Safety Management System

Chapter 11

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Chapter 11 Safety Management System

11.1 Application of Safety Management System

Nesma Airlines
نسما للطيران

Corporate Policy Statement

The quality of our management system is essential for our business functions. Our commitment is to ensure measuring and evaluating on a continuing basis, and making changes that improve the management system and the culture. Ideas for improvement may come from internal and external sources; therefore we are constantly monitoring all sources and willing to make changes as necessary to keep the management system refreshed and strongly focused on improving operational safety and security performance.

All levels of management and all employees are accountable for the delivery of this highest level of performance, starting with the Accountable Executive

We are committed to:

- Comply with all applicable regulations and the company standards;
- Provide the necessary resources to satisfy operational safety and security outcomes.
- Ensure continual improvement of quality, safety and security management systems;
- Ensure continual improvement of operational performance;
- Preform regular review of performance-based indicators by senior management;
- Preform regular analysis of malfunctions or undesirable operational results;
- Preform continuous training of the Nesma airline's employees to reach the highest levels of efficiency in the implementation of the company operations.
- Implement the team work in all areas to perform the company operations with high efficiency.
- Promote the safety and security awareness as Nesma airlines primary goal is safety and security.
- Follow-up of corrective actions and their effectiveness in improving operational performance.
- Use the good practices to minimize and eliminate risks.
- Optimum use of safe personal protective equipment.
- Communicate all our policies throughout the organization.
- Review all company policies every 2 years to ensure continued relevance to the company standards.
- Inform the operational personnel throughout the organization of their responsibility to comply with the applicable laws, regulations and procedures in all locations where operations are conducted. In the event of willful or negligent disobedience to those rules, regulations, policies, and/or procedures, the personal concerned shall become subject to disciplinary, legal or penal action however nothing contained shall prevent personal from exercising their own best judgment during any situation for which the company standards make no provisions or in an emergency.

Nesma Airlines
نسما للطيران

Accountable Executive
FOR

Revised Mar. 2022

Nesma Airlines
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Corporate Safety Policy Statement

Safety is one of our core business functions, we are committed to developing, implementing, maintaining and constantly improving strategies and processes to ensure that all our aviation activities take place under an appropriate allocation of organizational resources, aimed at achieving the highest level of safety performance and meeting regulatory requirements, while delivering our services.

All levels of management and all employees are accountable for the delivery of this highest level of safety performance, starting with the Accountable Executive

Our commitment is to:

- support the management of safety through the provision of all appropriate resources that will result in an organizational culture that fosters safe practices, encourages effective safety reporting and communication, and actively manages safety with the same attention to results as the attention to the results of the other management systems of the organization;
- ensure that the management of safety is a primary responsibility of all managers and employees;
- clearly define, for all staff, managers and employees alike, their accountabilities and responsibilities for the delivery of the organization's safety performance and the performance of our safety management system;
- establish and operate hazard identification and risk management processes, including a hazard reporting system, in order to eliminate or mitigate the safety risks of the consequences of hazards resulting from our operations, to achieve continuous improvement in our safety performance;
- ensure that no action will be taken against any employee who discloses a safety concern through the hazard reporting system, unless such disclosure indicates, beyond any reasonable doubt, gross negligence or a deliberate or willful disregard of regulations or procedures;
- comply with and, wherever possible, exceed, legislative and regulatory requirements ensure that sufficient skilled and trained human resources are available to implement safety strategies and processes;
- ensure that all staff are provided with adequate and appropriate aviation safety training, are competent in safety matters, and are allocated only tasks commensurate with their skills;
- establish and measure our safety performance against realistic safety performance indicators and safety performance targets;
- continually improve our safety performance through continuous monitoring and measurement, regular review and adjustment of safety objectives and targets, and diligent achievement of these;
- ensure that externally supplied systems and services to support our operations are delivered meeting our safety performance standards.

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11.1.1 Introduction of Safety Management System (SMS Manual)

11.1.1.1 General

This chapter sets out the standards for a safety management system (SMS) for Nesma Airlines that is the holder of the AOC under ECAR PART 121. In order to achieve our production objectives; the management of Nesma Airlines requires managing many business processes. Safety is one such business process. Safety management is a core business function just as financial management, HR management, etc. The Safety Management System is a systematic approach to managing safety, including the necessary organizational structures, accountabilities, policies.

Five core aspects of SMS are:

- Top management commitment.
- Responsibility and accountability of all employees.
- Clearly communicated expectations of zero accidents.
- Auditing and measuring performance for improvement.
- Responsibility of all employees.

11.1.1.2 SMS to Be Consistent With Other Requirements

SMS shall be consistent with:

a. Egyptian Civil Aviation Regulations, any other applicable Advisory circulars and International requirements (ICAO, IOSA …)

b. The organization's safety aims and risk management objectives; and

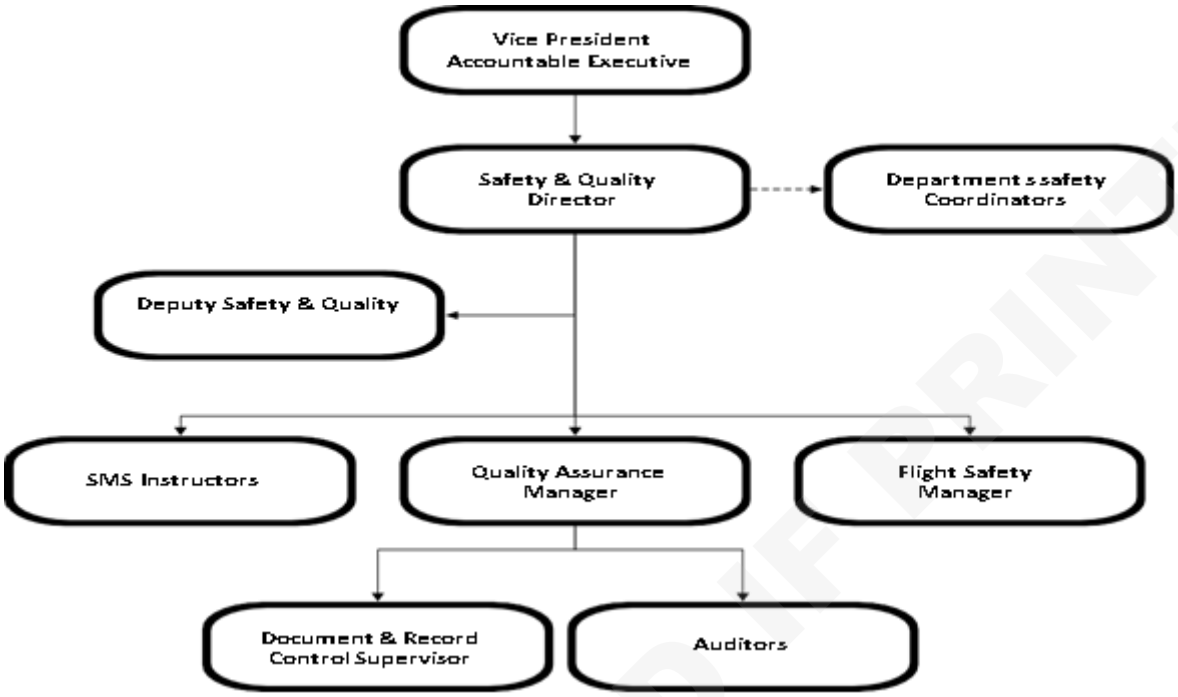
c. The requirements of Nesma Airlines operations manual and maintenance control manual.

11.1.1.3 Accessibility

The SMS has been documented, and kept in a form (SMM) that is readily accessible to all members of Nesma Airlines.

11.1.1.4 Organization Structure

11.1.1.4.1 Safety and Quality Department Organization Chart



11.1.1.5 Responsibilities and Accountabilities

11.1.1.5.1 Safety Department Organization

I. The Safety & Quality directorate is managed by the Safety & Quality director who reports directly to the Accountable Executive. The Safety & Quality Directorate includes a flight Safety manager and a Safety & Quality auditor and Flight safety Assistant ,

II. Nesma Airlines shall allocate appropriate resources to adequately staff and equip the Safety & Quality Directorate. As operational activities, such as routes and fleet size change, these resources will be; supplied as needed.

III. To assist the safety &Quality director, the Accountable Executive may assign additional personnel to the safety & Quality Director, either full-time or as an additional duty to any employee. When such appointments are made, these employees will report to the safety& Quality director.

11.1.1.5.2 Accountable Executive

11.1.1.5.2.1 Safety Accountability

The Accountable Executive accountable to Nesma Airlines management board for safe management of the company and the services provided

11.1.1.5.2.2 Safety Responsibility

In discharging this accountability, the Accountable Executive is responsible for:

- Authorizing a safety policy that indicates Nesma Airlines safety objectives and its commitment to safety
- Ensuring a safety management system is implemented at Nesma Airlines
- Assuming the leadership role to ensure commitment throughout the company, particularly at senior management level, to the safety management policy intent and safety management system requirements
- Ensuring that Nesma Airlines executives and staff are aware and held accountability for their safety performance and,
- Ensuring that Nesma Airlines safety management system and operation performance are evaluated for effectiveness on a regular basis.

11.1.1.5.3 Safety & Quality Director

11.1.1.5.3.1 Safety Accountability:

The Safety Manager is accountable to the Accountable Executive for:

- Providing advice and assurance relating to safety issues and performance, internal and external safety management as per SMS
- Establishment & Maintenance of safety policy and safety management system.
- Establishing safety standards,
- Establishing a system for the safety management education and safety awareness.
- Establishing a safety audit and surveillance system,
- Effective interface with the ECAA regarding safety matters,
- Establishing industry liaison on safety matters,
- Establishing safety relations with international bodies
- Disseminating public communications on safety issues;
- Authorized to Manage, develop, implement and maintain Nesma airlines ERP

11.1.1.5.3.2 Safety Responsibilities:

In discharging these accountabilities, The Quality & Safety Director is responsible for the following:

- Developing and maintaining a safety management policy.
- Controls and directs performance of operations & Maintenance Safety, in order to ensure compliance with regulatory requirements and company safety standards
- Responsible for the day-to-day operation and oversight of SMS operation throughout the organization.
- Establishing and maintaining a safety management system including arrangements for identifying, reporting ,tracking and correcting safety issues and for the initiations of preventive action when: necessary
- Undertaking safety audits of all operational and maintenance and corporate aspects of SMS Undertaking on-going review of safety management system to evaluate its effectiveness and ensuring that improvements are made where required ;
- Overseeing the performance of the company's safety management activities and providing advice on potential improvements to safety performance ,
- Reviewing and reporting on compliance with safety management policies, plans, systems and procedures, ensuring safety issues are reported in a timely manner,
- Implement emergency response planning;
- Overseeing hazard identification systems, for example: (Occurrence investigations & Incident reporting systems & Data analysis programs).
- Coordinating the regulatory authority's Mandatory Occurrence Reporting (MOR scheme).
- Acting as a coordinator for Company Flight Safety Committee, arranging its meetings and keeping records of such meetings.
- Assisting with the investigation of accidents and conducting and coordinating investigations into incidents.
- Enhance safety culture among all flight crews using all available safety recourses such as: bulletins, circulars, flight safety magazine and direct contact with personnel involved.
- Planning and controlling the flight Safety budget

- Selecting the most appropriate risk mitigation measures for those risks deemed unacceptable; coordinating safety committees.
- Investigates all maintenance and operations occurrences to determine the root causes and appropriate courses of action.
- The investigation will be documented to allow for tracking.
- All investigation reports will be reviewed during Safety Committee meetings.
- Responsibilities concerning Quality Management.

11.1.1.5.4 Flight Safety Manager

The Flight Safety Manager is reporting to the Safety& Quality Director.

11.1.1.5.4.1 Safety Responsibility

- Provides safety & regulatory oversight of all flight operation practices, facilities, and training.
- Addresses flight operation concerns assigned by Internal Evaluation
- Manages, maintains the FDM program (AIRFASE) and develop required analysis and reports
- Investigate flight safety concerns to determine the cause and appropriate courses of action.
- Reviews voluntary & occurrence reports for safety related issues and/or trends.
- Coordinate with operations director, chief pilot, and training manager for recommended reactions related to AIRFASE extracted events flight safety issues.
- Ensure safety issues are addressed. , documented and tracked Works on operations activities to identify hazards and apply the needed risk assessment.
- Performs safety audits of flight operations, data will be documented and evaluated to identify any areas of concern.
- Updating the Quality & Safety director for all flight safety status.
- Participates in Nesma Airlines safely committees and events,
- Continuous coordination with the Nesma Airlines chief inspector.

11.1.1.5.5 Flight Safety Assistant

Reporting to Quality and Safety Director and Flight Safety Manager on all aspects and provide safety recommendations.

11.1.1.5.5.1 Safety Responsibility

- Assist the Safety Department in technical / operational matters and maintain safety databases.
- Perform monitoring and surveillance of normal operations to ensure adherence to standard procedures and prepare reports for actions.
- Develop safety audit checklists and Perform planned safety audits and random checks (inspections) to ensure safety compliance of all operating departments.
- Performing random ramp inspections of safety and emergency equipment's and procedures to ensure their serviceability.
- Apply FDA program by :
  - Extracting all In-flight accidences recorded according to the Airbase program.
  - Review all In-flight DFDR downloads recorded data.
  - Analyzing extracted all In-flight and determines accidences.
  - Perform analysis reports and provide recommendations.
- Review flight occurrences reported through Air Safety Reports for follow up and closure
- Preparing of quarterly statistical report giving summary of general findings and escalating violations and significant trends to the attention of the Flight Safety Manager
- Maintaining safety library and safety records of all the findings
- Involvement in publishing Safety bulletins

11.1.1.5.6 All Crewmembers

All crewmembers must perform all assigned duties with safety in mind. Each crewmember is responsible and personally accountable for:

- Performing only those technical functions for which they are trained.
- Observing and following established safety and health policies, practices, procedures and operational requirements as per SMM.
- Notifying management of unsafe conditions directly or through anonymous procedures.
- Operating only that equipment on which they have been trained and are qualified to operate.
- Using required personal protective equipment as trained.
- Availing themselves of safety and health training.
- Keeping work areas free of recognized hazards.
- Reporting injuries, illnesses, damage, incidents, and accidents in accordance with Nesma Airlines policy and procedure.
- Every crewmember is expected to accept responsibility and accountability for their actions. Each will have an opportunity to participate in developing safety standards and procedures by communicating their safety concerns and suggestions to management. All must demonstrate concern for the safety of passengers and for others in the Nesma Airlines organization.
- All personnel must be familiar with not only the safety policies and programs in SMM, but also those found in the Nesma Airlines Flight operations manual and all other manuals applicable to an crewmember's given job function. The safety policies and programs for each department of Nesma Airlines will be disseminated to crewmembers during initial and recurrent training classes provided by the applicable departments. By adhering to established rules and procedures, each crewmember, from the Accountable Executive to the front line, can help collectively achieve Nesma Airlines goal of maintaining a maximum level of safety.
- All personnel performing safety related work are required to be mentally, as well as physically fit, for duty. Those personnel that do not meet this requirement will immediately cease those duties and notify their supervisor. Supervisors aware of, or made aware of, an crewmember performing safety related work that is not mentally, as well as physically fit, for duty will immediately have that crewmember cease those duties.

11.1.1.5.7 Safety Committee

Safety Committee is the primary responsibility of every member and is a prime concern of Safety Department. Therefore, it shall be conceived that one of the primary functions discovery and reporting of safety problems.

Safety Committee dedicated to the improvement of Safety Members meet regularly to exchange safety information and to examine ways to improve safety and to avoid incidents and accidents. One of the main tools of the flight safety committee is the outcomes and statistics which is analyzed and discussed through the committee and with line managers on regular basis meetings.

The effectiveness of flight safety within Nesma Airlines depends upon trust, with matters relating to aviation safety being openly and freely discussed.

Details of accidents, serious incidents and any safety concern which may be discussed at this meeting are to be regarded as confidential.

The Safety Committee provides a method of obtaining agreement for action on specific safety related issues.

11.1.1.5.7.1 Safety Committees Objectives*:*

1. Oversees maintenance & operational safety
2. Review & Discuss Accidents, Incidents and Irregularities.
3. Review & Discuss Safety Audit Recommendations.
4. Find system defects and assure Implementation of corrective action and ensures that corrective action is achieved within agreed timescales.
5. Performs hazard identification, Risk assessment & mitigation to reduce the risk of accidents and incidents.
6. Assesses the impact on safety of operational changes;
7. Study accidents to determine corrective action that can be taken to prevent recurrence.
8. Records should be kept of committee meetings so that activity can be followed up and management kept informed of progress.
9. Risk assessment of new routes, equipment or procedures.
10. Review and resolution of any safety matters that may be brought before the committee.
11. Set safety goals that focus on lowering occurrences level,
12. Investigates and analyses any subject concerning safety.
13. The committee will manage to meet at a minimum twice a year
14. Safety committee shall regularly review all corrective actions arising from safety activities in order to monitor their effectiveness in preventing accidents and incidents. More corrective actions maybe add when necessary.
15. Review outcomes of flight data analysis program (Airbase) in order to ensure Nesma Airlines risk profile.
16. Reviews the effectiveness of previous safety recommendations; and safety promotion.

11.1.1.5.7.2 The Committees Will Be Attended By:

1. General Manager (Accountable Executive) the Committee chairman
2. Safety & Quality Director
3. Director of Operations.
4. Technical Director.
5. Flight Safety Manager.
6. Chief Pilot.
7. Chief Inspector
8. In-Flight Services Manger may be invited if involved in agenda items
9. Ground Handling Manager may be invited if involved in agenda items
10. Others who may be invited if involved in agenda items

11.1.1.5.8 Emergency Response

The SMS include procedures:

- **a.** To identify the potential for accidents, incidents and emergency situations arising out of operations authorized by Nesma Airlines and
- **b.** To respond to those accidents, incidents and situations.

11.1.1.5.9 Document Control

The SMS include procedures for controlling all safety-related documents.
The document control procedures shall ensure that all safety-related Documents are:

- **a.** Authorized by Nesma Airlines;
- **b.** Regularly updated; and
- **c.** Available for use by personnel to whom they apply.

11.1.1.5.10 Record Control

The SMS include record control procedures to ensure that relevant records:

- **a.** Are kept for the period for which they are required; and
- **b.** Are adequate for the purposes for which they are required.

11.1.1.6 Hazard Identification Processes

11.1.1.6.1 Introduction

Nesma Airlines have a hazard identification program that is implemented and integrated throughout the organization, to include:

I. A combination of reactive and proactive methods for safety data collection;

II. Processes for safety data analyses that identifies existing hazards and predict future hazards to aircraft operations.

To ensure all hazards are identified to the extent possible, hazard identification processes are necessarily formalized, coordinated and consistently applied on an on-going basis in all areas of the organization where there is a potential for hazards that could affect aircraft operations.

To be effective, reactive and proactive processes are used to acquire information and data, which are then analyzed to identify existing or predict future (i.e. potential) hazards to aircraft operations. Nesma airlines has developed and maintains a formal process for collecting, recording, acting on and generating feedback about hazards in operations, based on a combination of reactive, proactive and predictive methods of safety data Collection, Examples of processes that typically yield information or data for hazard identification include:

- Reporting system;
- Investigation of accidents, incidents, irregularities and other non-normal events;
- Flight data analysis (AIRFASE)
- Observation of flight crew performance in line operations and training;
- Quality assurance and/or safety auditing;
- Safety information gathering or exchange (external sources).

Processes are designed to identify hazards that might be associated with organizational business changes e.g. addition of new routes or destinations.

The strategy that Nesma Airlines adopts for its SMS will reflect its corporate safety culture and range from purely reactive, responding only to accidents, through to strategies that are highly proactive in their search for safety problems. Safety objectives shall be published and distributed.

11.1.1.6.2 Reactive Safety Method:

- This methodology involves analysis of past outcomes or events. Hazards are identified through investigation of safety occurrences. Incidents and accidents are clear indicators of system deficiencies and therefore can be used to determine the hazards that either contributed to the event or are latent.
- The reactive approach tends to be marked by the following characteristics:
  - **a)** Management's safety focus is on compliance with minimum requirements.
  - **b)** Safety measurement is based on reportable accidents and incidents with such limitations in value as:
    - Any analysis is limited to examining actual failures.
    - Insufficient data is available to accurately determine trends, especially those attributable to human error.
    - Little insight is available into the "root causes" and latent unsafe conditions, which facilitate human error.
  - **c)** Constant "catching up" is required to match human inventiveness for new types of errors.
- The reactive safety method tools are included but not limited to:
  - **a.** Accident/Incident reports

b. Air Safety reports
c. Cabin Crew Air safety reports
d. Mandatory Occurrence reports
e. Industry accident reports
f. State safety reporting systems;

11.1.1.6.3 Proactive Safety Method:

- This methodology involves analysis of existing or real-time situations, which is the primary job of the safety assurance function with its audits, evaluations, employee reporting, and associated analysis and assessment processes. This involves actively seeking hazards in the existing processes.
- Nesma Airlines pursuing a proactive method for safety management believes that the risk of accidents can be minimized by identifying vulnerabilities before they fail and by taking the necessary actions to reduce those risks. Consequently, they actively seek systemic unsafe conditions using such tools as:
  a) Hazard (voluntary and confidential hazards reports) and incident reporting systems that promotes the identification of latent unsafe conditions;
  b) Safety surveys to elicit feedback from front-line personnel about areas of dissatisfaction and unsatisfactory conditions that may have accident potential;
  c) Operational non-routine surveillance and/or audits of all aspects of operations to identify vulnerable areas before accidents, incidents or minor safety events confirm a problem exists.

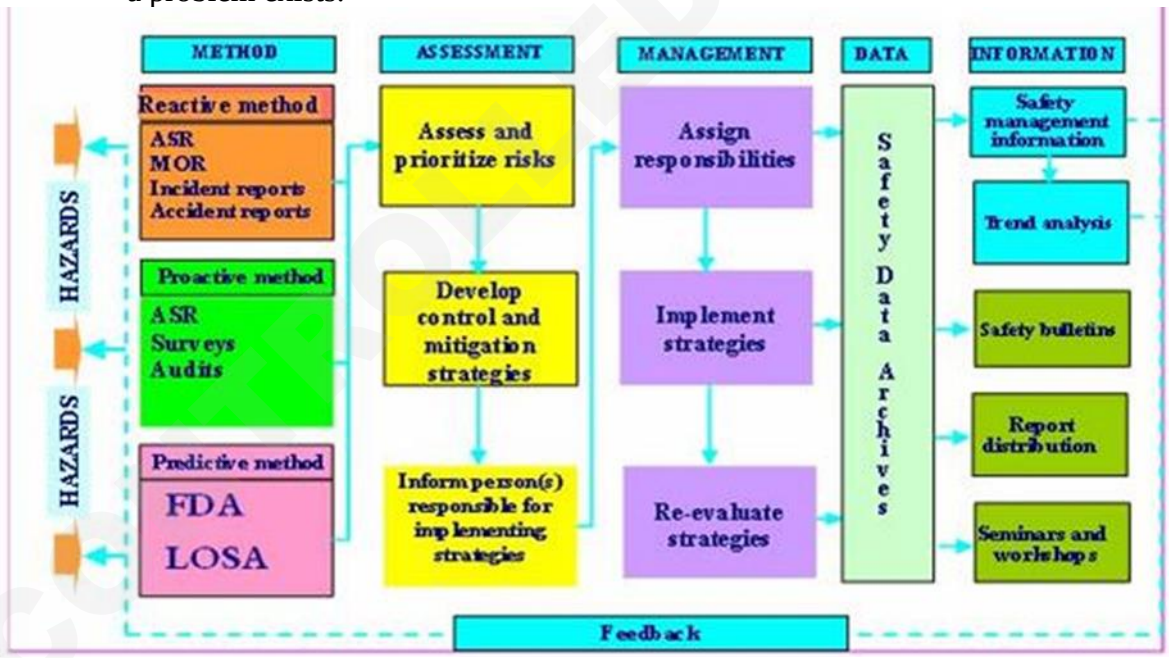


Figure 1 Safety Management System Process

11.1.1.6.4 Reactive Processes

11.1.1.6.4.1 Occurrence and Hazard Reporting

Every event is an opportunity to Nesma Airlines to learn valuable safety lessons. The lessons will only be understood, however, if the occurrence is analyzed so that all staff, including management, understands not only what happened, but also why it happened. This involves looking beyond the event and investigating the contributing factors.
To achieve this, Nesma Airlines maintains procedures for the internal reporting and recording of occurrences, hazards and other safety related issues. The collection of timely, appropriate and accurate data will allow Nesma Airlines to react to information received, and apply the necessary corrective action to prevent a recurrence of the event.
The key to accomplish this, Nesma Airlines have a reporting system that meets the needs of all staff who will be using it – all staff. As such, personnel input into the development of the system are vital. A safety reporting system is worthless if no one uses it.
Nesma airlines non-punitive discipline policy and a real and demonstrated Commitment by management to achieve the company's safety goals will help to foster the development of a reporting culture within Nesma Airlines.

11.1.1.6.4.2 Nesma Airlines' Safety Reporting Systems Encompass The Following Elements:

a) System for reporting hazards, events or safety concerns.
b) System for analyzing data, safety reports and any other safety related information.
c) Method for the collection, storage and distribution of data.
d) Corrective action and risk reduction strategies.
e) On-going monitoring.
f) Confirmation of the effectiveness of corrective action.

11.1.1.6.4.3 Reporting Hazards, Events and Safety Concerns

Nesma Airlines has developed Hazards, Events and safety concerns forms to allow for a full description of the event.

11.1.1.6.4.4 Why Report?

All events require appropriate investigation in order to:

a) Establish their root cause, that is the underlying initial contributing factor(s) that caused the event, and identify actions to minimize the chance of recurrence;
b) Satisfy any regulatory requirements for reporting and investigation as ECAR 39 (MOR)
c) Provide a factual record of the circumstances of the event or hazard to allow others to learn from the situation; and
d) Categorize the underlying causes and establish the appropriate remedial and continuous improvement action.

11.1.1.6.4.5 What Should Be Reported?

Any event or hazard with the potential to cause damage or injury should be reported. Examples of these issues are:

- **a)** Excessive duty times
- **b)** Crews rushing through checks
- **c)** Inadequate tool or equipment control
- **d)** Unruly passengers
- **e)** Emergency exit paths blocked
- **f)** Incorrect or inadequate procedures, and a failure to adhere to standard procedures.
- **g)** Poor communication between operational areas
- **h)** Lack of up to date technical manuals
- **i)** Poor shift changeovers
- **j)** Runway incursions
- **k)** Lack of adequate training and recurrent training.

11.1.1.6.4.6 When Should A Hazard Report Be Submitted?

Any individual involved directly or indirectly in the flight activities of the flight department (i.e. cockpit, cabin, dispatchers, maintenance, employees, personnel, and others providing aviation related products/services) must report any observed hazard. If a hazard is recognized and unable to be observed via normal procedures, the observer shall complete a hazard report and submit it to the Safety manager.

A Hazard Report or Flight Operations Incident Report shall be submitted when any situation, practice, procedure, or process is observed which either a recognized safety concern is, Considered unusual from an operational or procedural standpoint, or Considered deficient from a safety standpoint, and which, in the submitter's opinion, possesses a foreseeable potential for injury or illness to persons or damage or loss of property if not addressed in a timely manner.

Any safety concern that would be of interest to others that are involved in like activities should be reported. Hazard Report is not required for hazards which are able to be resolved locally, however, when a hazard is likely to be duplicated in other department workplaces a Hazard Report should be submitted for the benefit of other affected employees

11.1.1.6.4.7 How A Hazard Shall Be Reported?

At Nesma Airlines, the reports are acted upon in a timely manner by the Flight Safety Manager.

Available Forms:

1. Air safety report (ASR)
2. Confidential / Hazard / human factor Report
3. Voluntary Report
4. Cabin crew Report

Nesma Airlines reporting system maintains confidentiality between the person reporting the hazard and the Flight Safety Manager. Any safety information distributed a hazard report must be de- identified.

Nesma Airlines reporting system maintains confidentiality between the person reporting the hazard and the Safety and Quality Director11.1.2. Hazard, Confidential Human Factors Report:

- All safety reports shall be submitted to the Safety and Quality Department;
- Upon receipt of a Hazard Report the Safety and Quality Director will conduct an investigation to determine the validity of the report as well as to gain additional information concerning the report's subject matter. Any hazardous situations or equipment shall be either placarded or removed from service until the hazardous situation is corrected. The submitter, if identified, will be advised of the result of the investigation. If a Hazard Report identifies a problem that is outside the scope or authority, the originator will be offered assistance in routing the information to the appropriate person responsible.
- Upon validation of a Hazard Report, the Safety & Quality Director shall identify and notify the individual(s) assigned responsibility for the affected workplace(s). The contents of the Hazard Report and the investigation results will be provided along with recommendations for corrective/preventive action. Appropriate action and a target date for elimination or reduction of the hazardous situation will then be determined.
- Final corrective action shall be documented on the Hazard Report form and the completed form returned to the Safety & Quality Director. The Hazard Report originator will then be notified through a personal contact by the Safety & Quality Director of the final disposition of the matter.
- Nesma airlines decisions concerning risk acceptability should be made by management and they should be kept informed of all high-risk considerations. Hazards that were not adequately disposition should be communicated to management for resolution.
- Safety and Quality Director is responsible for investigation of the report and for the confidentiality of the report. Anyone submitting a safety report must receive acknowledgement and feedback within 10 working days after the investigation. The de-identified safety report and recommendations should be made widely available for the benefit of all staff

11.1.2 Voluntary Reporting System

This reporting is voluntary in nature which means it is submitted without any administrative requirement.
Nesma Airlines the top management encourages all employees and gives them the incentive to report voluntarily any hazard or Event. (Reporting Underlining Errors or Unintentional Violations) .In Nesma Airlines The reported information shall not be used against the reporter, The Voluntary Reporting system is non-punitive and extend protection to the source of information to encourage the reporting of such valuable information.

11.1.3 Cabin Safety

Nesma Airlines Cabin safety is aimed to minimizing risks to the occupants of the aircraft. By reducing or eliminating hazards with the potential for creating injuries or causing damage, the range of threats to the aircraft and its occupants include:

a) In-flight turbulence;
b) Smoke or fire in the cabin
c) Decompression;
d) Emergency landings;
e) Emergency evacuations
f) Unruly passengers.

Cabin crews are providing assistance to passengers during an emergency. Following a major aviation accident, investigative attention will likely focus initially on flight operations as guided by the evidence .For example:

a) Incorrect loading of passengers (e.g. weight and balance considerations)
b) Failure to properly secure the cabin and galleys for take-off, landing and in turbulence
c) Delayed reaction to warnings (e.g.in-flight turbulence)
d) Inappropriate response to events in the cabin (e.g. electrical short-circuits, smoke, fumes)
e) Failure to report significant observations (e.g. fluid leaks, wings contaminated by ice) to the flight crew.

11.1.3.1 Procedures Include, But Are Not Limited to The Following

Passenger boarding; seat assignment; stowage of carry-on baggage; emergency exit accessibility and availability; passenger safety briefing; service equipment storage and use; emergency medical equipment storage and use (oxygen, first aid kit, etc.); handling of medical emergencies; non-medical emergency equipment storage, use (fire extinguishers, protective breathing equipment, etc.)

11.1.3.2 In-Flight Emergency Procedures

(Smoke, fire, etc.); cabin crew announcements; turbulence procedures (including securing the cabin); handling unruly passengers; emergency evacuations; and routine deplaning.

11.1.3.3 Hazard and Incident Reporting

Cabin crew must be able to report hazards, incidents and safety concerns as they become aware of them without fear of embarrassment, disciplinary action. Cabin crew, their supervisors and the Safety &Quality Manager should have no doubts about:

a) The types of hazards that should be reported;
b) The appropriate reporting mechanisms;
c) Their job security (following the reporting of a safety concern); and
d) Any safety actions taken to follow-up on identified hazards.

11.1.4 Safety Oversight

Safety oversight for cabin safety shall achieve by program of:
Aircraft inspections (e.g. emergency exits, emergency equipment, galleys);

a) Pre-flight (ramp) inspections;
b) In-flight cabin inspections (e.g. passenger briefings, crew briefings and use of checklists) Nesma Airlines internal safety audit program should include the cabin crew department. The audit process should include a review of all cabin operations as well as an audit of cabin safety procedures, training, cabin crew's operating manual, etc.

11.1.5 Safety Reporting Culture

Use of the following outlined principles helps to overcome the natural resistance to safety reporting & improves Safety reporting culture at Nesma Airlines:

11.1.5.1 Trust

- Persons reporting hazards or incidents must trust that the receiving organization the company will not use the information against them in any way. Without such confidence, people will be reluctant to report their mistakes or other hazards they have noticed.
- Trust begins with the design and implementation of the reporting system. Employee input into the development of a reporting system is therefore vital.
- Nesma Airlines believes that positive safety culture in the organization generates such kind of trust necessary for a successful incident reporting system. Specifically, the culture must be error-tolerant and just. In addition, incident reporting systems need to be perceived as being fair in how they treat unintentional errors or mistakes. (Most people do not expect an incident reporting system to exempt criminal acts or deliberate violations from prosecution or disciplinary action.) Nesma Airlines considers such a process to be an example of a “just culture”.

11.1.5.2 Non-Punitive (Refer To Corporate Safety Reporting Policy)

- Non-punitive reporting systems are based on confidentiality. Before employees will freely report incidents, At Nesma Airlines Top management committed that reported information would not be used punitively against them. The person reporting the incident (or unsafe condition) must be confident that anything said will be kept in confidence.
- Reporting anonymously is not the same as confidential reporting. Most successful reporting systems have some type of call-back capability in order to confirm details or obtain a better understanding of the occurrence. Reporting anonymously makes it impossible to “call back” to ensure understanding and completeness of the information provided by the reporter.

There is also a danger that anonymous reporting may be used for purposes other than safety.

11.1.5.3 Inclusive Reporting Base

- Early voluntary incident reporting systems were targeted at flight crew. Pilots are in a position to observe a broad spectrum of the aviation system and are therefore able to comment on the system's health. Nonetheless, incident reporting systems that focus solely on the perspective of flight crew tends to reinforce the idea that everything comes down to pilot error. Taking a systemic approach to safety management requires that safety information be obtained from all parts of the operation.
- Incidents reporting systems, collecting information on the same occurrence from different perspectives facilitates forms a more complete impression of events. Relying on only one perspective; may not provide a complete understanding of the event.

11.1.5.4 Independence

Voluntary reporting to the Quality & Safety Director benefits from a trusted "third party" managing the system. Quality & Safety Director receives, processes and analyses the incident reports and feeds the results back to the safety committee, and any information received will be used for safety purposes only; as part of Nesma Airlines safety management system.

11.1.5.5 Ease of Reporting

The task of submitting incident reports should be as easy as possible for the reporter. Reporting forms should be readily available so that anyone wishing to fill a report can do so easily. Forms should be simple to compile, have adequate space for a descriptive narrative and should encourage suggestions on how to improve the situation or prevent a reoccurrence. To simplify completion, classifying information, such as the type of operation, light conditions, type of flight plan, and weather, can use a "tick-off" format.

11.1.5.6 Acknowledgment

The reporting of incidents requires time and effort by the reporter and should be appropriately acknowledged. The reporter naturally expects feedback about actions taken in response to the reported safety concern.

11.1.5.7 Promotion

The (de-identified) information received from an incident reporting system should be made available for all employees in a timely manner. This could be done in the form of monthly newsletters or periodic summaries. Ideally, a variety of methods would be used with a view to achieving maximum exposure. Such promotional activities may help to motivate people to report additional incidents.

11.1.6 Types of Incident Reporting Systems

In general, an incident involves an unsafe, or potentially unsafe, occurrence or condition that does not involve serious personal injury or significant property damage, i.e. it does not meet the criteria for an accident. Even though; Nesma Airlines is required – as an operator to report the occurrence to ECAA.

11.1.6.1 Mandatory Incident Reporting Systems

- In a mandatory system, Nesma Airlines is required to report certain types of incidents. This necessitates detailed procedures outlining who shall report and what shall be reported. The number of variables in aviation operations is so great that it is difficult to provide a comprehensive list of items or conditions which should be reported. However, the rule should be: "If in doubt - report it."
- Since mandatory systems deal mainly with "hardware" matters, they tend to collect more information on technical failures than on the human performance aspects. To help overcome this problem, Nesma Airlines developed voluntary incident reporting systems that aimed at acquiring more information on the Human Factors aspects of occurrences.
- Following is a listing of the types of occurrences or safety events to be reported to ECAA under the company's incident reporting system. The list is neither exhaustive nor in any order of importance:
  - Any system defect which adversely affects the handling or operation of the aircraft;
  - Warning of smoke or fire, the activation of toilet smoke detectors or galley fires;
  - An emergency is declared;
  - The aircraft is evacuated by means of the emergency exits/slides;
  - Safety equipment or procedures are defective, inadequate or used;
  - Serious deficiencies in operational documentation;
  - Incorrect loading of fuel, cargo or dangerous goods;
  - Significant deviation from SOPs;
  - A go-around is carried out from below 1 000 ft above ground level;
  - An engine is shut down or fails at any stage of the flight;
  - Ground damage occurs;
  - A take-off is rejected after take-off power is established;
  - The aircraft leaves the runway or taxiway or other hard standing;
  - A navigation error involving a significant deviation from track;
  - An altitude excursion of more than 500 ft occurs;
  - Un-stabilized approach under 500 ft;
  - Exceeding the limiting parameters for the aircraft configuration;
  - Communications fail or are impaired;
  - A stall warning occurs;
  - GPWS activation;
  - A heavy landing check is required;
  - Hazardous surface conditions, e.g. icy, slush and poor braking;
  - Aircraft lands with reserve fuel or less remaining;
  - A TCAS RA event;
  - A serious ATC incident, e.g. near mid-air collision, runway incursion and incorrect clearance;
  - Significant wake turbulence, turbulence, wind shear or other severe weather;

- Crew or passengers become seriously ill, are injured, become incapacitated or deceased;
- Violent, armed or intoxicated passengers, or when restraint is necessary;
- Security procedures are breached;
- Bird strike or Foreign Object Damage (FOD); and
- Any other event considered likely to have an effect on safety or aircraft operations.

11.1.6.2 Voluntary Incident Reporting Systems

Nesma Airlines shall introduce voluntary incident reporting systems to supplement the information obtained from mandatory reporting systems. In such systems, the reporter, without any legal or administrative requirement to do so, submits a voluntary incident report. In a voluntary reporting system, the reported information should not be used against the reporters, i.e. such systems must be non-punitive to encourage the reporting of such information.

11.1.6.3 Confidential Reporting Systems

Confidential reporting systems aim to protect the identity of the reporter. This is one way of ensuring that voluntary reporting systems are non-punitive. Confidentiality is usually achieved by de-identification, often by not recording any identifying information of the occurrence. One such system returns to the user the identifying part of the reporting form and no record is kept of these details. Confidential incident reporting systems facilitate the disclosure of human errors, without fear of retribution or embarrassment, and enable others to learn from previous mistakes.

11.1.7 Proactive Safety Assessment

For a safety management system to transition from a reactive to a proactive, Nesma Airlines actively seeks out potential safety hazards and evaluates the associated risks. This can be achieved through a safety assessment. A safety assessment allows for the identification of potential hazards and then applies risk management techniques to effectively manage the hazard.

Nesma Airlines safety assessment system should encompass the following basic elements:

- System for identifying potential hazards
- Risk management techniques
- On-going monitoring/quality assurance.

11.1.8 Assessment Frequency

A safety assessment should be undertaken, at a minimum:

a) During implementation of the safety management system.
b) When major operational changes are planned.
c) If the organization is undergoing rapid change, such as growth and expansion, offering new services, cutting back on existing service, or introducing new equipment or procedures.
d) When key personnel change.

11.1.9 Information Sources for Determining Potential Hazards

The following list details some of the possible resources:

a) **Company Experience:** Existing safety reports detailing events.
b) **Minutes of safety meetings:** committee meetings can also reveal potential areas of concern.
c) **Line management:** line manager will have perceptions of the greatest hazards.
d) **Workplace opinions:** This can be achieved through focus groups, consulting employee representatives.
e) **Audit Reports:** internal audit system should contain a record of audit reports and remedial action plans.
f) **Corporate hazard analysis:** Records of previously conducted formal hazard analyses.
g) **Safety data recording systems:** Mandatory occurrence reporting (MOR)

11.1.10 Active Monitoring Techniques

There are several active monitoring methods that can be employed in safety assessment, these include:

a) Inspections: Usually achieved by inspection on activities against planned methods of procedures.
b) Audits: Usually achieved by independent review of an organization's systems personnel, facilities, etc.
c) Review – Provides an overview of the processes involved in a work area or system

11.1.11 Flight Data Analysis (FDA) Program

11.1.11.1 Flight Data Analysis (FDA)

It is the predictive tool for identification of hazards, FDA program may be used for detecting exceedance or safety events, such as deviations from flight manual limits, all the data gathered in an FDA program shall be kept in a central safety database. (For further details concerning FDA Program refer to SMM).

11.1.11.2 Using the FDA Program

a) Typically, FDA data are being used in five areas:
- Exceedance detection;
- Routine measurements;
- Incident investigations;
- Continuing airworthiness.
- Linked databases (or integrated safety analysis).

b) Nesma Airlines is Utilizing AirFase software program flight Profile is created and provided by AIRBUS,

11.1.11.3 FDA Database Is Backed Up On Monthly Basis

A backup copy is securely saved at Nesma Airlines Information Technology Division building while another copy is saved at Nesma Airlines Safety and Quality Department. Data Retention is for 5 years**.**

11.2 Safety Risk Assessment and Mitigation Process

11.2.1 Risk Management.

Not all risks can be eliminated, nor are all believable risk mitigation measures economically feasible. The risks and costs inherent in aviation necessitate a rational process for decision-making. Daily, decisions are made in real time, weighing the probability and severity of any adverse consequences implied by the risk against the expected gain of taking the risk.

This process is known as "Risk management". As shown in figure 2

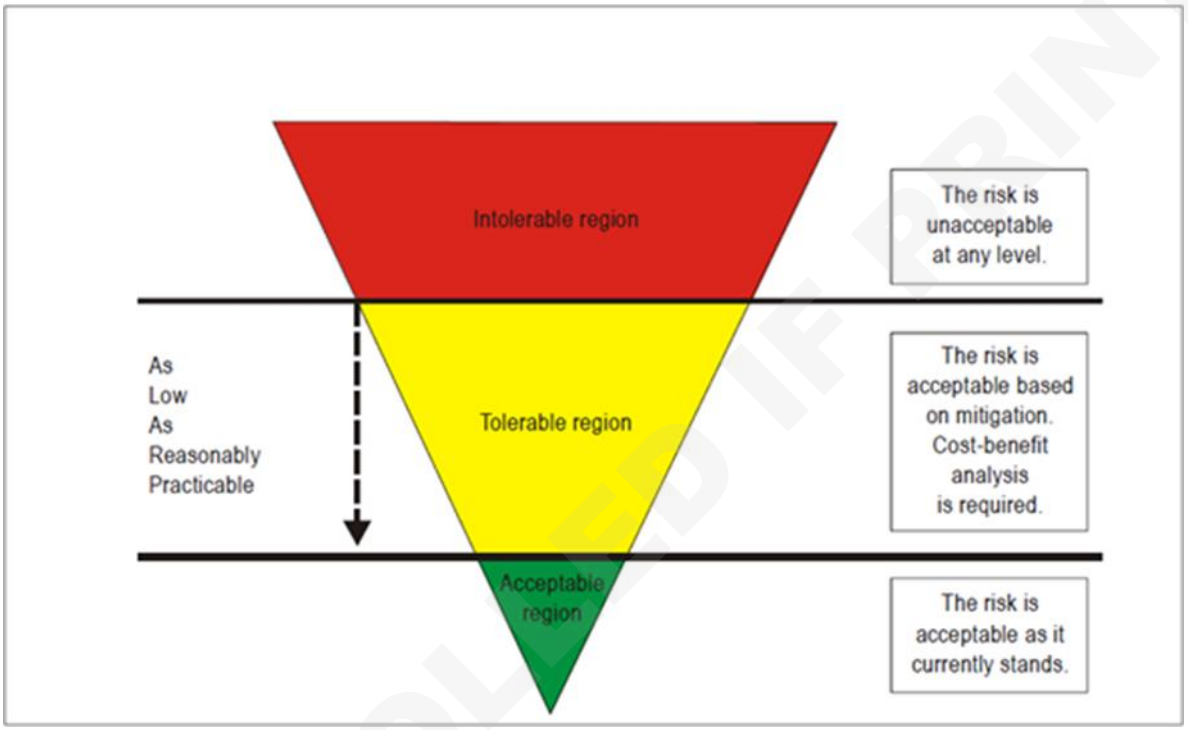


Figure 2 Risk management

Risk management facilitates the balancing act between assessed risks and viable risk mitigation. Risk management is an integral component of safety management. It involves a logical Process of objective analysis, particularly in the evaluation of the risks. The process for risk management is summarized in the flow chart in Figure 3 as the figure indicates; risk management comprises three essential elements: hazard identification, risk assessment and risk mitigation. The concepts of risk management have equal application in decision-making.

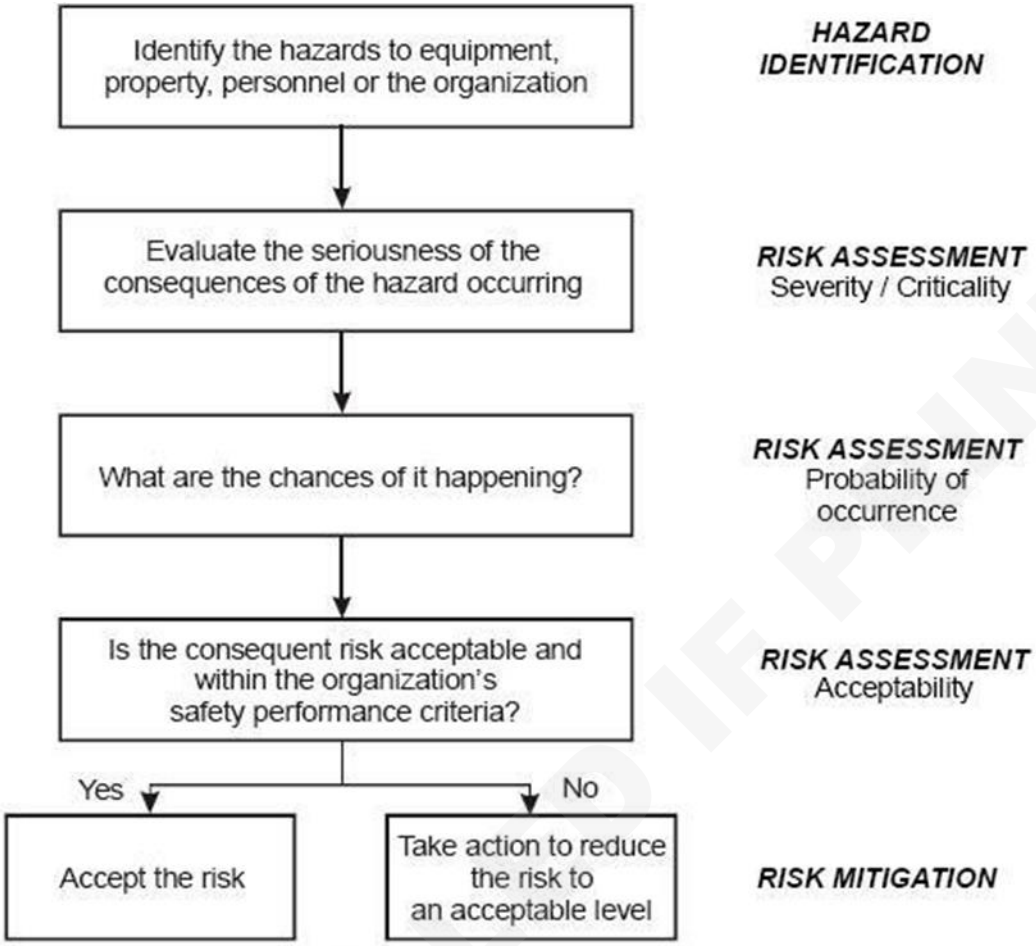


Figure 3: Risk management process

11.2.2 First Fundamental – Risk Management

What is it the identification? Analysis and elimination or mitigation to an acceptable level of risks that threaten the capabilities of an organization.
What is the objective? Aims at a balanced allocation of resources to address all risks and viable risk control and mitigation.
Why is it important a key component of safety management systems? Data-driven approach to safety resources allocation, thus defensible and easier to explain.

11.2.3 Second Fundamental - Risk Probability

Probability: The possibility that a situation of danger might occur as shown in figure 4 Questions for assessing the probability of an occurrence:

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

11.2.4 Third Fundamental – Risk Severity

Severity

– The possible consequences of an unsafe event or condition, taking as reference the worst foreseeable situation. As shown in figure 5
Define the consequence(s) in terms of: Property, Health, Finance, People and Environment. Questions for assessing the severity of the consequences of an occurrence:

How many lives are at risk?

- Employees, Passengers and Bystanders

What is the likelihood of environmental impact?

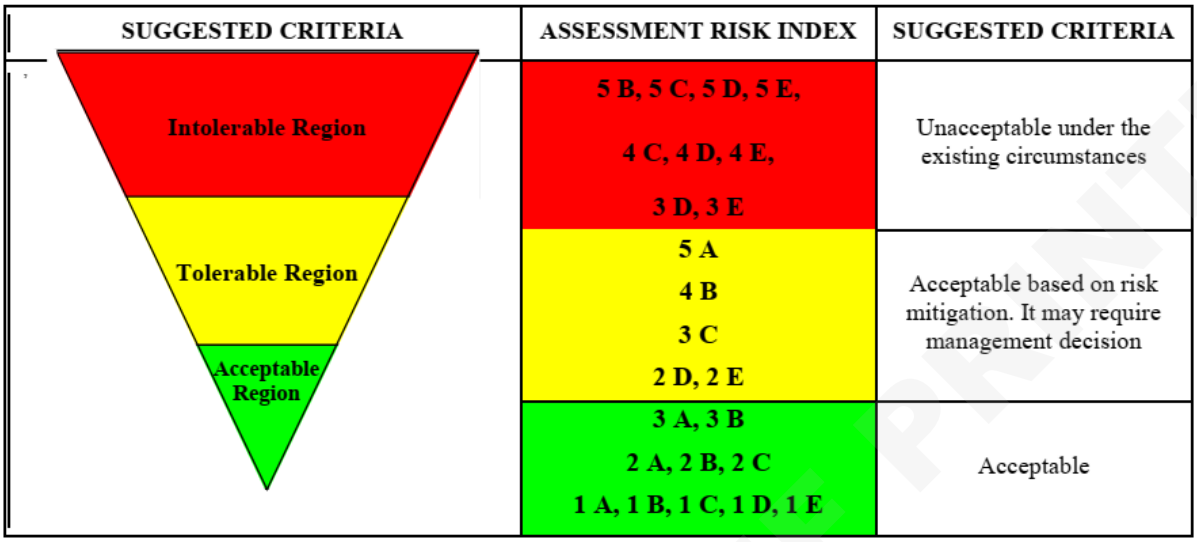
- Spill of fuel or other hazardous product.

What is the likely extent of property or financial damage?

- Direct operator property loss
- Damage to aviation infrastructure

11.2.5 Fourth Fundamental - Risk Assessment and Tolerability

Using the risk analysis matrix. It is possible to standardize the qualitative risk assessments, and categorize the hazard using the tolerability as mentioned in SMM chapter 2



RISK PROBABILITY	RISK SEVERITY				
	NEGLIGIBLE	MINOR	MAJOR	HAZARDOUS	CATASTROPHIC
	(A)	(B)	(C)	(D)	(E)
FREQUENT (5)	**5 A**	**5 B**	**5 C**	**5 D**	**5 E**
OCCASIONAL (4)	**4 A**	**4 B**	**4 C**	**4 D**	**4 E**
REMOTE (3)	**3 A**	**3 B**	**3 C**	**3 D**	**3 E**
IMPROBABLE (2)	**2 A**	**2 B**	**2 C**	**2 D**	**2 E**
EXTREMELY IMPROBABLE (1)	**1 A**	**1 B**	**1 C**	**1 D**	**1 E**

Figure 7risk tolerability

11.2.6 Fifth Fundamental – Risk Control / Mitigation

Mitigation*:* Measurestoeliminatethepotentialhazardortoreducetheriskprobability or severity.

Risk mitigation = Risk control

Mitigate: To make milder, less severe or less harsh

Risk mitigation – Defences

As part of the risk mitigation, determine:

a) Do defences to protect against such risk (s) exist?
b) Do defences function as intended?
c) Are the defences practical for use under actual working conditions?
d) Is a staff involved aware of the risks and the defences in place?
e) Are additional risk mitigation measures required?
- Recalling the three basic defences
- Technology
- Training
- Regulations

Avoidance: Theoperationoractivityiscancelledbecauserisksexceedthebenefitsof continuing the operation or activity. E.g.

Regularoperationsintoanaerodromesurroundedbycomplexgeographyandwithout the necessary aids are cancelled.

Reduction: The frequency of the operation or activity is reduced, or action is taken to reduce the magnitude of the consequences of the accepted risks. E.g.

Regularoperationsintoanaerodromesurroundedbycomplexgeographyandwithout the necessary aids are continued based upon the availability of specific aids and application of specific procedures.

Segregation of exposure: Action is taken to isolate the effect so frisks or build-in redundancy to protect against it, i.e., reduces the severity of risk.

Note: Figure 8 showing risk mitigation and Figure 9 showing risk mitigation process

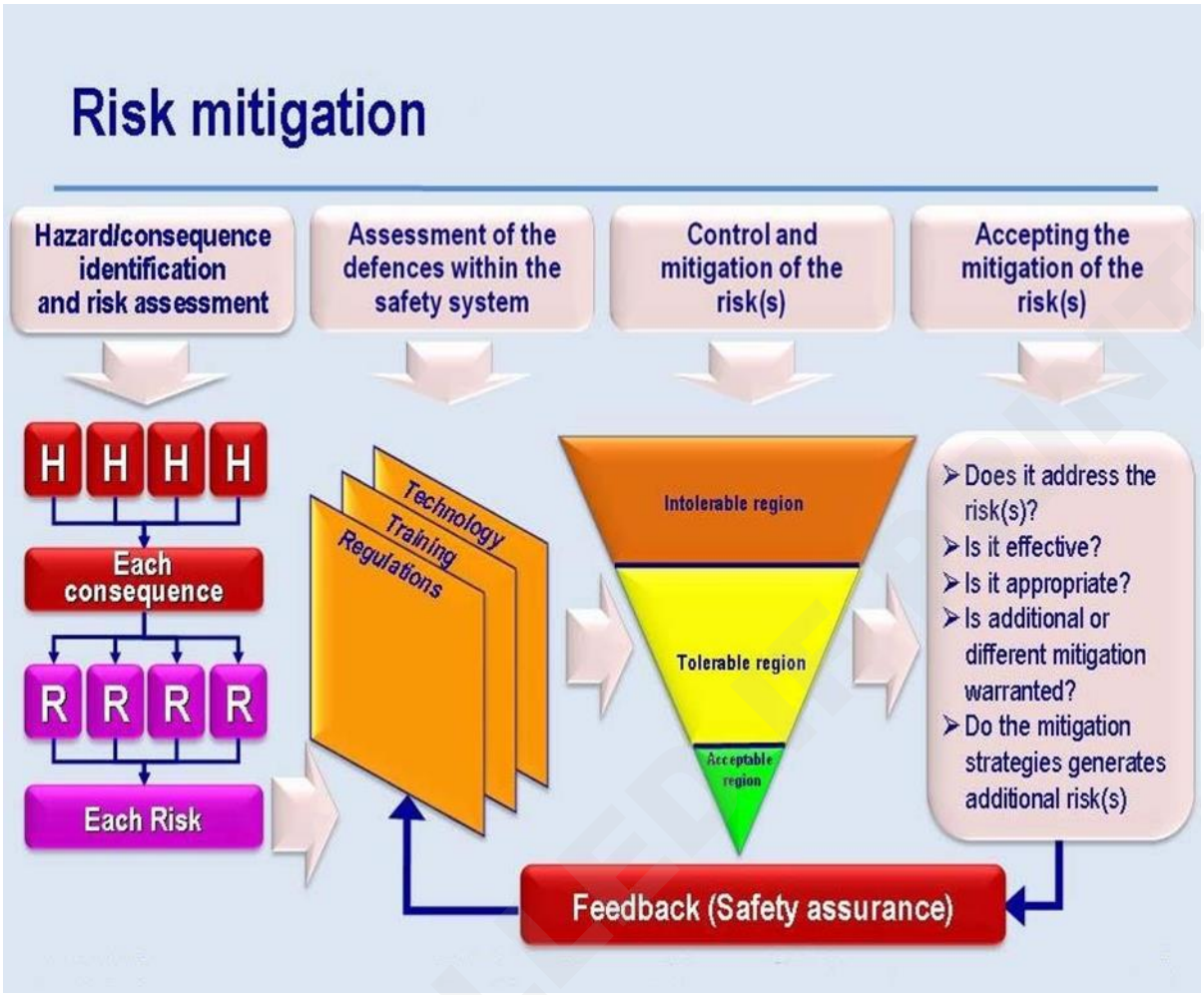


Figure 8 risk mitigation

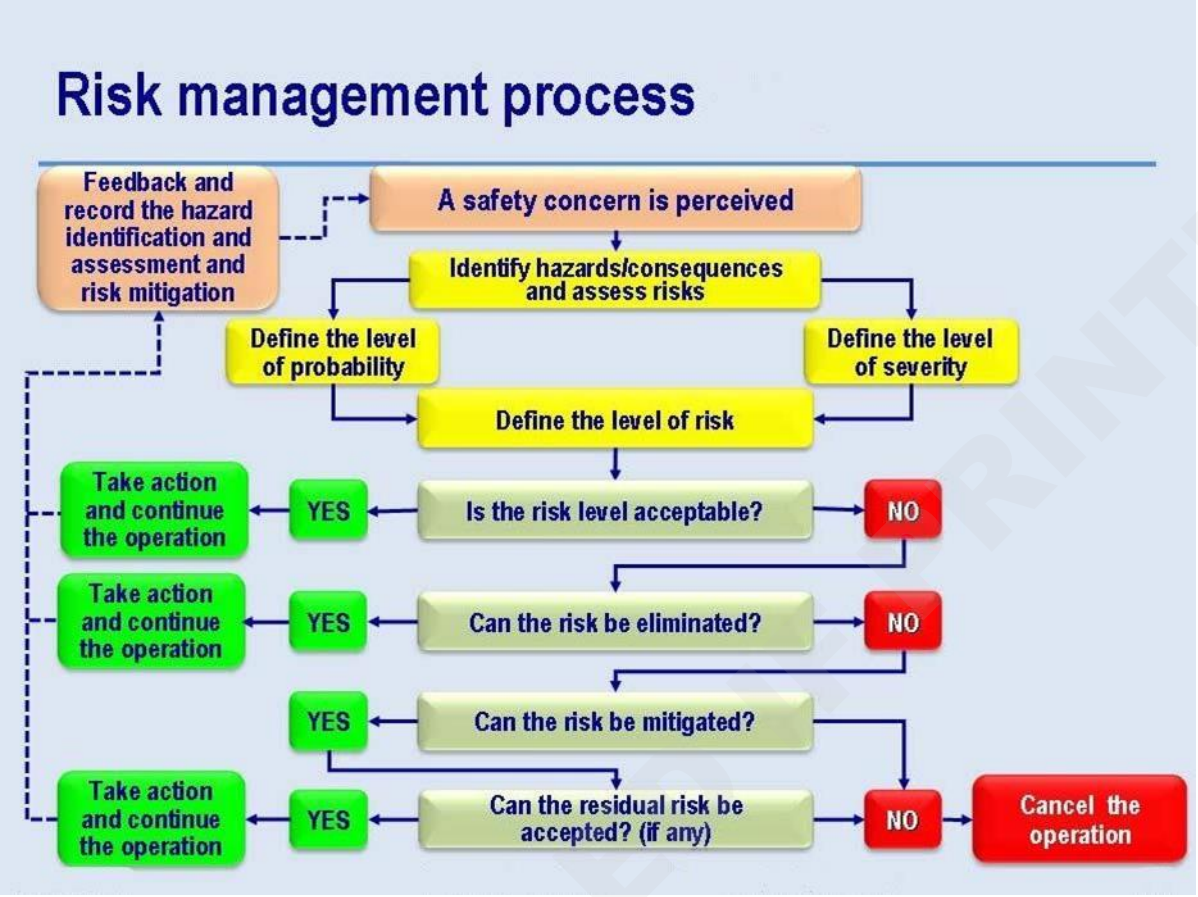


Figure 9 risk mitigation process

11.3 Incident and Accident Investigation

11.3.1 General

Effective safety management system depends on the investigation and analysis of safety issues. The safety value of an accident, a hazard or an incident is largely proportional to the quality of the investigative effort. The technical aspects of accident and incident investigation used by the safety & quality directorate and other personnel in the course of an investigation, Requirements regarding mandatory reports to the ECAA.

i. **Accident**
   An occurrence associated with the operation of an aircraft that takes place between the time any person boards the aircraft with the intention of flight until such time as all such persons have disembarked in which a person is fatally or seriously injured, the aircraft sustains substantial damage, or the aircraft is missing or is completely inaccessible.

ii. **Incident**
   An occurrence other than an aircraft accident, associated with the operation of an aircraft, which affects or could affect the safety of operations.

iii. **Occurrence**
   To indicate an accident or incident. From the perspective of safety management, there is a danger in concentrating on the difference between accidents and incidents using definitions that may be arbitrary and limiting. Many incidents occur every day which may or may not be reported to the investigation authority but which come close to being accidents often exposing significant risks. Since there is no injury, or little or no damage, such incidents might not be investigated. This is unfortunate because the investigation of an incident may yield better results for hazard identification than the investigation of an accident. The difference between an accident and an incident may simply be an element of chance. Indeed, an incident may be thought of as an undesired event that under slightly different circumstances could have resulted in harm to people or damage to property and thus would have been classified as an accident.

iv. **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.

v. **Investigator-In-Charge**
   A person charged, on the basis of his or her qualifications, with the responsibility for the organization, conduct and control of an investigation. This will normally be the Quality & Safety director.

vi. **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.

vii. **Serious Injury**
   An injury which is sustained by a person in an accident and which:
   - Requires hospitalization for more than 48 hours, commencing within seven days from the date the injury was received.
   - Results in a fracture of any bone (except simple fractures of fingers, toes, or nose).
   - Involves lacerations which cause severe, nerve, muscle or tendon damage,
   - Involves injury to any internal organ.
   - Involves second or third degree bums, or tiny burns affecting more than 5 percent of the body surface.

- Involves verified exposure to infections subs lances or injurious radiation.

11.3.2 In-House Investigations

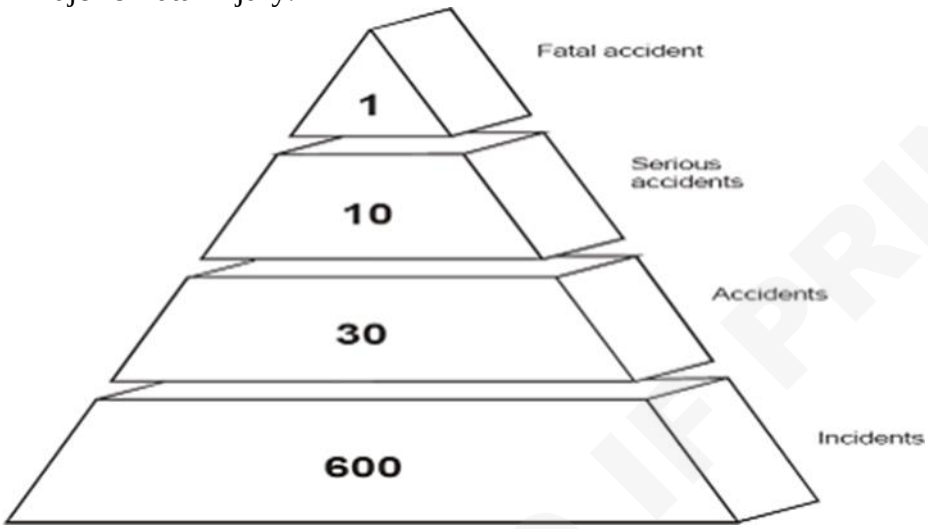
i. Most occurrences do not warrant investigations by regulatory authorities. Many incidents are not even required to be reported to the State. Nevertheless, such incidents may be indicative of potentially serious hazards, perhaps systemic problems that will not be revealed unless the occurrence is properly investigated.

ii. For every accident or serious incident, there will likely be hundreds of minor occurrences, many of which have the potential to become an accident. It is important that all reported hazards and incidents be reviewed and a decision taken on which ones should be investigated and how thoroughly.

iii. For in-house investigations, the investigating team may require the assistance of specialists, depending on the nature of the occurrence being investigated, for example:
   - cabin safety specialists for in-flight turbulence encounters, smoke or fumes in the cabin, galley fire,
   - experts in air traffic services for loss of separation, near collisions, frequency congestion, etc.;
   - maintenance engineers for incidents involving material or system failures, smoke or fire, etc.; and experts able to provide airport management advice for incidents involving foreign object damage (FOD), snow and ice control, airfield maintenance, vehicle operations, etc.

11.3.3 Scope of Safety Investigations

i. Research into industrial safety in 1969 indicated that for every 600 reported occurrences with no injury or damage, there were some:
   - 30 incidents involving property damage;
   - 10 accidents involving serious injuries; and
   - 1 major or fatal injury.



ii. The (1:600 Rule, ratio: 1-10-30-600) is an indicative of a wasted opportunity if investigative efforts are focused only on those rare occurrences where there is serious injury or significant damage. The factors contributing to such accidents may be present in hundreds of incidents and could be identified before serious injury or damage. Effective safety management requires that staff and management identify and analyses hazards before they result in accidents.

iii. In aviation incidents, injury and damage are generally less significant than in accidents. Accordingly, there is less publicity associated with these occurrences. In principle, more information regarding such occurrences should be available (e.g. live witnesses and undamaged flight recorders).

iv. Without the threat of substantial damage suits, there also tends to be less of an adversarial atmosphere during the investigation. Thus, there should be a better opportunity to identify why the incidents occurred and, equally, how the defenses in place prevented them from becoming accidents. In an ideal world, the underlying safety deficiencies could all be identified and preventive measures to ameliorate these unsafe conditions could be initiated before an accident occurs.

v. How far should an investigation look into minor incidents and hazard reports?
The extent of the investigation should depend on the actual or potential consequences of the occurrence or hazard. Hazard or incident reports that indicate high-risk potential should be investigated in greater depth than those with low-risk potential.

vi. The depth of the investigation should be that which is required to clearly identify and validate the underlying hazards. Understanding why something happened requires a broad appreciation of the context for the occurrence. To develop this understanding of the unsafe conditions, the investigator should take a systems approach, perhaps drawing on the SHEL model outlined in human factors (Quality Manual - chapter 4.3). Resources are normally limited, thus the effort expended should be proportional to the perceived benefit in terms of potential for identifying systemic hazards and risks to the organization.

vii. Although the investigation should focus on the factors that are most likely to have influenced actions, the dividing line between relevance and irrelevance is often blurred. Data that initially may seem to be unrelated to the investigation could later prove to be relevant once relationships between different elements of the occurrence are better understood.

11.3.4 Investigation Policy and Objectives

i. In addition to investigating all incidents, it is Nesma Airlines policy to also conduct an in- house formal investigation following an accident or serious incident, even where it is also subject to government investigation. This shall enable Nesma Airlines to ascertain quickly whether any immediate changes in procedures are necessary. Typically, Nesma Airlines may be asked to investigate and make a report to ECAA.

ii. All internal accident/incident investigations are carried out by the Quality & Safety Director, under the authority of the Accountable Executive. Investigations seek to determine not only the immediate causes, but the underlying or root causes as well. Appropriate prevention and intervention procedures will then be developed and remedial action will be recommended to prevent future similar occurrences at the same time measuring the effectiveness of that corrective or remedial action after made them available to line managers to eliminate hazards or mitigate unacceptable risk.

11.3.5 Accident/Incident Notification

i. In the event of an accident, the QSD shall be notified per the procedures contained in Nesma Airlines ERP When an incident occurs, QSD shall also be immediately notified by the most expeditious means. Such incidents may include, but are not limited to, any occurrence, other than an accident placing doubt on the continued safe operation of the aircraft and which:
   - Jeopardize (risk) the safety of the crew, passengers or aircraft, but terminated without serious injury or substantial damage,
   - Causes 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.
   - Jeopardize the safety of the crew, passengers or aircraft and avoided being an accident only by exceptional handling of the nine raft or by chance.
   - Causes trauma (severe physical injury) to crew, passengers or third parties.
   - Could be of interest to the press and news media,

ii. Specific examples include loss of engine cowlings, portions of flaps, control surfaces or fuselage panels, an altitude excursion or other ATC violation, or a minor taxiing accident, such as damage due lo collision with ground equipment.

11.3.6 Investigative Procedure

i. Upon notification, the QSD will determine the required level of response. In The event of an aircraft accident, personnel responsibilities arc assigned as detailed in the CRP, for other incidents, the QSD may request assistance from appropriate areas there are two levels of investigations:

Note: Nesma Airlines shall be represented during all investigations, the QSD and Emergency Response Coordinator (ERC) have uninhibited access to till areas of operations, including any and all relevant documents and files. All employees shall cooperate fully in any investigation and must not withhold any requested information.

Note: The failure to cooperate during an investigation, intentional withholding of relevant facts, or providing false and/or misleading information constitute grounds for immediate dismissal.

ii. As soon as a notification of an incident/accident is received, the QSD will ensure that all relevant documents are gathered and the evidence is preserved. When necessary, as in the case of an accident, specific technical duties will be assigned to qualified personnel. The QSD maintains a list of employees qualified to serve on each of the following possible ECAA investigative groups (these employees may also perform such functions in lesser incidents):

- Operations.
- Witness,
- Survival Factors.
- Air Traffic Control.
- Weather.
- Structures.
- Systems.
- Power plants.
- Maintenance Records.
- Flight Data Recorder.
- Cockpit Voice Recorder VCR
- Human Performance
- Aircraft performance.

Because aircraft accident and incident investigation is a highly complex and technical field, the QSD and ERC shall periodically attend formal courses, seminars, etc. to maintain an appropriate level of readiness and expertise. Certain other designated employees may also attend such courses if they are expected to perform such duties in the event of an accident.

11.3.7 Information Sources

Information relevant to a safety investigation can be acquired from a variety of sources, including:

i. Physical examination of the equipment used during the safety event. This may include examining the front-line equipment used, its components, and the workstations and equipment used by supporting personnel (e.g. ATCOs, maintenance and servicing personnel).

ii. Documentation spanning a broad spectrum of the operation, for example:
   - maintenance records and logs;
   - personal records/logbooks;
   - certificates and licenses;
   - in-house personnel and training records and work schedules;
   - operator's manuals and SOPs;
   - training manuals and syllabi;
   - manufacturers' data and manuals;
   - regulatory authority records;
   - Weather forecasts, records and briefing material; and 10) flight planning documents.

iii. Recordings (flight recorders, ATC radar and voice tapes, etc.). These may provide useful information for determining the sequence of events. In addition to traditional flight data recordings, maintenance recorders in new generation aircraft are a potential additional source of information.

iv. Interviews conducted with individuals directly or indirectly involved in the safety event. 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.

v. 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.

vi. Simulations. These permit reconstruction of an occurrence and can facilitate a better understanding of the sequence of events that led up to the occurrence, and the manner in which personnel responded to the event. Computer simulations can be used to reconstruct events using data from on-board recorders, ATC tapes, radar recordings and other physical evidence.

vii. Specialist advice. Investigators cannot be experts in every field related to operational environment. It is important that they realize their limitations. They must be willing to consult with other professionals during an investigation.

viii. Safety databases. Useful supporting information may come from accident/incident databases, in-house hazard and incident reporting systems, confidential reporting programs, systems for monitoring line operations (e.g. flight data analysis, LOSA and NOSS programs), manufacturers' databases, etc.

11.3.8 Interviews

i. Information acquired through interviews can help clarify the context for unsafe acts and conditions. It can be used to confirm, clarify or supplement information learned from other sources.
ii. Interviews can help to determine "what" happened. More importantly, interviews are often the only way to answer the important "why" questions which, in turn, can facilitate appropriate and effective safety
iii. Recommendation In preparation for an interview, the interviewer must expect that individuals will perceive and recall things differently. The details of a system defect reported by operational personnel may differ from those observed by maintenance personnel during a service check. Supervisors and management may perceive issues differently than line personnel.
iv. The interviewer must accept all views as worthy of further exploration. However, even qualified, experienced and well-intentioned witnesses could be mistaken in their recollection of events. In fact, it may be grounds to suspect the validity of the information being received if during interviews of a number of people concerning the same event, the interviewees are not presenting different perspectives.
v. Conducting interviews:

The effective interviewer adapts to these differing views, remaining objective and avoiding making an early evaluation of the content of the interview. An interview is a dynamic situation, and the skilled interviewer knows when to continue a line of questioning and when to back off. To achieve the best results, interviewers will likely employ a process as follows:

- carefully preparing and planning for the interview;
- conducting the interview in accordance with a logical, well-planned structure; and
- Assessing the information gathered in the context of all other known information.

11.3.9 Investigation Methodology

i. The field phase of an investigation is used to identify and validate perceived safety hazards. Competent safety analysis is required to assess the risks, and effective communications are required to control the risks. In other words, effective safety management requires an integrated approach to safety investigations.
ii. Some occurrences and hazards originate from material failures or occur in unique environmental conditions. However, the majority of unsafe conditions are generated through human errors. When considering human error, an understanding of the conditions that may have affected human performance or decision-making is required. These unsafe conditions may be indicative of systemic hazards that put the entire aviation system at risk. Consistent with the systems approach to safety, an integrated approach to safety investigations considers all aspects that may have contributed to unsafe behavior or created unsafe conditions.
iii. Integrated Safety Investigation Methodology (ISIM) can guide the safety investigator from the initial hazard or incident notification to the communication of safety lessons learned.
iv. Effective investigations do not follow a simple step-by-step process that starts at the beginning and proceeds directly through each phase to completion. Rather, they follow an iterative process that may require going back and repeating steps as new data are acquired and/or as conclusions are reached.

Report Investigation and analysis

Every event should be investigated. The logic flow for an integrated process for safety investigations is depicted in (figure 10) Integrated Safety Investigation Methodology (ISIM) Using this type of model can guide Nesma Airlines safety investigator from the initial hazard or incident notification through to the communication of safety lessons learned. More detailed analysis is required to establish the organizational factors that contributed to the error.
Nesma Airlines investigator or team of investigators must be technically competent and have access to background information, so the facts and events are interpreted accurately. The investigator should have the confidence of the staff and the investigation process should be a search to understand how the mishap happened, not a hunt for someone to blame. For incident and accident investigation procedure

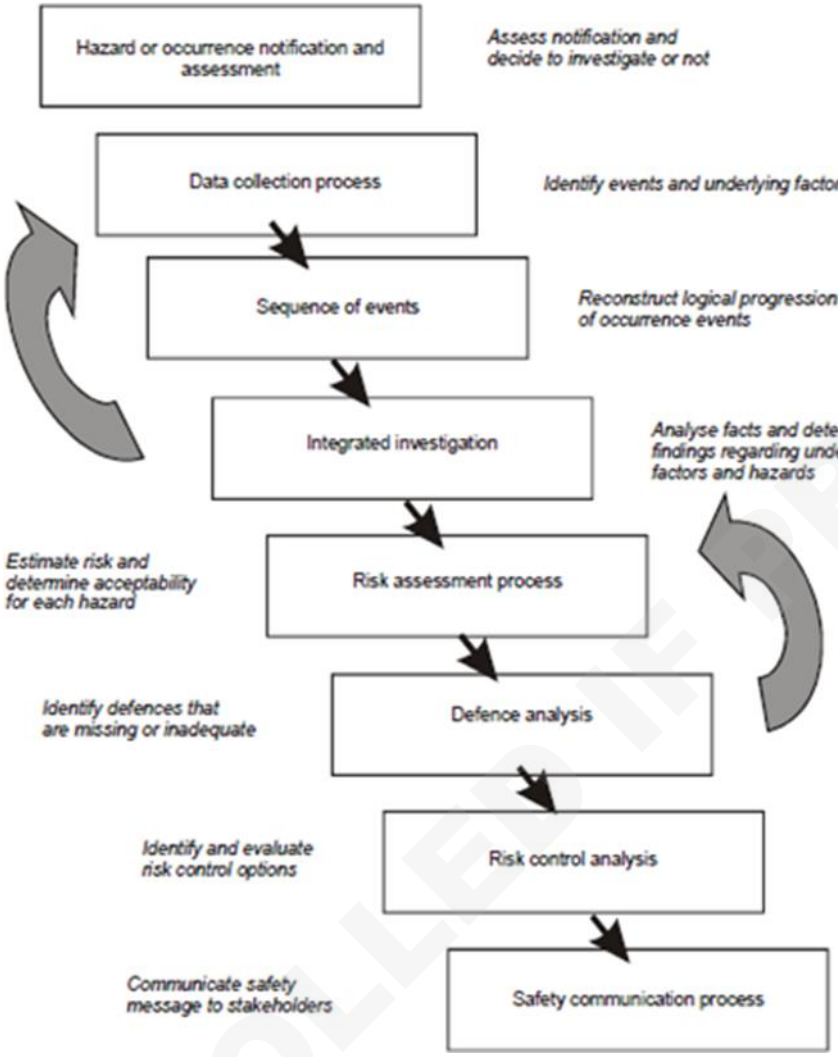


Figure 10: Integrated Safety Investigation Methodology (ISIM)

11.3.10 Investigating Human Performance Issues

i. Investigators have been quite successful in analyzing the measurable data pertaining to human performance, e.g. strength requirements to move a control column, lighting requirements to read a display, and ambient temperature and pressure requirements. Unfortunately, the majority of safety deficiencies derive from issues that do not lend themselves to simple measurement and are thus not entirely predictable. As a result, the information available does not always allow an investigator to draw indisputable conclusions.

ii. Several factors typically reduce the effectiveness of a human performance analysis. These include:
   - the lack of normative human performance data to use as a reference against which to judge observed individual behavior;
   - FDA, data provide a baseline to better understand normal day-to-day performance in aviation operations.
   - the lack of a practical methodology for generalizing from the experiences of an individual to an understanding of the probable effects on a large population performing similar duties;
   - the lack of a common basis for interpreting human performance data among the many disciplines (e.g. engineering, operations and management) that make up the aviation community; and
   - The ease with which humans can adapt to different situations, further complicating the determination of what constitutes a breakdown in human performance.

iii. The logic necessary to convincingly analyses some of the less tangible human performance phenomena is different from that required for other aspects of an investigation. Deductive methods are relatively easy to present and lead to convincing conclusions. For example, a measured wind shear produced a calculated aircraft performance loss, and a conclusion could be reached that the wind shear exceeded the aircraft's performance capability. Such straight cause/effect relationships cannot be so easily established with some human performance issues such as complacency, fatigue, distraction or judgment. For example, if an investigation revealed that a crewmember made an error leading to an occurrence under particular conditions (such as complacency, fatigue or distraction), it does not necessarily follow that the error was made because of these preconditions. There will inevitably be some degree of speculation involved in such a conclusion. The viability of such speculative conclusions is only as good as the reasoning process used and the weight of evidence available.

iv. Inductive reasoning involves probabilities. Inferences can be drawn from the most probable or most likely explanations of behavioral events. Inductive conclusions can always be challenged, and their credibility depends on the weight of evidence supporting them. Accordingly, they must be based upon a consistent and accepted reasoning method.

v. Analysis of human performance issues needs to take into account the objective of the investigation (i.e. understanding why something happened). Occurrences are seldom the result of single cause. Although individual factors when viewed in isolation may seem insignificant, in combination they can result in a sequence of events and conditions that culminate in an accident. The SHEL model provides a systematic approach to examining the constituent elements of the system, as well as the interfaces between them.

vi. Understanding the context in which humans err is fundamental to understanding the unsafe conditions that may have affected their behavior and decision-making. These unsafe conditions may be indicative of systemic risks posing significant accident potential.

11.3.11 Safety Recommendations

Formal safety recommendations warrant written communications. This ensures that the recommendations are not misunderstood and provides the necessary baseline for evaluating the effectiveness of implementation. However, it is important to remember that safety recommendations are only effective if they are implemented. When an investigation identifies hazards or unmitigated risks, safety action is required. The need for action must be communicated by means of safety recommendations to those with the authority to expend the necessary resources. Failure to make appropriate safety recommendations may leave the risk unattended. For those formulating safety recommendations, the following considerations may apply:

i. Action agency. Who can best take the necessary corrective action? Who has the necessary authority and resources to intervene? Ideally, problems should be addressed at the lowest possible level of authority, such as the departmental or company level as opposed to the national or regulatory level. However, if several organizations are exposed to the same unsafe conditions, extending the recommended action may be warranted. State and international authorities, or multinational manufacturers may best be able to initiate the necessary safety action.

ii. What versus how. Safety recommendations should clearly articulate what should be done, not how to do it. The focus is on communicating the nature of the risks requiring control measures. Detailed safety recommendations which spell out exactly how the problem should be fixed, should be avoided. The responsible manager should be in a better position to judge the specifics of the most appropriate action for the current operating conditions. The effectiveness of any recommendation will be measured in terms of the extent to which the risks have been reduced, rather than strict adherence to the wording in the recommendation.

iii. General versus specific wording. Since the purpose of the safety recommendation is to convince others of an unsafe condition putting some or all of the system at risk, specific language should be used in summarizing the scope and consequences of the identified risks. On the other hand, since the recommendation should specify what is to be done (not how to do it), concise wording is preferable.

iv. Recipient's perspective. In recommending safety action, the following considerations pertain to the recipient's perspective:

- The safety recommendation is addressed to the most appropriate action authority (i.e. the one having the jurisdiction and authority to effect the necessary change).
- There are no surprises (i.e. there has been prior dialogue concerning the nature of the assessed risks).
- It articulates what should be done, while leaving the action authority with the latitude to determine how best to meet that objective.

11.4 Safety Performance Monitoring

11.4.1 Introduction

i. Safety management requires feedback on safety performance to complete the safety management cycle. Through feedback, system performance can be evaluated and any necessary changes effected. In addition, all stakeholders require an indication of the level of safety within an organization for various reasons, for example:
   - Staff may need confidence in their organization's ability to provide a safe work environment.
   - Line management requires feedback on safety performance to assist in the allocation of resources between the often-conflicting goals of production and safety.
   - Passengers are concerned with their own mortality,
   - Senior management seeks to protect the corporate image (and market share),
   - Shareholders wish to protect their investment

ii. Although the stakeholders in an organization's safety process want feedback, their individual perspectives as to “what is safe?" vary considerably. Deciding what reliable indicators exist for acceptable safety performance depends largely upon how one views "safety", for example:
   - Senior management may seek the unrealistic goal of "zero accidents". Unfortunately, as long as aviation involves risk, there will be accidents, even though the accident rate may be very low,
   - Regulatory requirements normally define minimum "safe” operating parameter, e.g. cloud base and flight visibility limitations. Operations within these parameters contribute to "safety", however, they do not guarantee it.

iii. Statistical measures are often used to indicate a level of safety, e.g. the number of accidents per hundred thousand hours, or fatalities per thousand sectors flown. Such quantitative indicators mean little by themselves, but they are useful in assessing whether safety is getting better or worse over time.

11.4.2 Quality Assurance

i. A quality assurance system (QAS) defines and establishes Nesma Airlines quality policy and objectives. It ensures that elements necessary to improve efficiency and reduce risks are in place. If properly implemented, a QAS ensures that procedures are carried out consistently and in compliance with applicable requirements that problems are identified and resolved, reviews and improves its procedures, products and services. A QAS should identify problems and improve procedures in Older to meet corporate objectives.

ii. QAS helps ensure that the requisite systemic measures have been taken to meet Nesma Airlines safety goals. However, quality assurance does not "assure safety". Rather, quality assurance to ensure the necessary standardization of the systems within Nesma Airlines to reduce the risk of accidents.

iii. QAS contains procedures for monitoring the performance of all aspects and ensures that the organization's / suppliers have appropriate quality assurance systems in place, including such elements as:
- Well designed and documented procedures (e.g. SOPs)
- Inspection and testing methods;
- Monitoring of equipment and operations;
- Internal and external audits;
- Monitoring of corrective actions taken; and
- The use of appropriate statistical analysis, when required

iv. Quality management system (QMS) has been established in many segments of the aviation system for a long time. A QMS defines and establishes an organization's quality policy and objectives. It ensures that the organization has in place those elements necessary to improve efficiency and reduce service-related risks. If properly implemented, a QMS ensures that procedures are carried out consistently and in compliance with applicable requirements that problems are identified and resolved and that the organization continuously reviews and improves its procedures, products and services. QMS should identify problems and improve procedures in order to meet corporate objectives.

v. The objective of SMS is to identify the safety hazards the organization must confront - and that in many cases it generates - during delivery of services, and to bring the safety risks of the consequences of these hazards under organizational control. In broad terms, the first imperative of this objective - hazard identification - is accomplished through the safety risk management component of an SMS, which is based upon safety management principles and practices. The second imperative -bringing the safety risks under organizational control - is accomplished through the safety assurance component of an SMS, which is based upon the integration of safety and quality management principles and practices.

vi. SMS differs from QMS in that:
- SMS focuses on the safety, human and organizational aspects of an organization (i.e. safety satisfaction); while
- QMS focuses on the product(s) and service(s) of an organization (i.e. customer satisfaction).

vii. The relationship between SMS and QMS

It is accurate to say that SMS and QMS share many commonalities they both:

- Have to be planned and managed;
- Depend upon measurement and monitoring;
- Involve every function, process and person in the organization; and
- Strive for continuous improvement.

viii. Once commonalities and differences between SMS and QMS have been established, it is possible to establish a synergistic relationship between both systems. It cannot be stressed strongly enough that the relationship is complementary, never adversarial, and it can be summarized as follows:
   - SMS builds partly upon QMS principles;
   - SMS should include both safety and quality policies and practices; and
   - The integration of QMS into SMS provides a structured approach to monitor that processes and procedures to identify safety hazards and their consequences, and bring associated safety risks in aviation operations under the control of the organization function as intended and, when they do not, to improve them.

ix. The application of QA principles to safety management processes helps ensure that the requisite system-wide safety measures have been taken to support the organization in achieving its safety objectives. However QA cannot, by and in itself and as proposed by quality dogma, assure safety. It is the integration of QA principles and concepts into an SMS under the safety assurance component, which assists an organization ensuring the necessary standardization of processes to achieve the overarching objective of managing the safety risks of the consequence(s) of hazards the organization must confront during the activities related to the delivery of services.

11.4.3 Safety Oversight

The monitoring functions of safety oversight take many forms with varying degrees of formality. Nesma Airlines employs the first-line supervisors to maintain vigilance (from a safety perspective) by monitoring the day-to-day activities as follows:

i. They regularly conduct inspections (formal or informal) of day-to-day activities in all safety -critical areas.
ii. They sample employees' views on safety (train both a general and a specific point of view) through safety surveys.
iii. They systematically review and follow up on all reports of identified safety issues.
iv. They systematically capture data which reflect act vial day-to-day performance such as FDA,
v. They follow a regular operational audit program (including both internally and externally conducted safely audits).
vi. They communicate safety results to all affected personnel.

Surveys:

i. Surveys of Nesma Airlines operations and facilities can provide management with an indication of the levels of safety and efficiency, Understanding the systemic hazards and inherent risks associated with everyday activities allows Nesma Airlines to minimize unsafe acts and respond proactively by improving the processes, conditions and other systemic issues that lead to unsafe acts.

ii. Safety surveys are one way to systematically examine particular elements or the processes used to perform a specific operation either generally or from a particular safety perspective, they are particularly useful in assessing attitudes of selected populations.

iii. Surveys are usually independent of routine inspections by government or company management. Surveys completed by operational personnel can provide important diagnostic information about daily operations and significant information regarding many aspects of the organization, including:

- Perceptions and opinions of operational personnel;
- Level of teamwork and cooperation among various employee groups;
- Problem areas or bottlenecks in daily operations;
- Safety culture;
- Current areas of dissent or confusion,

iv. Safety surveys may involve the use of:

- Checklist,
- Questionnaires.
- Informal confidentiality reviews.

v. The validity of all survey information obtained may need to be verified before corrective action is taken. Similar to voluntary incident reporting systems

11.5 Safety Performance Measurement

11.5.1 General:

i. Safety management requires feedback on safety performance to complete the safety management cycle. Through feedback, system performance can be evaluated and any necessary changes effected. In addition, all stakeholders require an indication of the level of safety within an organization for various reasons:
   - Staff may need confidence in their organization's ability to provide a safe work environment.
   - Line management requires feedback on safety performance to assist in the allocation of resources between the often-conflicting goals of production and safety.
   - Passengers are concerned with their own mortality,
   - Senior management seeks to protect the corporate image (and market share),
   - Shareholders wish to protect their investment

ii. Statistical measures are often used to indicate a level of safety, e.g. the number of accidents per hundred thousand hours, or fatalities per thousand sectors flown. Such quantitative indicators mean little by themselves, but they are useful in assessing whether safety is getting better or worse over time.

11.5.2 Safety Health:

i. The term safety health is an indication of Nesma Airlines resistance to unexpected conditions or acts by individuals. It reflects the systemic measures put in place by Nesma Airlines to defend against the unknown. Furthermore, it is the indication of Nesma Airlines ability to adapt to the unknown. In fact, it reflects the safely culture of Nesma Airlines.

ii. Although the absence of safety-related events (accidents and incidents) does not necessarily indicate a "safe" operation, some operations are considered to be "safer" than others, Safety deals with risk reduction to an acceptable (or at least a tolerable) level. The level of safety in an organization is unlikely to be static.

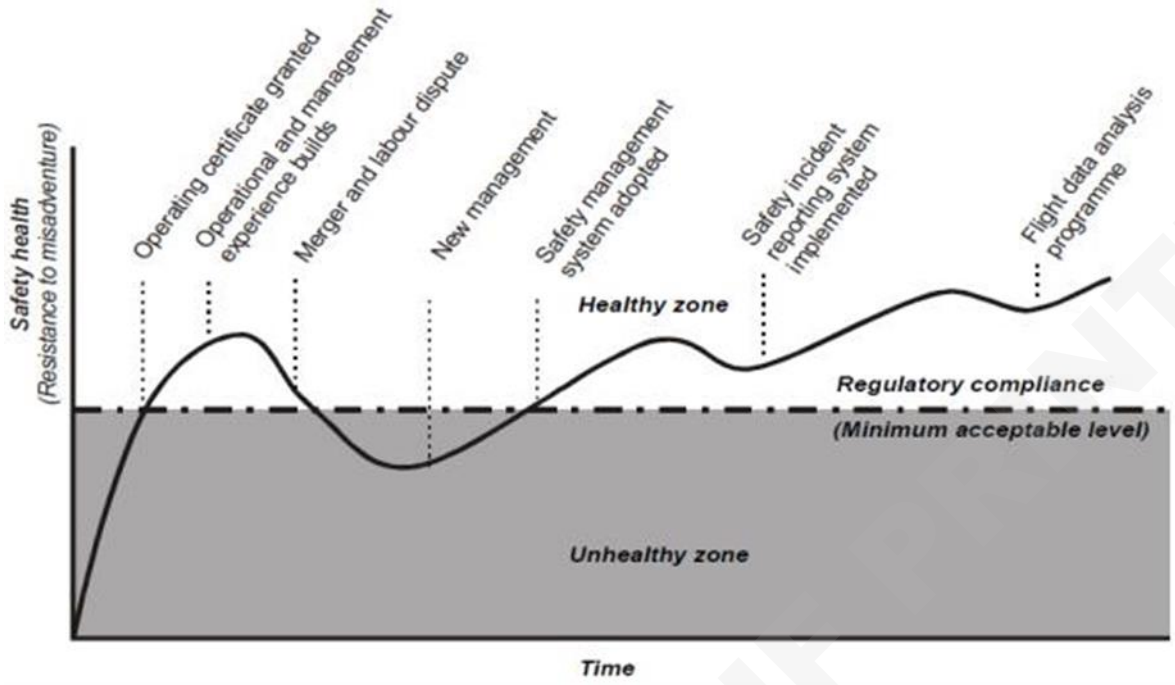
iii. Adding defences against safety hazards, safety health may be considered to be improving. However, various factors (hazards) may compromise that safety health, requiring additional measures to strengthen the organization's resistance to misadventure.

11.5.3 Assessing Safety Health

Nesma Airlines set benchmarks and indicators for assessing safety performance in order to improve safety health; through:

i. Implementing measures to increase its resistance to the unforeseen. They consistently do more than just meet the minimum regulatory requirements.

ii. Identifying the symptoms may provide a valid impression of Nesma Airlines safety health, however, information may still be lacking for effective decision-making. Additional tools are required to measure safety performance in a systematic and convincing way



11.5.4 Symptoms of Poor Safety Health

Poor safety health may be indicated by symptoms that put elements of the organization at risk. A weakness in any one area may be tolerable; however, weaknesses in many areas indicate serious systemic risks, compromising the safety health of the organizations as follows:

i. Inadequate organization and resources for current operations;
ii. Instability and uncertainty due to recent organizational change;
iii. Poor financial situation;
iv. Unresolved labour-management disputes;
v. Record of regulatory non-compliance;
vi. Low operational experience levels for type of equipment or operations;
vii. Fleet inadequacies such as age and mix;
viii. Poorly defined (or no) corporate safety function;
ix. Inadequate training programmes;
x. Corporate complacency regarding safety record, current work practices, etc.; and
xi. Poor safety culture

11.5.5 Improving Safety Health

i. Proactive corporate safety culture;
ii. Investment in human resources in such areas as non-mandatory training;
iii. Formal safety processes for maintaining safety database, incident reporting, investigation of incidents, safety communications, etc.;
iv. Operation of a comprehensive safety management system (i.e. appropriate corporate approach, organizational tools and safety oversight);
v. Strong internal two-way communications in terms of openness, feedback, reporting culture and dissemination of lessons learned; and
vi. Safety education and awareness in terms of data exchange, safety promotion, participation in safety for and training aids.

11.5.6 Statistical Safety Performance Indicators

i. Statistical safely performance indicators illustrate historic safety achievements; they provide a "snapshot" of past events. Presented either numerically or graphically, they provide a simple, easily understood indication of the level of safety in terms of the number or rate of accidents, incidents or casualties over a given time frame. At the highest level, this could be the number of fatal accidents per year over the past ten years. At a lower (more specific) level, the safety performance indicators might include such factors as the rate of specific technical events (e.g. losses of separation, engine shutdowns, TCAS advisories and runway incursions).

ii. Statistical safety performance indicators can be focused on specific areas of the operation to monitor safety achievement, or on identifying areas of interest. This approach is useful in trend analysis, hazard identification, risk t, as well as in the choice of risk control measures.

iii. Since accidents (and serious incidents) are relatively random and rare events in aviation, assessing safety health based solely on statistical safety perform a nee indicators may not provide a valid predictor of safety performance, especially in the absence of reliable exposure data. Reviewing the past does little to assist in their quest to be proactive and to put in place those systems most likely to protect against the unknown.

11.5.7 Nesma Airlines Key Performance Indicators (KPI'S):

Nesma Airlines safety performance targets are detected and should be achieved as follows:

- The selection of the safety performance indicators.
- Measuring the performance of the selected indicators.
- Performing a risk assessment that includes mitigations, identify actions required and implement these actions.
- A measurable target for each selected indicator performance measurement is established based on mitigations set and actions to be implemented.
- After setting the target and applying the actions required, another measurement is done to monitor their effects on reducing the number of cases caused by operations and to verify the measurable target achievement.
- A continuous improvement for safety targets will require to repeat the above procedure by setting better targets and/or adding new indicators.
- The following are an examples for the targets that may be selected and set on a measurable base:
  - Continual reduction of high risk and/or severe incidents (occurrences reports)
  - To reach and maintain 100% IOSA compliance.
  - To conduct a Line Operational Safety Audit (LOSA) at least once every 4 years.
  - Reduction in the percentage of SAFA findings ratio.

The following is an example for operations department proposed KPI's

- Flight data monitoring program events, the number of flight data events detected vs. the severity of those events as detected by the flight data analysis program.

11.5.8 The Following Are Examples for Cabin Proposed KPI's

- Cabin crew evaluation program
- Emergency equipment checks completion,
- Cabin crew training plan completion,

A slide is inadvertently deployed 11.5.9. Acceptable Levels of Safety:

Nesma Airlines believes that Weak organizations that fail to meet the acceptable levels of safety will be removed from the aviation system either proactively, by the regulator revoking their operating certificate, or reactively, in response to commercial pressures such as the high cost of accidents or serious incidents, or consumer resistance.

11.6 Handling of Accidents/Incidents and Occurrences

11.6.1 Terminology

11.6.1.1 Accident

An occurrence associated with the operation of an aircraft which takes place between the times any person boards the aircraft with the intention of flight until such time as all persons have disembarked, in which:

a. a person is fatally or seriously injured as a result of:
   1. being in the aircraft;
   2. direct contact with any part of the aircraft, including parts which have become detached from the aircraft; or,
   3. 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

b. 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, types, brakes, fairings, small dents or puncture holes in the aircraft skin: or

c. The aircraft is missing or is completely inaccessible.

11.6.1.2 Incident

An occurrence, other than an accident, associated with the operation of an aircraft which affects or could affect the safety of operation.
An incident includes occurrences that:

- Has jeopardized 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 jeopardized 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.

Examples include loss of engine cowlings, portions of flap or control surfaces, items of ancillary equipment or fuselage panels; an altitude excursion; a minor taxiing accident; damage due to collision with ground equipment
A Serious incident is an incident involving circumstances indicating that an accident nearly occurred.

11.6.1.3 Serious Injury

'Serious injury' means an injury which is sustained by a person in a reportable accident and which:

- Requires that person's stay in hospital for more than 48 hours commencing within seven days from the date on which the injury was sustained, or
- Results in the fracture of any bone, except simple fractures of fingers, toes or nose, or
- Involves lacerations which cause nerve, muscle or tendon damage or severe hemorrhage, or
- Involves injury to any internal organ, or
- Involves second- or third-degree burns or any burns affecting more than five percent of the body surface, or
- Involves verified exposure to infectious substances or injurious radiation.

11.6.2 Aircraft Accident Procedures

11.6.2.1 Pilot in Command/Crew Post-Accident/Incident Procedures

Immediately after an accident/incident and following the evacuation of any passengers from the aircraft the Pilot in Command, senior crewmember or delegated passenger must carry out the following duties subject to safety considerations and the prevailing situation:

- The aircraft must be secured in a safe condition as possible;
- A headcount must be made to account for all persons on board the aircraft;
- The needs of any injured persons must be attended to;
- The remains of any deceased persons should be decently set apart and covered;
- The distress beacon must be activated and pyrotechnics, if available, prepared for immediate use;
- If people, dwellings or communications facilities are close to the accident site, efforts to obtain assistance must be made, having regard to the local situation.
- Notify the nearest Authority, by the quickest available means

The wreckage of the aircraft must be preserved and unauthorized persons should not be allowed access to it. An authorized person is any person nominated by the accident investigation authority or regulatory authority, and usually includes police, fire and rescue services.

11.6.2.2 Preservation, Production and Use of Flight Data

Following an accident, the Company must attempt to preserve all DFDR and CVR data and make it available to the investigating authority at least for 60 days or for the longer period upon the request of ECAA in safe custody.
As follow:-

1. The data acquisition is the responsibility of maintenance department
2. Records will be held to safety manager with evidence of receiving.
3. Safety manager will save the data in safe custody, Safe custody shall include protection against further damage, access by unauthorized persons, pilfering and deterioration.
4. Records shall be ready and accessible for the related authorities in the interest of investigations.
5. Official permission shall be granted before disposable of information.

11.6.2.3 Accident Reporting

The initial accident report must be raised within 72 hours by the aircraft Pilot In Command to the company (Chief Pilot). Chief Pilot shall distribute the initial Report to the concerned Directors/Manager in addition to Operational Safety & Quality Assurance Office. The latter is responsible for notifying within 72 hours the accident to the appropriate authority and all other official agencies concerned.
The report must include the following information:

- Aircraft model and registration;
- Name of Pilot In Command and crew particulars;
- Date, time (UTC) and location of the accident;
- Number of persons on board at the time of the accident;
- Number of persons killed or seriously injured;
- The nature of the accident;
- Brief particulars of aircraft or third party damage;
- Details of any dangerous goods on board.

In due course an Air Safety Report must be completed.

11.6.3 Aircraft Incident Procedures

It is the Pilot in Command's responsibility to initiate the incident procedure, having first assessed the event and situation, by informing Flight Operations Control (Dispatch) by telephone. If the Pilot in Command is in any doubt, contact should still be made and a decision will be sought from the Director Flight Operations or the Operational Safety & Quality Assurance Office whether or not to continue with the procedure.
The incident report must be raised within 72 hours by the aircraft Pilot in Command to the company.

During Office Hours

The Director Flight Operations will convene a meeting of all concerned parties (or their alternates) to form an Incident Group. The Incident Group will assess the situation and act in accordance with their defined responsibilities (see table below).

Outside Office Hours

The Duty Flight Operations Officer (Dispatch) will assess the situation and contact appropriate members of the Incident Group. As some members of the Group may either be un-contactable or in a remote location the Duty Flight Operations officer (*Dispatch*) must attempt to ensure that feasibly close co-ordination is established and also control the whole incident by acting in the capacity of those members who are not immediately contactable.
The Director Flight Operations and/or Operational Safety Manager will:

a) Assess the severity and implications of the incident on information received;
b) If required, contact all concerned management staff (or their alternates) to form an Incident Group. Outside office hours, if the incident is thought to be of a serious enough nature, then consideration must be given to convening a meeting at Company Head Quarters.
c) If any Incident Group member is un-contactable, ensure that that member's responsibilities are undertaken;
d) Correlate and disseminate all relevant information;
e) Ensure that all appropriate documentation is collected and completed within a reasonable time frame;

f) Ensure that all requirements are being addressed if any responsibilities have been delegated;
g) Ensure that adequate communication is established and maintained with the aircraft Pilot in Command.
h) Ensure that all DFDR and CVR data is preserved should it be required for internal or external investigation.

Controlling responsibility for the incident will not be relinquished until it is certain that:

a) As much information as possible has been obtained;
b) All relevant documentation has been completed and dispatched to the authorities, if involved;
c) Crew movements are determined;
d) Each member of the Incident Group is acting appropriately;
e) There is no need for further preliminary action or co-ordination;
f) The Operational Safety & Quality Assurance Office has been fully briefed;
g) The assigned Company Press Office is in possession of factual and updated information. When it is unclear or where doubt exists whether an incident is a notifiable accident or a reportable occurrence it should be notified as an accident without delay. The accident investigation authority will then pass the relevant information on to the safety regulatory authority if it decides to downgrade the event. Similarly, the safety regulatory authority will pass on information to the accident investigation authority if the event is erroneously reported as an occurrence. It should be noted that any delay in reporting an occurrence could, if it became a notifiable accident, seriously affect the efficiency of any subsequent investigation.

Incident group and list of responsibilities Ground Safety Incidents

When safety violations by ground service personnel occur (e.g. opening of cargo doors with engines running, ramp maneuvering traffic violations, misuse of ground support equipment, etc.) the Station Manager shall assume the principal role in any investigation and follow-up.
In order to investigate appropriate action, aircraft Pilots in Command are requested to:

a) Inform ATC if the incident is subject to Ground Movement Control;
b) Raise an Air Safety Report;
c) Inform Flight Operations control as soon as possible by the most expeditious means (e.g. telephone).

11.6.4 Operations Emergency Procedures

If an emergency occurs in a manner that endangers the safety of the airplane or operating personnel and it had been known first to the flight dispatchers, they shall:

- Initiate contact with the pilot-in-command and convey any safety related information and any required amendments to the flight plan
- Avoid taking any actions mentioned in the operations manual that would conflict with ATC procedures/instructions.

Note: it is equally important that the pilot-in-command convey similar information to the flight dispatchers during the course of the flight in case of emergency.

11.6.5 Company Investigation

11.6.5.1 General

All incidents are investigated through follow-up, however Nesma Airlines will conduct an in-house formal investigation following an accident or incident even though it may also be the subject of a Government investigation. A Government investigation can become a protracted affair, whereas Nesma Airlines needs to ascertain quickly whether any immediate changes in procedures are necessary. Also, Nesma Airlines may be asked to investigate and make a report on the Government agency's behalf.

11.6.5.2 Policy

If a Company investigation into an incident becomes necessary, an Investigating Board should be convened on the direction of the Director of Operations or Technical Director (as appropriate). The Operational Safety Manager may be appointed to act on their behalf.
The operating crew of the aircraft involved in any incident for which an investigation is required should be automatically relieved of all duty, without prejudice, at the Board's discretion until notified otherwise.
The investigation should commence as soon as possible after the event.

11.6.5.3 Investigating Board's Terms of Reference

The Board's objective is to investigate and report on any aspect considered to be relevant to an understanding of the incident. This is achieved by:

i. Examining the circumstances surrounding the incident to discover the likely cause;
ii. Making recommendations to prevent recurrence.

Notes: It must be made clear that it is not the purpose of the investigation to apportion blame.

11.6.5.4 Composition of the Investigating Board

The Investigating Board should consist of at least two specialist members plus the Operational Safety Manager. The specialist members will be drawn from Flight Crew Training or Engineering staff, depending on the nature and circumstances of the incident.
If a trade association exists, a representative should be invited to attend any interviews.

11.6.5.5 Preparation

All relevant documents should be gathered and made available for reference. This list is not exhaustive, but will typically include, as appropriate:

a) The original Air Safety Report;
b) Crew statements;
c) Crew license details and training records;
d) Witness statements;
e) Photographs;
f) Flight documentation (navigation log, weight and balance information, etc);
g) Operating/maintenance manuals and checklists.

Obtain also, if appropriate:

a) All relevant DFDR printouts and CVR transcripts (after having the authority's approval);
b) ATC voice tapes or transcripts (after having the authority's approval).

11.6.5.6 Reporting the Results of the Investigation

The Investigating Board's findings should be written up under the following suggested headings:

Summary of the Incident

A brief account of events compiled from the initial report, including the aircraft type and registration, date and time, place, nature of event, etc;

History of the Flight

A detailed account of the incident, including:

1. The time the crew reported for duty;
2. The composition of the crew (including cabin crew);
3. Expected duty to be carried out;
4. Details of the previous rest and duty periods up to the time of the incident;
5. Departure time;
6. Aircraft weight, fuel load and payload;
7. Action taken at the time of the incident and its effects.

Investigation of circumstances

1. Injuries to persons (with medical evidence appended);
2. Damage to aircraft (with photographs/sketches and engineering or strip examination reports appended);
3. Damage to third party equipment or installations;
4. Crew information (assigned position -PF/PM/relief crew-, license details, qualifications, total hours flown, total hours on type; for Pilot-In-Command, total hours in command; cabin crew);
5. Aircraft information (any permitted limiting serviceability);
6. Meteorological information (forecasts and METARS, prevailing conditions at the time of the incident);
7. Aids to navigation (serviceability of navigational aids and any relevant
8. NOTAMS);
9. Communications (list service in use at the time of the incident and append any relevant ATC tape transcripts)
10. Airfield and ground facilities (airport conditions; emergency services cover and its effectiveness);
11. Flight recorders (DFDR/CVR evidence);
12. Wreckage (list the type and location of any wreckage and components; append maps showing the position of any parts of the aircraft which migrated in flight; include an account of any operation to salvage or remove an aircraft from the runway;
13. Survival aspects (list safety equipment and drills used; highlight any deficiencies found);
14. Tests and research (summarize technical evaluations of component defects and append the results of any equipment strip examination; list simulator checks conducted in the course of the investigation);
15. Other information (items to be included under a non-specific heading such as CRM aspects and the effects of decisions made in handling the incident).

11.6.5.7 Analysis and Conclusions

All evidence, supporting documents, data and references should be collated and the incident summarized commensurate with the circumstances.
Only the professional opinion of the Board should be stated. If there is any matter of conjecture it must be stated as such.
State the findings and cause (an open conclusion may be declared).

11.6.5.8 Recommendations

Recommendations, if any, must be made in relation to the Investigating Board's Terms of Reference.
The report should be signed by all members of the Investigating Board then submitted to the Director of Operations or Technical Director for their consideration.
It is not the Board's duty to take further action.

11.6.6 Air Safety Reports and the MOR System

11.6.6.1 Policy

The Mandatory Occurrence Reporting (MOR) scheme is law in most countries and it is fundamental to its purpose that the substance of reports should be disseminated in the interests of flight safety. Without prejudice to the proper discharge of its responsibilities, the regulatory authority will not disclose the name of the person submitting a report, or that of a person to whom it relates unless required to do so by law, or unless in either case the person concerned authorizes a disclosure. Should any flight safety follow-up action be necessary, the regulatory authority will take all reasonable steps to avoid disclosing the identity of the reporter or of individuals involved in the occurrence?
All Nesma Airlines flight safety-related incidents shall be submitted on the approved Air Safety Report form (refer to "Forms" Section), which must be completed in full. The information provided will be entered into the flight safety database so that the status of any occurrence can be monitored. The Operational Safety & Quality Assurance Office will submit the report to the ECAA under the Mandatory Occurrence Report scheme.

11.6.6.2 Objective

The objective of occurrence reporting is to enable the Company to identify the cause of the event to ensure that suitable corrective action is taken, and not to apportion blame to individuals involved.

11.6.6.3 Occurrences Which Should Be Reported

The following list is neither exhaustive nor shown in order of importance**.** If in doubts, file a report.

1. A system defect occurs which adversely affects the handling characteristics of the aircraft and renders it unfit to fly;
2. There is a warning of fire or smoke;
3. An emergency is declared;
4. Safety equipment or procedures are defective or inadequate;
5. Deficiencies occur in operating procedures, manuals or navigational charts;
6. There is incorrect loading of fuel, cargo or dangerous goods;
7. Operating standards are degraded;
8. Ground damage occurs;
9. A rejected take-off is executed after take-off power is established;
10. A runway or taxiway excursion occurs;
11. Significant handling difficulties are experienced;
12. A navigation error which involves a significant deviation from track;
13. An altitude excursion of more than 200 feet occurs;
14. There is an exceedance of the limiting parameters for the aircraft configuration or when a significant unintentional speed change occurs;
15. Communications fail or are impaired;
16. A go-around or a wind shear go-around is executed;
17. A GPWS warning occurs;
18. A stall warning occurs;
19. A heavy landing check is required;
20. A serious loss of braking occurs;
21. The aircraft is evacuated;

22. The aircraft lands with reserve fuel or less remaining;
23. An Airport (Air miss) or ATC incident or wake turbulence event occurs;
24. Significant turbulence, wind shear or other severe weather is encountered;
25. Crew or passengers become seriously ill, are injured or become incapacitated;
26. There is difficulty in controlling violent, armed or intoxicated passengers or when restraint is necessary;
27. Toilet smoke detectors are activated;
28. Any part of the aircraft or its equipment is sabotaged or vandalized;
29. An act of aggression (e.g. bomb threat or hi-jack) occurs;
30. Security procedures are breached;
31. A bird strike or foreign object damage occurs;
32. A TCAS RA occurs;
33. Any engine has to be shut down in flight;

Or any other event considered having serious/related safety implications.

11.6.6.4 Co-Ordination of Reporting System

The regulatory authority will normally require the appointment of a coordinator to filter out reports which do not qualify for submission under the MOR scheme and to disseminate reports as appropriate.
The Company coordinator is the Safety & Quality Director.

11.6.6.5 Reporting Procedure

All air safety incidents and occurrences are to be reported using the approved ASR Report form (refer to "Forms" Section; Air Safety Report), supplies of which are carried in the aircraft documents file.
An Air Safety Report may be raised by Flight Crew or Ground Crew as follows:

a) The originator will complete the ASR form as soon as possible after the incident.
If the report is raised by a flight crewmember the crewmember will enter 'ASR RAISED' in the aircraft technical log (this entry is the trigger for action).
b) The completed form must be faxed to Flight Operations and the Operational Safety & Quality Assurance Office as soon as possible after the incident so that action can be expedited. The hand-written original must be returned to the Operational Safety & Quality Assurance Office in the Company mail system for retention.

11.6.6.6 Reporting Responsibility

Flight Crew responsibility for reporting commences with the acceptance of the aircraft for flight (i.e. the signing of the Technical Log) and ceases on completion of the Technical Log at the end of consecutive duty sectors. Ground Crew responsibility for reporting exists at all other times.

11.6.6.7 Handling of Air Safety Reports

On receipt of a report the Operational Safety & Quality Assurance Office will:

- **a)** Assess the ASR commensurate with the regulatory authority's mandatory reporting criteria and decide whether it merits submission;
- **b)** Enter the report into the database, ensuring that follow-up action is requested from the appropriate department(s);
- **c)** File the original report.

Note: Reports should be kept on office file for the current and preceding calendar years and then archived. Original reports may have to be presented in evidence for future warranty and/or insurance claims.

If an ASR is upgraded and submitted to the Authority the reporter must be advised accordingly.

11.6.6.8 Follow-Up and Closure

If follow-up is required, action will have been assigned to the appropriate department.
The Operational Safety & Quality Assurance Office will review responses and, if satisfactory, recommend closure of the report at the next Flight Safety Committee meeting.
If responses are unsatisfactory the incident must remain open for continuing review and action as required.
The Authority and the reporter must be informed of action taken once the incident is closed.

11.6.7 Accidents or Occurrences When Dangerous Goods Are Being Carried

11.6.7.1 Policy

Nesma Airlines shall carry dangerous goods only (when authorized) in accordance with the IATA "dangerous goods regulations" and the ICAO "technical instructions for safe transport of dangerous goods by air".
All accidents and incidents, involving dangerous goods, shall be reported to the appropriate authority of the state in which the accident and/or incident occurred, as required by that state. Furthermore it is recommended that the accident and/or incident be also reported to the Egyptian authorities, authorities of the country of flight departure and of the country of flight destination (if not yet arrived).

11.6.7.2 Provision of Information to the Pilot in Command

Prior departure, the Pilot in Command shall be provided with a specific form concerning any dangerous goods loaded. This information shall be provided by applicable departments as e.g. cargo department or loading agencies to the Pilot in Command as a dedicated "Notice TO Crew", the NOTOC.
The information that shall be listed as a minimum is:

- **(a)** The proper shipping name and the UN number as listed in the IATA "dangerous goods regulations" and ICAO "technical instructions for the safe transport of dangerous goods by air".
- **(b)** The class, division and subsidiary risk for which labels/placards are required, and in addition - in case of class 1 substances (i.e. explosives) – the computability group.
- **(c)** The packing group.
- **(d)** For non-radioactive particles, the number of packages, the gross weight per package and their loading position.
- **(e)** For radio-active articles, the number of packages, the gross weight, their "transport index" (indicating activity level) and their loading position.
- **(f)** When applicable, the indication that the package/article shall be transported in "cargo aircraft only".
- **(g)** The airport where the package(s) is to be unloaded, i.e. its destination airport.
- **(h)** If applicable, an indication that the dangerous goods are being transported under a state exemption.
- **(i)** Confirmation that to be transported dangerous goods packaging are not showing forms of damage or leakage.

When the NOTOC is presented, the Pilot in Command shall sign a copy, to be retained at each individual departure airport -if flight consists of multiple sectors – where dangerous goods have been loaded during its flight, to indicate that the information has been received.
The NOTOC shall be readily available to all flight crewmembers during flight.

11.6.7.3 Special Notification Requirements.

In the event of an accident

If an aircraft carrying dangerous goods is involved in an accident, information regarding the dangerous goods on board shall be sent to the State, where the accident occurred, as soon as possible. Such information shall include the concerned articles "proper shipping name", class and subsidiary risk for which labels are required, the compatibility group for class 1, the total net quantity in weight and location on board the aircraft.

In the event of an incident

If an aircraft carrying dangerous goods is involved in an incident the operator/airline/company shall, on request from the state in which the incident occurred, provide that state with all information required minimizing the hazards created by any damage to the dangerous goods carried.

11.6.7.4 Information to Be Provided By the Pilot in Command

If an in-flight emergency occurs and the prevailing conditions permit, the Pilot In Command shall inform the Air Traffic Control unit with which communications are established at that point in time of any dangerous goods on board. The Pilot in Command should give the information as listed on the NOTOC and as minimum state:

- Proper shipping names of goods transported and UN number.
- The "class" and the "division".
- For "class 1" articles the compatibility group and any subsidiary risks.
- The gross weight and location on board the aircraft.

Rules of The Air

Chapter 12