN

PHASE 1 – SAFETY POLICY AND OBJECTIVES (PLANNING)		
DESCRIPTION	**PLAN**	**TIMELINES**
1. MANAGEMENT COMMITMENT		
A. SMS Implementation Team Established	Composition of the team include the following; - 6 ANS Personnel (Offsite Team) - 1 Personnel from AIS - 2 Personnel from ATSE - 1 Personnel from HR - 1 Personnel from Finance - 1 Personnel from ICT	To be established by 15th January, 2018
B. SMS training for members of the implementation team	Pending Approval - **Immediate Training** The members of the implementation team as constituted would receive briefing, mentoring and understanding of the SMS and the implementation strategies. - 5 members in total selected from the Implementation and Safety Team to be trained to understand the working of SMS.	To be completed by end of first quarter of 2018.
	- **Short Term Training** A qualified instructor in SMS and all its aspects to be contracted to train all members of Top Management, Implementation Team, Safety Committee, Line Managers, etc. in order to understand the working of SMS.	To be completed by third quarter of 2018.

	- **Medium Term Training** Selected members of the Safety Committee to be trained in a train-the-trainer training programme in SMS with the objective of achieving and developing instructors in for the future and further training for all level of staffs of the organization.	To be completed by mid-year 2018
	- **Long Term Training** A well-structured curriculum for the training of the all level of staff be established and developed and encompassed in the indoctrination of all new staff.	To be established by end of year 2018
C. Identify the safety objectives of the organization: i. Drafting Safety objectives	Attached in the SMS manual in appendix G	Completed
ii. Approval of the Safety objectives	Pending approval	15th January, 2018
iii. Developing Safety Policy	As attached in the SMS manual in appendix G	Completed
iv. Ensuring that the Safety Policy is Signed by Accountable Executive	Pending approval.	To signed by 15th of December, 2017
v. Allocation of time for the SMS processes among the different management layers of the organization	Ongoing to be completed	To be completed by end last quarter of 2017
D. Safety objectives and SMS requirements for third parties	The Legal Department to be abreast with the SMS and ensure that all requirements relating contractors, sub-contractors, suppliers and other third parties; have been met and all concepts	To be completed by second quarter of 2018
i. SMS requirements established in the bidding documentation for its		

usage by contractors, sub-contractors, suppliers and other third parties.	have been introduced to them. Their activities shall comply with the SMS objectives and policy.	
ii. SMS requirements written into the contracting process		
iii. SMS concepts introduced to contractors and sub-contractors.		
E. Safety Communication		
i. Safety policy communicated with visible endorsement to all staff and means to communicate safety related issues established	The communication plan shall include; 1. Website: To create a platform on the website where materials related to Safety information will be communicated. Documents to be uploaded include the SMS Manual, Safety Policy Statement & Objectives, etc. 2. Use of email to disseminate Safety information: **safetyteamgh@gmail.com** 3. A one / two page (s) column is created in the organization's magazine 'Aviation News" for safety communication activities and promotion. 4. Placements at designated points of various pull up highlighting our safety policy, objectives and safety related promotional information. 5. Framed Safety Policy will be place at various offices.	Initiated and followed through on continuous basis.

	6. Organized periodic safety seminars and presentation for identifiable groups and association of the organization 7. Use of social media to disseminate safety issues and information. 8. Creation of Safety Awareness Week 9. Creation of Safety Slogans 10. Institution of Employee SMS Recognition Programme through various platforms like Safety Competition, Voluntary Reporting etc. as captured in the SMS manual. 11. Use of Notices and Bulletins	
2. PERFORM SYSTEM DESCRIPTIONS AND GAP ANALYSIS		
A. Perform system description and interaction of its different components		Completed
B. Perform Gap Analysis against the four components and thirteen elements of the SMS framework.		Completed
C. Identify potential challenges in the implementation and develop plans to address identified challenges		Ongoing

3. ESTABLISH AN SMS ORGANIZATIONAL STRUCTURE		
A. SMS structure proposed and approved	Clearly defined in Section 3 (Organizational Chart) of the SMS manual	i. Completed ii. Pending Approval by 15th December, 2017
B. Assign safety responsibilities of key personnel and establish lines of safety accountability: Safety, Standards and Quality Assurance (SSQA) Manager, Safety Review Board (SRB), Safety Action Group (SAGs)	Clearly defined in Section 3 (Organizational Chart) of the SMS manual	i. Draft Completed ii. Pending Approval by 15th December, 2017
4. APPROVAL OF SMS IMPLEMENTATION PLAN AND INITIAL TRAINING		
A. Draft SMS implementation plan developed		Completed
B. Draft budget for SMS implementation (Identified the costs associated to training and planning the implementation)	Budget to be completed by Off-site team for presentation and approval	To be completed by end of December 2017.
C. Approval of initial budget for SMS implementation plan	Presentation to Top Management for final approval	To be completed by end of January 2018
D. SMS implementation plan signed by Accountable executive	Presentation to Top Management for final signature.	To be completed by end of last quarter 2017
E. Training: Introduction of SMS concepts according to the level of all workers, contractors and sub-contractors, Identify who needs to be trained for further phases, Schedules for training of all supervisors	A training team to be set up from the Safety Committee and Train-the-Trainer Instructors programme.	Training to start in fourth quarter of 2018.

and workers		
5. COORDINATION OF THE EMERGENCY RESPONSE PLAN		
A. Internal Coordination: Establishing Emergency planning team, Coordinator appointed and the Emergency procedures developed.	Emergency planning has been assigned to the Search and Rescue Manager and his team in close collaboration with the SSQA Manager	30th December, 2017
	Emergency checklists have been prepared and it is in use in addition to the Search and Rescue Manual.	Completed
B. External Coordination: i. Established with search and rescue services, ii. Established with CAA, GACL, Airlines and Investigation agencies.		To be completed in the fourth quarter 2018.
C. Institute an Emergency Action Plan and submit to CAA	The contingency plan of the organization will set the basis our emergency action plan.	To be submitted by the third quarter 2018.
6. DOCUMENTATION		
A. Develop the safety library for the organization; Development of SMS manual related to the planning phase and institution of Safety Library	Safety library will be established for the organization; 1. A section of the organization's main library shall be set up to provide all documentations and materials on Safety	To be completed by second quarter 2018
	2. Some cabinets may be set up at the ATC rest room to provide safety manual and documentation for easy references.	To be completed by third quarter 2018
	3. Cabinets may also be established in the office of the SSQA Manager to compliment the above	To be completed by third quarter 2018

	4. A complete separate safety library will be established in the new ANS complex	To be completed by last quarter 2018
5. Information on Phase 1 collected and distributed to the organization		To be completed by end of December, 2018

PHASE 2 – SAFETY RISK MAMNAGEMENT (REACTIVE PROCESSES)

DESCRIPTION	**PLAN**	**TIMELINES**
1. REACTIVE PROCESSES		
A. Determine intervention tools to collect reactive information	Intervention Tools shall include 1. Investigation 2. Risk / Hazard Identification 3. Log Entries 4. Radar and Communication Replay 5. Voluntary and Mandatory Reports	Completed
B. Develop forms for safety reporting; C. Add, Update the safety reporting policy in the safety policy	The following forms have been developed; 1. Hazard Identification Form (Form 120) as outlined in the SMS manual 2. Voluntary and Mandatory Reporting Programmes 3. ATS Occurrence Report Form; Tower / Approach & ACC / Equipment / Watch Manager Monthly Report as in Appendix C of SMS Manual.	Completed

	These forms however would be developed 1. Engineering Occurrence Report Form 2. AIS Occurrence Report Form	To be completed by second quarter 2018
D. Develop risk matrix and determine risk management levels to be documented.	All level of Risk Management shall be documented	Completed
E. Identify process and responsibilities on data management and Coordinate safety data management with third parties		Initiated and an ongoing process.
F. Training on reactive processes completed		Initiated and an ongoing process
G. Test intervention tools and safety reporting systems from reactive processes		Initiated and an ongoing process
H. Initial hazard identification and risk analysis: Data from safety hazards collected and stored, Risk analysis and risk tolerability completed, Information distilled from analysis distributed.		Initiated and an ongoing process
I. Control and migration strategies developed, Impact on Safety of operational changes assessed, Approve mitigation strategies		Initiated and an ongoing process

2. DOCUMENTATION RELEVANT TO REACTIVE PROCESSES		
A. Add reactive risk management processes information to SMSM; B. Safety library updated with safety risk management on reactive processes; C. Add information related to reactive processes for further development of safety performance indicators and targets.	Safety library established takes into consideration the addition of reactive risk management processes and information in the SMSM	To be completed by third quarter 2018.
PHASE 3 – SAFETY RISK MANAGEMENT (PROACTIVE AND PREDICTIVE PROCESSES)		
DESCRIPTION	**PLAN**	
1. PROACTIVE AND PREDICTIVE PROCESSES		
A. Determine intervention tools to collect proactive and predictive information	Intervention Tools shall include 1. Audits 2. Safety Assessment / Risk 3. Safety Surveys 4. Random Radar and Voice Communication Replay 5. Voluntary and Mandatory Reporting Programmes 6. Strip Checking	Initiated and an ongoing process
B. Updates guidelines, procedures, hardware and software to support the proactive and predictive intervention tools. C. Review, Update the safety		Initiated and an ongoing process

reporting policy		
D. Review risk management levels to be documented.	All level of Risk Management shall be documented	Ongoing
E. Identify process and responsibilities on data management and Coordinate safety data management with third parties		Initiated and an ongoing process
F. Training on proactive and predictive processes completed		Initiated and an ongoing process
G. Test intervention tools and safety reporting systems from proactive and predictive		Initiated and an ongoing process
H. Hazard identification and risk analysis: Proactive and predictive identification of hazards collected and stored; Risk analysis and risk tolerability completed, Information distilled from analysis distributed.		Initiated and an ongoing process
I. Control and migration strategies developed, Impact on Safety of operational changes assessed, Approve mitigation strategies		Initiated and an ongoing process

2. DOCUMENTATION RELEVANT TO PROACTIVE AND PREDICTIVE PROCESSES		
Add proactive and predictive risk management processes information to SMSM; Safety library updated with safety risk management on proactive and predictive processes; Add information related to processes to proactive and predictive processes for development of safety performance indicators and targets.	Safety library established takes into consideration the addition of proactive and predictive risk management processes and information in the SMSM	
PHASE 4 – SAFETY ASSURANCE AND SAFETY PROMOTION		
DESCRIPTION	**PLAN**	
1. ACCEPTANCE LEVELS OF SAFETY		
A. Define safety performance indicators and safety performance targets of an acceptance level(s) of safety of the organization B. Establish safety requirements to deliver the safety performance indicators and safety performance targets of an acceptance level of safety	Safety Performance Indicators shall include; 1. Accidents 2. Serious Accidents 3. Incidents 4. Hazard Identification & Risk Assessment 5. Safety Audits & Behavioural Audits 6. Equipment / Machinery Maintenance 7. Safety Training	Completed
	Safety Performance Targets shall developed in line with processes to	To be completed by last quarter of

	establish safety requirements to acceptance level	2018
C. Acceptance levels of Safety established and submitted to the Civil Aviation Authority	The established acceptance level of safety to be submitted to Civil Aviation Authority.	To be completed by last quarter of 2018
2. SAFETY PERFORMANCE MONITORING AND MEASUREMENT		
A. Collect information from safety studies and reviews	Our Safety Performance Measurement shall be based on the following in collating information; 1. Movement Log Records 2. Incident Report 3. Investigation Conducted 4. Operational Watch Log Book	Initiated and an ongoing process
B. Develop protocols for safety audits and training material for safety assurance		To be completed in the fourth quarter 2019.
C. Training relevant to operational safety assurance completed		To be completed in the fourth quarter 2019.
D. Test Intervention Tools To Measure Safety Performance: Conduct first cycle of safety audits	First cycle of safety audits conducted as evidence in the Audit Report.	Completed To be completed in the fourth quarter 2019.
E. Information of first cycle of audits reviewed		To be completed by second quarter 2018
F. Information distilled from the audits distributed		To be completed by second quarter 2018
G. Checklists and questionnaires for Safety surveys developed		To be completed in first quarter of 2018
H. Safety surveys completed		To be completed

		in first quarter of 2019
I. Internal safety investigation procedures developed	Internal Safety Investigation Procedures in place.	Completed
J. First cycle of safety performance monitoring and measurement completed		To be completed in third quarter of 2018
3. MANAGEMENT OF CHANGE		
A. Identify changes within the organization which may affect established processes and services	It shall include; 1. Introduction of New Systems and Procedures 2. Installation of New Equipment 3. Change of Personnel and Procedures 4. Repositioning of Systems	Initiated and ongoing.
B. Description of arrangement monitoring and measurement completed		Initiated and ongoing.
4. SMS CONTINUOUS IMPROVEMENT		
A. First cycle of proactive evaluation of facilities, equipment, documentation and individual performance completed		To be completed in second quarter of 2019
B. First cycle of identification of immediate causes of below standard performance identified and their implications in the operation assessed.		To be completed in second quarter of 2019
C. Initial plan to rectify situations involving below standard performance		To be completed in second quarter of 2019

developed		
D. Initial plan to rectify situations involving below standard performance approved		To be completed in second quarter of 2019
E. Documentation relevant to operational safety assurance added to safety library		To be completed in second quarter of 2019

SIGNATURE / DATE

SIMON ALLOTEY
DIRECTOR-GENERAL
GHANA CIVIL AVIATION AUTHORITY

MODEL GAP ANALYSIS

1. Background

This model gap analysis is intended to assist with the implementation of a Safety Management System (SMS) in accordance with the Standards and Recommended Practices (SARPs) contained in ICAO Annex 6 — *Operation of Aircraft, Part I — International Commercial Air Transport — Aeroplanes, and Part III — International Operations — Helicopters*, ICAO Annex 11 — *Air Traffic Services*, and ICAO Annex 14 — *Aerodromes, Volume I — Aerodrome Design and Operations.* A gap analysis is conducted against generally accepted SMS concepts and components which provide, in checklist format, information to assist the evaluation of the components of a safety system presently in place, and the identification of those components of an SMS that will need to be developed.

2. ICAO Safety Management Systems Framework

The ICAO SMS framework is outlined below. The framework lists six components and 14 corresponding elements.

1. **SAFETY POLICY AND OBJECTIVES**

1.1 – MANAGEMENT COMMITMENT AND RESPONSIBILITY
1.2 – SAFETY ACCOUNTABILITIES OF MANAGERS
1.3 – APPOINTMENT OF KEY SAFETY PERSONNEL
1.4 – SMS IMPLEMENTATION PLAN
1.5 – COORDINATION OF THE EMERGENCY RESPONSE PLAN
1.6 – DOCUMENTATION

2. **SAFETY RISK MANAGEMENT**

2.1 – HAZARD IDENTIFICATION PROCESSES
2.2 – RISK ASSESSMENT AND MITIGATION PROCESSES
2.3 – INTERNAL SAFETY INVESTIGATIONS

3. **SAFETY ASSURANCE**

3.1 – SAFETY PERFORMANCE MONITORING AND MEASUREMENT
3.2 – THE MANAGEMENT OF CHANGE
3.3 – CONTINUOUS IMPROVEMENT OF THE SAFETY SYSTEM

4. **SAFETY PROMOTION**

4.1 – TRAINING AND EDUCATION
4.2 – SAFETY COMMUNICATION

The implementation of an SMS requires an analysis of our systems 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 the requirements. The analysis involves comparing the SMS requirements against our existing systems.

GAP ANALYSIS

ICAO SMS Framework	Response (*Yes/No*)	If *yes*, state where the requirement is addressed. If *no*, record SMS processes that need further development
Safety Policy and Objectives		
Is a safety management system with defined components established, maintained and adhered to?	No	The SMS is now being established in line with ICAO Annex 19.
Is the safety management system appropriate to the size and complexity of the organization?	Yes	The SMS is being established in relation to the size and complexity of the organization.
Is there a safety policy in place?	Yes	The safety policy have been drafted pending the signature of the DG
Have safety objectives been established?	Yes	It will be stated clearly.
Are safety objectives publicized and distributed?	No	To be publicized and distributed.
Is there a formal process to develop a coherent set of safety goals?	No	However some processes exist in our organization being established to develop a coherent set of safety goals.
Is there a formal process to develop and maintain a set of safety performance indicators?	No	However some processes exist in our organization being established to develop and maintain a set performance indicators.
Has the organization based its safety management system on the safety policy?	Yes	The SMS is based on the safety policy.
Is the safety policy approved by the accountable executive?	No	Yet to be approved
Is the safety policy promoted by the accountable executive?	Yes	The accountable executive is committed to the safety policy.
Is the safety policy reviewed periodically?	No	It will be reviewed periodically.

Is there a policy in place that ensures that employees are free to report safety deficiencies, hazards or occurrences without being subject to unjust discipline?	Yes	'Just Culture'' is in place.
Does the accountable executive have responsibility for ensuring that the safety management system is properly implemented and performing to requirements in all areas of the organization?	Yes	The accountable executive have the responsibility as clearly defined in the SMS policy.
Does the accountable executive have control of the financial and human resources required for the proper execution of their SMS responsibilities?	Yes	As stated in the policy.
Has a qualified person been appointed to oversee the operation of the SMS?	Yes	SSQA Manager has been appointed to oversee the operation of the SMS.
Does the person overseeing the operation of the SMS fulfill the required job functions and responsibilities?	Yes	Fulfilled all job requirements.
Are the safety authorities, responsibilities and accountabilities of personnel at all levels of the organization defined and documented?	Yes	As defined in the draft manual.
Do all personnel understand their authorities, responsibilities and accountabilities in regards to all safety management processes, decisions and actions?	No	Further training and education will be conducted for all employees as defined in the draft manual.

Does the organization have an emergency response procedure appropriate to the size, nature and complexity of the organization?	Yes	But need to be updated to meet all aspects of the organization comprehensively.
Have the emergency response procedures been documented, implemented and assigned to a responsible manager?	No	Not yet assigned to a responsible manager.
Have the emergency response procedures been periodically reviewed as part of the management review of the SMS, and after key personnel and organizational change?	No	It will be periodically reviewed.
Does the organization have a process to distribute the emergency response procedures and to communicate the content to all personnel?	No	A defined process will be set up in order to communicate the content to all personnel.
Has the organization conducted drills and exercises with all key personnel at specified intervals?	Yes	There have been periodic drills even though it needs a much more coordinated effort with all key personnel.
Has a documented procedure been established and maintained for identifying applicable regulatory requirements?	No	Yet to develop a procedure for documentation.
Are regulations, standards and exemptions periodically reviewed to ensure that the most current information is available?	No	The appropriate offices will be informed to ensure periodic reviews.
Is there consolidated documentation that describes the SMS and the interrelationships between all its components?	No	As indicated in the draft manual.

Does this information reside or is it incorporated into approved documentation, such as Organization Operations Manual, Maintenance Control/Policy Manual, Airport Operations Manual, as applicable, and where these approved documents are not required by regulation, the organization includes the information in a separate, controlled document?	No	It will be synchronized with all other documents.
Does the organization 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 and industry best practices?	Yes	However a holistic and an all-encompassing records and documentation procedure need to established.
Does the system provide the control processes necessary to ensure appropriate identification, legibility, storage, protection, archiving, retrieval, retention time, and disposition of records?	Yes	However the established processes are not fully documented.
Safety Risk Management		
Does the organization have a reactive process or system that provides for the capture of internal information including incidents, accidents and other data relevant to safety and risk management?	Yes	Adequate processes exist.

Is the reactive reporting process simple, accessible and commensurate with the size of the organization?	Yes	Processes that exist are in line with the size of the organization.
Are reactive reports reviewed at the appropriate level of management?	Yes	However, further reviews are needed by Top Management.
Is there a feedback process to notify contributors that their reports have been received and to share the results of the analysis?	Yes	There is a feedback usually with reports received, however this has to be improved and documented.
Is there a process in place to monitor and analyze trends?	No	There is the need to put in processes to achieve that.
Are corrective and preventive actions generated in response to event analysis?	Yes	Such actions exist which even serve as a learning tool.
Does the organization have a process or system that provides for the capture of internal information including hazard identification, occurrences and other data relevant to safety?	Yes	Need improvement.
Is the proactive reporting process simple, accessible and commensurate with the size of the organization?	Yes	A hazard identification process is needed.
Is there a structured process for the assessment of risk associated with identified hazards, expressed in terms of severity, and probability of occurrence?	Yes	In line with ICAO risk matrix.

Are there criteria for evaluating risk and the acceptable level of risk the organization is willing to accept?	Yes	Based on the ICAO risk matrix.
Does the organization have risk management strategies that include corrective/ preventive action plans to prevent recurrence of reported occurrences and deficiencies?	Yes	Needs proper documentation and structure.
Safety Assurance		
Are regular and periodic, planned reviews conducted regarding company safety performance, internal audit results, hazard and occurrence investigations, hazard and occurrence analysis results, internal/external feedback analysis/results, status of corrective actions, follow-up actions from previous management reviews, changes that could affect safety, recommendations for improvement and sharing of best practices across the organization?	Yes	Need more improvement in documentation, data collection and monitoring.
Is there a process to evaluate the effectiveness of corrective actions?	No	Need to be established.
Are proactive reports reviewed at the appropriate level of management?	Yes	Top Management involvement is needed.

Is there a feedback process to notify contributors that their reports have been received and to share the results of the analysis?	Yes	There is a feedback usually with reports received, however this has to be improved and documented.
Is there a process in place to monitor and analyze trends?	No	There is the need to put in processes to achieve that.
Has the organization planned self-evaluation processes, such as regularly scheduled reviews, evaluations, surveys, operational audits, assessments, etc.?	No	Only operational audits are being done.
Are corrective and preventive actions generated in response to risk analysis?	Yes	Such actions exist which even serve as a learning tool.
Is a process in place for analyzing changes to operations or key personnel for risks?	Yes	Changes to key personnel are largely not conducted.
Are there procedures in place for the conduct of investigations?	Yes	As indicated in the manual.
Do measures exist that ensure all reported occurrences and deficiencies are investigated?	Yes	But deficiencies are not investigated. Need to establish such procedures.
Is there a process to ensure that occurrences and deficiencies reported are analyzed to identify all associated hazards	No	Need to establish such processes.
Are corrective and preventative actions generated in response to event investigation and risk analysis?	Yes	Actions exist in the manual.

Does the organization have a process for evaluating the effectiveness of the corrective/ preventive measures that have been developed?	No	Need to establish a continuous monitoring and evaluation process.
Are corrective/ preventive actions, including timelines, documented?	No	There is a need to put in place a continuous monitoring with definite timelines with proper documentation.
Does the organization conduct reviews and audits of its processes, its procedures, analyses, inspections and training?	Yes	There is the need to conduct periodic reviews of the organizational processes and procedures and inspections.
Does the organization have a system to monitor the internal reporting process and the associated corrective actions?	No	Need to establish an internal reporting process.
Is there an operationally independent audit function with the authority required to carry out an effective internal evaluation program?	Yes	As established in the SMS manual.
Does the audit system cover all functions, activities and organizations within the company?	Yes	In line with the organizational policy.
Are there defined audit scope, criteria, frequency and methods?	Yes	They are fully captured.
Are there selection/training process to ensure the objectivity and competence of auditors as well as the impartiality of the audit process?	Yes	As stated in the SMS manual.

Is there a procedure for reporting audit results and maintaining records?	Yes	As stated in the SMS manual.
Is there a procedure outlining requirements for timely corrective and preventive action in response to audit results?	No	Yet be established.
Is there a procedure to record verification of action(s) taken and the reporting of verification results?	No	Need to be established.
Does the organization perform periodic Management reviews of safety critical functions and relevant safety or quality issues that arise from the internal evaluation program?	No	There is the need for management to perform such periodic reviews.
Safety Promotion		
Are there communication processes in place within the organization that permit the safety management system to function effectively?	No	Communication processes to be established in line with the safety promotion requirement.
Are communication processes (written, meetings, electronic, etc.) commensurate with the size and scope of the organization?	No	As established in the SMS manual, it will be established to commensurate with size and scope of the organization.
Is information established and maintained in a suitable medium that provides direction in related documents?	No	Through various suitable media, safety information will be established and maintained.

Is there a process for the dissemination of safety information throughout the organization and a means of monitoring the effectiveness of this process?	No	There is the need to establish such processes.
Is there a process in place to monitor and analyze trends?	No	There is the need to put in processes to achieve that.
Are corrective and preventive actions generated in response to event analysis?	No	Such actions need to be established.
Is there a documented process to identify training requirements so that personnel are competent to perform their duties?	No	Such processes to identify training requirement to be established.
Is there a process that measures the effectiveness of training?	No	Such processes to measure the effectiveness of training to be established.
Is the organization's safety training incorporated into indoctrination training upon employment?	No	Comprehensive safety culture training must be incorporated into the indoctrination training for all new employees.
Is there emergency response and response training for affected personnel?	No	Such emergency response training need to be established for affected personnel.

EMERGENCY CHECKLIST

AIRCRAFT EMERGENCIES AT AERODROME

A. GENERAL

The responsibility for alerting aerodrome emergency services normally rests with the Air Traffic Services (ATS). In general, the ATS unit last in communication with the aircraft or which receives information from an outside source that an aircraft is in need of rescue aid shall initiate action.

B. AIR TRAFFIC CONTROL UNIT

When an ATC unit becomes aware that an aircraft is in need of rescue aid within the radius of action, the controller shall immediately alert the emergency services and give them the fullest available information. Whenever possible controllers should anticipate the need for aerodrome fire vehicles to cross runways and should issue clearances in advance of requirements. Other traffic may be stopped or diverted to avoid conflict with appliances.

It is known that an aircraft which has crashed or is about to crash is carrying dangerous goods including chemicals; the rescue services shall be informed.

C. THE AERODROME RESCUE FIRE FIGHTING SERVICE

The Rescue Fire Fighting Service (RFFS) will be responsible for final determination of the size of the attendance within and outside the aerodrome boundary. Normally a full attendance is made to all accidents within the boundary.

D. THE POLICE AND HOSPITALS

The police will be responsible for protection of the aircraft, passengers and luggage/goods on board. The hospital(s) will take care of the wounded and the sick. Close liaison will therefore be required between the RFFS, the Police and Hospitals to ensure their immediate co-operation in the event of an emergency.

1. PROCEDURES FOR HANDLING AIRCRAFT EMERGENCIES AT AERODROME

In the event of an aircraft emergency at an aerodrome, the tower controller shall

a) Sound the crash alarm bells in the accordance with phase stage of emergency;
   1. Standby - Alert 1 (Code Yellow)
   2. Emergency - Alert 2 (Code Red)
   3. Crash - Alert 3 (Code Blue)

b) Give full details to the RFFS by radio and /or telephone including the runway, type of aircraft, persons on board, fuel endurance and nature of emergency.

c) Direct RFFS to the area when necessary

d) Notify KIA clinic and request them to standby

e) Inform Director, Aviation Security (GACL)

f) Notify Airport Police and request them to standby

g) Inform other aircraft and request them for assistance

h) Inform ACC

i) Notify operator of aircraft

2. BOMB WARNING / THREAT: AIRCRAFT

A. GENERAL

A bomb warning involving an aircraft is to be treated as an emergency and controllers are to follow the procedures and guidance given.

B. ASSESSMENT OF WARNING

Bomb warnings are usually anonymous and are communicated by telephone. Each bomb warning must be assessed to determine its significance and the level of risk. Air Traffic Control, while having a responsibility for flight safety has a much more limited responsibility in threat cases. It is a vital communication and support facility but should not take part in risk assessment.

The National Security outfit, Ministry of Defence (MOD), Aviation Security and Airline Operators have access to specialist risk assessors, so timely notification is vital.

C. CATEGORIES OF ASSESSMENT

A	**CATEGORY RED**	**EFFECT**
	Warning where threat identifies a specific target or where the caller identifies himself or the organization involved.	Involves danger to people, property or commercial activities. Merits counter measures.
B	**CATEGORY AMBER**	**EFFECT**
	Warning related to one or more targets but where there is doubt to its credibility.	May involve danger and merits increased vigilance.
C	**CATEGORY GREEN**	**EFFECT**
	A warning which may not identify a target or a specific group of targets – lacks credibility.	Does not justify extra precautions

ATC unit receiving the information shall obtain

a) Identification and particulars of informant

b) Source of information and

c) Note time of receipt of information

ATC Unit shall inform

a) Director Aviation Security DAVSEC (GACL) on 0244 313 935 or Ext 1295

b) Watch Manager, ACC and other ATC units

c) Chief of Facility, ATC on 0243 207130 / 0202930288 / 0302 776171 Ext 1354

Control Tower shall

a) Inform RFFS by sounding the Emergency Alarm Bell or on telephone 73285, or 776171 Ext 2505 or 1543 or on radio

b) If aircraft is on ground, taxi to the "DESIGNATED AREA"

c) If aircraft requires to land, give landing clearance and after landing taxi aircraft to the "DESIGNATED AREA"

The Chief of Facility, ATC shall inform

a) Rescue Coordination Center (RCC) on 0302 769 401, 0244 540 656, Ext 44

b) Ghana Armed Forces (GAF), General Headquarters (HQ) on 0302 668 991 (and give a copy of the information to Ghana Air Force HQ on 0244 333 953, 0244 333 952 or 0302 777 510)

c) Director Air Traffic Services on 0244 230 999, 0200841657, 0302 776 171, Ext 1350

d) Deputy Director General (Technical), GCAA on 0277780586, 0501315636, 0302 776171 Ext 1026

e) Director General , GCAA on 0244 313 931, 0302 7776171, Ext 1012

f) Operator of the Aircraft

g) Director , Airport Operations (GACL) on 0244 313 244, Ext 1214

3. INSTRUCTIONS FOR PANDEMICS AT KIA

A. ACTION BY AIR TRAFFIC CONTROL (ATC)

1. Upon receipt of a suspected case(s) of communicable disease, or other public health risk, on board an aircraft, ATC shall request the under listed information:
   a. Aircraft Identification
   b. Departure Aerodrome
   c. Destination Aerodrome
   d. Estimated Time of Arrival
   e. Number of Persons on board
   f. Number of Suspected Case(s) on board
   g. Nature of Public Health Risk, if known
2. This information must be relayed immediately / as soon as possible by Air Traffic Control to the Ghana Airports Company Limited (GACL)
3. This information must also be relayed immediately / as soon as possible by Air Traffic Control (ATC) to the aircraft operator / representative.
4. Any other information.

4. HIJACKING AND UNLAWFUL USE OF AIRCRAFT

A. GENERAL

Instances may occur when civil and military aircraft operate unlawfully or without proper authorization within Ghanaian airspace including;

a) The unlawful seizure or exercise of control, of an aircraft by force threats (hijacking).
b) The unauthorized removal of an aircraft and its subsequent flight.
c) Flight of an aircraft with intent to defect.
d) Illegal use of aircraft to affect the escape of prisoners or special hospital patients.
e) The use of aircraft in the furtherance of a crime.

B. SAFETY

At all times the safety of the aircraft and its occupants is of prime importance. Hijacked aircraft in Ghanaian airspace are to land as soon as possible. Requests from the pilot-in-command are to be complied with and no attempt shall be made to influence the course of events without his concurrence. All actions by ATC shall be co-ordinated with the Director, Aviation Security (GACL).

C. DIRECTION

The Watch Manager, ACC shall be responsible for co-ordinating all such incidents with the Director, Aviation Security (GACL). Responsibility for the overall direction of the incident will rest with National Security through the Director, Aviation Security (GACL).

D. ATC OPERATIONS

The aircraft concerned shall be given priority where possible. Any reference to the special situation is to be avoided on ground/air communication with other aircraft unless it has first been referred to in communication from the aircraft involved and it is reasonable to assume that such reference will not aggravate the situation.

Whenever possible the aircraft are to be monitored by radar. Whenever it has been established that the aircraft is transmitting SSR Code A 7500 the controller shall attempt to verify by RTF with the aircraft concerned that the code selection is intentional.

The phraseology to be used is: (CALL-SIGN) ……confirm squawking assigned code (e.g. A 4601).

The RTF message must exclude specific mention of Code A 7500. Whenever it has been verified that the code has been intentionally selected or when no verification can be obtained, it shall be assumed that the aircraft has suffered unlawful interference.

Normal ATC clearances will apply unless otherwise directed by appropriate higher authority.

The ATC unit receiving the Hijack information shall inform

- **a)** Director Aviation Security (DAVSEC) on 0244 313 935 or Ext 1295
- **b)** Watch manager ACC and other ATC units
- **c)** Chief of facility ATC (COF) on 0243 207130 / 0202930288 / 0302 776171 Ext 1354

If information is received that

a) Someone is seriously ill or injured as a result of the seizure action or,
b) There is fire on board the aircraft or,
c) The aircraft and its occupants are threatened by grave and imminent danger and require immediate landing,
    i) ATC shall issue landing clearance and inform DAVSEC to advise appropriate authorities
    ii) Alternatively, when no apprehension exists as to the safety of aircraft and its occupants, clearance to land may not be granted until the DAVSEC has obtained such clearance from the appropriate authorities.

The Control Tower shall

a) Inform RFFS and give details of incident and parking instructions if landing clearance is issued.

b) After landing taxi aircraft to the "DESIGNATED AREA"

The Chief of Facility, ATC shall inform

a. Rescue Coordination Center (RCC) on 0302 769 401, 0244 540 656, Ext 44

b. Ghana Armed Forces (GAF), General Headquarters (HQ) on 0302 668 991 (and give a copy of the information to Ghana Air Force HQ on 0244 333 953, 0244 333 952 or 0302 777 510)

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d. Deputy Director General (Technical), GCAA on 0277780586, 0501315636, 0302 776171 Ext 1026

e. Director General , GCAA on 0244 313 931, 0302 7776171, Ext 1012

f. Operator of the Aircraft

g. Director , Airport Operations (GACL) on 0244 313 244, Ext 1214

5. ALERTING SERVICE

A. THE RESCUE CO-ORDINATION CENTRE (RCC)

The Rescue Co-ordination Centre (RCC) is responsible for promoting efficient organization of search and rescue service and for co-ordinating the conduct of search and rescue operations within the Accra FIR. It is responsible for initiating search and rescue actions.

In Ghana the Rescue Co-ordination Centre is located at the headquarters of the Ghana Civil Aviation Authority.

B. GENERAL

Notification of emergencies and requests for assistance to and from the search and rescue organization shall always be made by or through the Accra ACC to the Rescue Co-ordination Centre (RCC).

In all communications with the RCC relating to the phase of the emergency the first word in the text shall be one of the following three (3) words appropriate to the emergency phase.

INCERFA - **To denote the Uncertainty phase**

ALERFA - **To denote the Alert phase**

DETRESFA - **To denote the Distress phase**

C. ALERTING INFORMATION

The Alerting information shall include such of the following as is available in the order listed

a) Phase of emergency.
b) Agency or person calling.
c) Nature of emergency.
d) Significant information from flight plan.
e) ATS unit which made last contact, time and frequency used.
f) Last position report and how obtained.
g) Colour and distinctive marks of the aircraft.
h) Any action taken by reporting office.
i) Other pertinent information and remarks.

Subsequent to the notification the Watch Manager, ACC shall without delay furnish the RCC with;

a) Any useful additional information, especially on the development of the state of emergency through subsequent phases or
b) Information that the emergency situation no longer exists.

The Watch Manager shall notify the aircraft operator of the relevant phase of emergency.

SAFETY OCCURRENCE REPORTING SYSTEMS

STATEMENT BY THE DIRECTOR GENERAL

Just Culture

Our organization espouses a 'Just Culture' in the interests of the ongoing development of safety. This means our organization supports the development, within all areas of the aviation community, of a culture in which:

i. individuals are not punished for actions, omissions or decisions taken by them that are commensurate with their experience and training but which result in a reportable event;
ii. but where gross negligence, willful violations and destructive acts are not tolerated.

Confidentiality of Reports

It is fundamental to the purpose of the reporting of incidents and accidents, that the knowledge gained from the investigation of these occurrences is disseminated so that we may all learn from them. Without prejudice to the proper discharge of its responsibilities, the organization will not disclose the name of the person submitting the report or of a person to whom it relates unless required to do so by law; or the person concerned authorizes disclosure. Should any safety follow-up action arising from a report be necessary, the organization will take all reasonable steps to avoid disclosing the identity of the reporter or of those individuals involved in any reportable occurrence.

Assurance Regarding Prosecution

Our organization gives an assurance that its primary concern in relation to our reporting system (G-VOCORS & G-MARS) is to secure free and uninhibited reporting and that it will not be its policy to institute proceedings in respect of unpremeditated or inadvertent breaches of the law which come to its attention only because they have been reported under the scheme.

Possible Action by Employers

Where a reported occurrence indicated an unpremeditated or inadvertent lapse by an employee, the organization would expect the employer in question to act responsibly, to share the view that free and full reporting is the primary aim, and ensures that every effort should be made to avoid action that may inhibit reporting. The organization will, accordingly, make it known to employers that, except to the extent that action is needed in order to ensure safety, it expects them to refrain from disciplinary or punitive action which might inhibit their staff from duly reporting incidents of which they may have knowledge.

SIMON ALLOTEY
DIRECTOR-GENERAL
GHANA CIVIL AVIATION AUTHORITY

A. INTRODUCTION

1. OBJECTIVE

1.1. The objectives of the occurrence report system are;

a. not to blame or punish any individuals but to identify flaws and shortcomings in the system and initiate corrective measures to prevent occurrences and incidents to be repeated and collect data on accidents,
b. that incidents and other safety related occurrences are assessed, to enable the safety performance of the system.
c. to identify and investigate risk areas where the ATS system could contribute to safety infringement, and take appropriate actions;
d. assess and monitor whether technical and operational changes introduce to the ATS system affects the flight safety.

1.2. The safety performance monitoring provides means by which an ATS provider can verify that it is meeting its safety performance targets. An effective monitoring programme increases the probability of detecting any weaknesses in the system defences before an active failure leads to an accident or serious incident.

1.3. One of the baselines in the SMS is that every safety related occurrences shall be investigated as soon as possible.

1.4. The purpose is to identify the course and from that, take appropriate action to avoid re-occurrence. It shall also be used to disseminate the experience within the organization and to other departments. An investigation shall include, if appropriate, technical system and equipment.

1.5. The investigation is done by the safety management or by a qualified investigator.

1.6. The investigation process is described in the Safety Occurrence Investigation Process.

2. REQUIREMENTS

2.1 The safety performance monitoring programme requires that the organization;

a. specify the safety performance indicators to be used to measure safety performance;
b. decide on safety objectives;
c. develop and implement appropriate data collection procedures, including a safety occurrence reporting and investigation system,
d. develop and implement procedures for the analysis and assessment of the result of monitoring.

3. RESPONSIBILITY

Each individual member of the staff has a responsibility for submitting a report of an occurrence. The Chief of Facility shall submit copies of occurrence reports to Deputy Director, ATS, Director, ATS and the SSQA Manager. The SSQA Manager shall analyse and assess the impact of occurrence- and investigation reports on safety and make recommendations to the Director General (DG)

B. GCAA VOLUNTARY AND CONFIDENTIAL REPORTING SYSTEMS (G-VOCORS)

1.0 OBJECTIVE

1.1 The key objective of Ghana Civil Aviation Authority (GCAA) voluntary and confidential reporting system is to enhance the safety of our company's aviation activities through the collection of reports on actual or potential safety deficiencies that would otherwise not be reported through other channels. Such reports may involve occurrences, hazards or threats relevant to the safety of our aviation activities. This system does not eliminate the need for formal reporting of accidents and incidents according to our company SOPs, as well as the submission of mandatory occurrence reports to the relevant regulatory authorities.

1.2 The GCAA Voluntary and Confidential Reporting System (G-VOCORS) is a voluntary, non-punitive, confidential occurrence and hazard reporting system administered by the SSQA Manager. It provides a channel for the voluntary reporting of aviation occurrences or hazards relevant to our organization's aviation activities, while protecting the reporter's identity.

2. SCOPE

The G-VOCORS covers areas such as:

a) Air Traffic Management (ATM) Operations
b) Aeronautical Information Management (AIM) Operations
c) Air Traffic Services Engineering (ATSE) Operations
d) Information Communication Technology (ICT) Operations

3. WHO CAN MAKE A VOLUNTARY REPORT?

If you belong to any of these operational areas or departments, you can contribute to aviation safety enhancement through the G-VOCORS by reporting on occurrences, hazards or threats relevant to our organization's aviation activities:

a) Air Traffic Controllers
b) Engineers and Technicians
c) AIM Personnel
d) ICT Personnel
e) Other Civil Aviation Personnel
f) Other Airports Personnel

4. WHEN TO MAKE A REPORT?

You should make a report when:

a) You wish for others to learn and benefit from the incident or hazard but are concerned about protecting your identity;
b) There is no other appropriate reporting procedure or channel; and

c) You have tried other reporting procedures or channels without the issue having been addressed;

5. HOW THE REPORTS ARE PROCESSED?

5.1 The G-VOCORS pays particular attention to the need to protect the reporter's identity when processing all reports. Every report will be read and validated by the SSQA Manager. The SSQA Manager may contact the reporter to make sure he understands the nature and circumstances of the occurrence/hazard reported and/or to obtain the necessary additional information and clarification.

5.2 When the SSQA Manager is satisfied that the information obtained is complete and coherent, he will de-identify the information and enter the data into the G-VOCORS database. Should there be a need to seek input from any third party, only the de-identified data will be used.

5.3 The G-VOCORS form, with the date of return annotated, will eventually be returned to the reporter. The SSQA Manager will endeavour to complete the processing within fifteen (15) working days if additional information is not needed. In cases where the SSQA Manager needs to discuss with the reporter or consult a third party, more time may be needed.

5.4 If the SSQA Manager is away from his office for a prolonged period, the acting manager will process the report. Reporters can rest assured that every G-VOCORS report will be read and followed through by either the SSQA Manager or the acting manager.

6. INFORMATION SHARING

6.1 Relevant de-identified reports and extracts may be shared within the company as well as with external aviation stakeholders as deemed appropriate. This will enable all concerned personnel and departments within the organization as well as appropriate external aviation stakeholders to review their own operations and support the improvement of aviation safety as a whole.

6.2 If the content of a G-VOCORS report suggests a situation or condition that poses an immediate or urgent threat to aviation safety, the report will be handled with priority and referred, after de-identification, to the relevant organizations or authorities as soon as possible to enable them to take the necessary safety actions.

7. WHO TO CONTACT?

You are welcome to call the SSQA Manager to enquire about the G-VOCORS or to request a preliminary discussion with the SSQA Manager before making a report. The SSQA Manager and acting manager can be contacted during office hours from Monday to Friday at the following telephone numbers:

SSQA MANAGER: **MR. MICHAEL KWAPONG ATIEMO**
TELEPHONE NUMBER: **233 201 300955 / 0302 776171 EXT 1352**
ALT. TELEPHONE NUMBERS: **233 244 673462 / 233 244 673459 / 233 244 513070**

C. GCAA MANDATORY REPORTING POLICY SYSTEMS (G-MARS)

1.0 OBJECTIVE

1.1 The objective of the G-MARS even though lists the majority of reportable occurrences, it cannot be completely comprehensive. Any other occurrences, which are judged by those involved to meet the criteria, should also be reported.

1.2 This does not include accidents and serious incidents.

1.3 This includes Air Navigation Service (ANS) occurrences which pose an actual or potential threat to flight safety, or can compromise the provision of safe ANS services.

2. SCOPE

It covers areas such as:

A. Air Traffic Management (ATM) Operations
B. Aeronautical Information Management (AIM) Operations
C. Air Traffic Services Engineering (ATSE) Operations
D. Information Communication Technology (ICT) Operations

3. WHAT CONSTITUTE A MANDATORY REPORT

The contents of this policy shall not preclude the reporting of any occurrence, situation or condition which, if repeated in different but likely circumstances or allowed to continue uncorrected, could create a hazard to aircraft safety.

1. Near collision incidents (encompassing specific situations where one aircraft and another aircraft/the ground/a vehicle/person or object are perceived to be too close to each other)
   a) separation minima infringement;
   b) inadequate separation;
   c) "near-CFIT" (near-controlled flight into terrain);
   d) runway incursion where avoiding action was necessary.
2. Potential for collision or near collision (encompassing specific situations having the potential to be an accident or a near collision, if another aircraft is in the vicinity
   a) runway incursion where no avoiding action is necessary;
   b) runway excursion;
   c) aircraft deviation from ATC clearance;
   d) aircraft deviation from applicable Air Traffic Management (ATM) regulation:
      i. aircraft deviation from applicable published ATM procedures;
      ii. unauthorized penetration of airspace;
      iii. deviation from aircraft ATM-related equipment carriage and operations, as mandated by applicable regulation(s).
3. ATM-specific occurrences (encompassing those situations where the ability to provide safe ATM services is affected, including situations where, by chance, the safe operation of aircraft has not been jeopardized). This shall include the following occurrences:

a) inability to provide ATM services:
b) inability to provide air traffic services;
c) inability to provide airspace management services;
d) inability to provide air traffic flow management services;
e) failure of Communication function;
f) failure of Surveillance function;
g) failure of Data Processing and Distribution function;
h) failure of Navigation function;
i) ATM system security.

4. Air Traffic Control (ATC) Navigation and Communications - significant malfunction or deterioration of service.
5. An aircraft was or could have been endangered by impairment of any member of ground staff (e.g. ATC, "AD" (aircraft dispatchers), Maintenance, etc.).
6. ATC overload.
7. Failure or unplanned shutdown of a major operational ATC computer system, requiring reversion to manual back-up and resulting in disruption to the normal flow of air traffic.
8. Missed Approaches or Go-Around within 20NM.
9. Aborted Take-off.
10. Take off from or Landing / Attempted Landing on a closed or engaged runway, on a taxiway or unassigned runway.
11. Bird Strike
12. Presence of Animals or unauthorized personnel on the maneuvering area during aircraft movement.
13. Problems with or malfunction of technical equipment.
14. Any occurrence or circumstances within the other sections (scope of the policy) that has consequences or effect on Air Navigation Service.

4. HOW THE REPORTS ARE PROCESSED?

Every G-MARS report will be read and validated by the Chief of Facility (COF).
The COF may contact the reporter or the Line Manager (if related to the other sections) to make sure he understands the nature and circumstances of the occurrence/hazard reported and/or to obtain the necessary additional information and clarification.
The COF shall refer such reports which need to be investigated to the SSQA Manager for investigation.
The investigated report shall be returned to the COF for further action.
Such reports must remain a confidential material in order to prevent other third parties from accessing them without proper authorization / approval.

SAFETY OCCURRENCE INVESTIGATION POLICY

A 1.0 General

Investigation is a process conducted for the purpose of accident / incidents prevention which includes the gathering and analysis of information, the drawing of conclusions, including the determination of causes and / or contributing factors and when appropriate, the making of safety recommendations.

The investigation of safety occurrences often reveals that there were a number of warning signs, or precursors, which could have been observed before the incident or accident. Investigation of occurrences can allow the identification of such warning signs, and the dissemination to staff of information that could enable similar warning signs to be recognized in the future before they lead to safety occurrences.

Identifying the lessons to be learned from a safety occurrence requires an understanding not just of what happened, but why it happened. A complete understanding of why an occurrence happened requires an investigation that looks beyond the obvious causes and focuses on identifying all contributory factors, some of which may be related to weaknesses in the systems defences or other organizational issues.

1.2 Objectives

The objectives of the investigation process shall be not to blame any individual but to better understand the events leading to the occurrence and also to:

a) Establish the primary causes
b) Identify actions to prevent recurrence
c) Provide an accurate and factual description of the circumstances and the lessons to be learned.

1.3 Scope

Minor occurrences can be an indication of potentially serious hazards. Therefore all occurrences should be investigated. These investigations do not need to be a full investigation but just a review of the circumstances about the occurrence to find out the cause.

All occurrences where separation is lost shall be fully investigated.

1.4 Responsibilities

1.4.1. The SSQA Manager is responsible for informing the Deputy Director, ATS concerning the commencement of the investigation procedure about an occurrence.

1.4.2. The Watch Manager is responsible for collecting and securing facts such us recording of Radar and Communication, Strips, Flight Plans, concerning the occurrence when reports are submitted.

1.4.3. The Chief of Facility may conduct a preliminary investigation based on the report to be able to take remedial actions if necessary.

1.4.4. The SSQA Manager or his designee shall carry out all investigation. However, depending on the type and seriousness of the occurrence, other expertise may be required.

1.4.5. The Safety Committee shall at all times have qualified investigators.

B. PROCEDURE FOR INVESTIGATION

1.0 The Investigation Process

A. Preparation

1. The size and complexity of the investigation process will depend on the nature and seriousness of the occurrence being investigated.
2. Collect all facts about the occurrence e.g. flight plan, strips, voice recording, position log and other pertinent information.
3. Keep record of all findings.
4. Assess the facts and classify the occurrence accordingly.
5. Suggest to the Deputy Director, ATS about the need to conduct investigation or not.
6. Inform relevant persons about the decision.

B. The Investigation

1. Commence investigation
2. When interviewing the persons involved, be clear about the object of the investigation. The main objects are to:
   i. clarify what happened (facts);
   ii. find reasons why it happened;
   iii. find suggestions for actions to prevent recurrence.
   iv. Inform the interviewed person about the procedures for the investigation.
   v. Provide feedback to parties involved.
   vi. The investigation must be conducted and concluded within fifteen (15) working days of the report.

C. The Report

1. Drafts of the report shall be submitted to the head of the unit and persons involved to enable them to comment on the report.
2. Collect and process all comments before finalizing the report
3. Finalise the report including all appendixes.
4. The parties involved are entitled to add supplementary comments if disagreement prevails.

D. Closing of Report

1. When all concerned parties have had the opportunity to comment on the report, the final report shall be submitted to the Deputy Director, ATS.

E. Distribution

1. The report shall be disseminated within the organization to enable the personnel to benefit from the findings and learn from this occurrence.
2. A personal copy of the report should be sent to personnel involved in the occurrence.

SAFETY PROMOTION

1. **Objective**

Safety Promotion is a tool for the management to ensure that staff understands why safety management procedures are introduced, and what safety management means. It is the mechanism by which the safety policy is communicated to staff. It shall also provide means of encouraging the development of a positive safety culture and ensuring that, once established, the safety culture is maintained.

2. **Requirements**

Safety Promotion requires a well-developed link of communication between management and staff, an atmosphere of trust and understanding must prevail. Management must have a sensitive ear towards suggestions for improvement from the operational staff.

3. **Responsibilities**

The Safety Manager is responsible for the Safety Promotion process.

4. **Safety Promotion Process**

4.1 All lessons learned from occurrence investigations shall be published and made available for all relevant personnel.

4.2 Annual safety meetings or workshops shall be organized to enable the staff to discuss safety matters with management.

4.3 Audit plans and reports shall be made available for all personnel concerned.

4.4 All information about the safety policy and procedures shall be disseminated to all staff concerned. The communication plan shall include;

a. Website: To create a platform on the website where materials related to Safety information will be communicated. Documents to be uploaded include the SMS Manual, Safety Policy Statement & Objectives, etc.
b. Use of email to disseminate Safety information.
c. A one / two page (s) column is created in the organization's magazine 'Aviation News" for safety communication activities and promotion.
d. Placements at vantage and designated points for various pull up highlighting our safety policy, objectives and safety related promotional information.
e. Framed Safety Policy will be place at various offices and places.
f. Organized periodic safety seminars and presentation for identifiable groups and association of the organization.
g. Use of social media to disseminate safety issues and information.
h. Creation of Safety Awareness Week
i. Creation of Safety Slogans
j. Institution of Employee SMS Recognition Programme through various platforms like Safety Competition, Voluntary Reporting etc. as captured in the SMS manual.
k. Use of Notices and Bulletins.

5. Slogans for Safety Promotion

a. Safety and Security; Our Priority
b. Safety First
c. Safety Is Everybody Business
d. Safety; By Everybody; For Everybody; At Everywhere; At Everywhere; At Every time
e. KISS – Keep It Safe and Sound
f. Know SAFETY; NO Accident
g. Save Tomorrow; Think Safety Today
h. Safety – Live With It (Slogan for Safety Committee)
i. Safety First, Last and Always, Safety Forever
j. Thinking Safety Is Being In Business
k. Never Give Safety, A Day Off
l. Think Safety – Stay In Business
m. Think Safety Before You Start
n. Safety Is Teamwork, Be Part of the TEAM

SMS Calendar of Regular Scheduled Events

This table will help to organize those recurring aspects of our SMS that must be accomplished on a regular basis.

Item	SMS Manual Section	Scheduled frequency	Dates to accomplish this
Internal Audits by Operating Departments	1.3.2	Ongoing	Continuous
Internal Evaluation of SMS	1.3.3	Biannually	January, July
External Audit of SMS	1.3.4	Biennially	September
System Assessment	1.5	Quarterly	March, June, September, December
Management Review of SMS Outputs	1.7	Biannual	May, November
Emergency Response exercise	Appendix K	Biennially	October