



# **Aerodrome Advisory Circular**

**AC (AD )NO-12**

## **Establishment and Implementation of Safety Management System in Aerodrome Operations**

**Civil Aviation Authority of Bangladesh  
26 June 2011**

## **1. REFERENCES**

- ICAO Annex 14, Volume 1, Section 1.3
- *ANO(AD)A.5*
- Manual of Aerodrome Standards (MAS), *ANO(AD)A1* and *ANO(SMS)A.1*

## **2. PURPOSE**

The purpose of this Advisory Circular (AC) is to assist aerodrome operators in Establishing and Implementing the Safety Management System for their aerodrome (Ref:ICAO DOC 8959,*ANO(AD)A.5*)

## **3 APPLICABILITY**

- 3.1** This AC applies to operators of all certified aerodromes. Operators of certified aerodromes may also introduce and Implements a safety management system (SMS) at their aerodrome.
- 3.2** Rule 260C(8) of CAR 84 requires operators of certified aerodromes to have an aerodrome SMS that complies with the standards set out in the,*ANO(AD)A.5*.

## **4 BACKGROUND**

- 4.1** The management of any organization, large or small, requires attention to many factors: financing, budgeting, personnel, resources, equipment etc. In recent years we've learnt to add safety management to this list. Safety management is now as much a part of running a modern business as any of these other more traditional factors.
- 4.2** An SMS is a coherent, integrated and documented set of policies, procedures and practices, for effectively managing the safe operation of your business.
- 4.3** ICAO introduced the concept and requirement of safety management systems for application to aerodrome operations in the November 2003 amendment to Annex 14, Volume 1

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4.4 “As of November 23, 2006 States shall require, as part of their safety programme the Certified aerodrome implements a safety management system (SMS) accepted by the State that, as a minimum:

-Identifies safety hazards.

-Ensures that remedial action necessary to maintain an acceptable level of safety is implemented.

-Provides for continuous monitoring and regular assessment of the safety level achieved.

Aims to make continuous improvement to the overall level of safety.”

## 5. WHAT IS AN AERODROME SAFETY MANAGEMENT SYSTEM

5.1 ICAO has defined an aerodrome SMS as a “system for the management of safety at an aerodrome, including the organisational structure, responsibilities, procedures, processes, and provisions for the implementation of aerodrome safety policies by an aerodrome operator, which provides for control of safety at, and the safe use of, the aerodrome”.

5.2 A key component of any aerodrome SMS is to ensure compliance with relevant regulations and standards. Many of these requirements, including the operational provisions, will form part of your SMS.

5.3 Aerodrome SMS’s are different to other quality systems that you may have in place because the aerodrome SMS focuses on the human and organisational aspects of the operation of your aerodrome rather than the product side.

5.4 Your aerodrome SMS enables you as the aerodrome operator to take ownership of aerodrome safety. And whilst you may not be directly involved in all facets of the aerodrome activity, for example aircraft refueling, under the SMS approach you will have oversight of the safety outcomes of all aerodrome activities, including refueling.

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**5.5** All aerodromes implementing an SMS will need to do more than simply adopt or adapt the existing Aerodrome Manual documentation. You will need to have a critical look at the procedures currently in place. For instance with aerodrome works, the SMS will need to incorporate safety related clauses in contracts for work at the aerodrome. For aircraft parking control, it will need to include the full range of apron activities, including aircraft apron manoeuvring, parking position marking and aircraft parking management.

**6.** The development of an appropriate and realistic SMS implementation plan will :

- Assist service providers in preparing a realistic strategy for the implementation of an SMS that will meet the organization's safety needs
- Define the approach the organization will adopt for managing safety
- Provide sequential steps on how to implement SMS
- Provide an accountability framework for the implementation of the SMS

Two requirements should be completed prior to developing the SMS implementation Plan:

- Identify the accountable executive and the safety accountabilities of managers
- Identify the person (or planning group) within the organization responsible for developing the SMS implementation plan.

The success of the proposed SMS implementation plan depends on the support, commitment and participation of management, supervisors and line operational workers. A Phase approach is suggested for the development of the SMS implementation plan and the timeline for its implementation may be different, depending the complexity of the organization

**7. MAIN FEATURES OF AN AERODROME SAFETY MANAGEMENT SYSTEM**

From a Civil Aviation Safety Committee perspective there are a number of ways of achieving an acceptable aerodrome SMS including:

## **7.1 Step 1 — Policy**

**7.1.1** To be effective the SMS requires the commitment and active participation of your senior management and also requires the involvement of all staff from within the organization.

**7.1.2** The senior management of your aerodrome organisation can demonstrate commitment to the SMS by providing adequate resources to operate the aerodrome, by providing training for staff and contractors, and by facilitating the flow of safety management information to all staff.

**7.1.3** Policy statements and principles for your organisation need to be clearly defined. These will outline your organisations fundamental approach to the management of safety at your aerodrome. They should commit your organisation, at its highest level, to the fulfillment of that policy and this means a genuine commitment to achieving the policies  
— not just doing it to achieve compliance.

**7.1.4** Safety objectives need to be set, along with the processes necessary to meet those objectives. This will include organisation of the SMS, including the staffing arrangements, and the assignment of individual and group responsibilities on safety matters.

**7.1.5** Depending on the size of your organisation it may be necessary to allocate "safety" responsibility to a specific person in each area of your organisation. Critical areas and functions include both internal groups (e.g. aerodrome reporting staff, airport lighting, airport maintenance, etc) and external agencies such as contractors, consultants, suppliers, business partners, airlines and other service companies.

## **7.2 Step 2 — Management Accountability**

- 7.2.1** There needs to be one person within the aerodrome organisation who is responsible for managing the SMS. This person is the Safety Officer and will report direct to the Chief Executive so that any reports, recommendations or urgent issues can be assured of the highest level of consideration.
- 7.2.2** Depending on the size of your aerodrome, the safety officer may be a full time permanent employee, and at the major capital city airports the person may have one or more assistant.
- 7.2.3** The responsibility of the safety officer needs to be clearly defined, however the most important thing is that clear lines of communication and responsibility exist between the safety officer and the senior management of your organisation.
- 7.2.4** Depending on the size of your organisation, the safety officer may need to be supported by a safety action group or safety committee. This group would act as a source of expertise and advice particularly with respect to safety recommendations and preparation of reports to senior management.
- 7.2.5** The committee would also act as a forum for discussing aerodrome and organisational safety related issues. At large airports this may mean a cross-functional committee that takes in all of the operators' different operating areas.
- 7.2.6** Ideally the committee would be chaired by the safety officer and meet on a regular basis. Minutes and action items are to be recorded as part of the normal functioning of the committee and made available to staff.

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### 7.3 Step 3 — Hazard Identification and Risk Management

**7.3.1** An SMS should include a formal risk assessment program that identifies the hazards at your aerodrome. A hazard is “a source of potential or a situation with a potential to cause loss”.

**7.3.2** There are many ways of identifying hazards at your aerodrome. Depending on the size and complexity of your aerodrome organisation, the following methods may be useful:

- brainstorming, where small discussion groups meet to generate ideas in a nonjudgemental way;
- a formal review of the organisations standards, procedures and systems using checklists generated by staff familiar with audit processes;
- surveys or questionnaires of staff;
- internally or externally conducted safety assessments and technical inspections;
- confidential reporting systems.

**7.3.3** Some hazards at your aerodrome may be obvious, such as ineffective bird management, or they may be more subtle, such as utilising inexperienced staff.

**7.3.4** Having identified the hazards at your aerodrome, they then need to be assessed and ranked in order of risk potential. Factors to consider are the likelihood of the occurrence and the severity of the consequences. Priorities can then be established and strategies put in place to remove or manage the hazard.

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**7.3.5** It's also important to recognise that hazard identification and risk assessment are not static processes. They need to be performed whenever:

- a major organisational change is being planned;
- your organisation is undergoing rapid expansion or contraction;
- the introduction of new equipment or facilities is being considered;
- existing equipment is being decommissioned;
- the introduction of new procedures is being planned;
- existing procedures are being revised;
- changes to key personnel are taking place;
- there are changes to the legislation that your organisation operates under.

### **7.4 Step 4 — Reporting System**

**7.4.1** The SMS needs to include an ongoing hazard reporting, recording and action taken process. Staff should be able to report hazards or safety concerns as they become aware of them.

**7.4.2** For best results, and greatest acceptance amongst staff, the hazard reporting system should be just, confidential, simple and convenient to use. For example at larger airports a simple card system sent to a designated contact point, such as the safety officer, would be one way of achieving this.

**7.4.3** Once hazards are reported in this way, they need to be acknowledged and investigated. Feedback about the hazard also needs to be provided in an appropriate manner. Feedback is essential in letting staff know that the reporting system is working.

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- 7.4.4 The procedures for investigating reports need to be clearly spelt out so they are transparent to all users.

### 7.5 Step 5 — Training and Education

- 7.5.1 The aerodrome SMS should provide for staff training and competency, including the review and evaluation of the adequacy of the training and the system for testing competencies.
- 7.5.2 Both induction and recurrent training need to be considered. For example, how often will your Aerodrome Reporting Officers or Works Safety Officers be given training?
- 7.5.3 New employees should be trained in the organizations safety philosophies and SMS as part of “job specific training”. Through this process they will need to be encouraged to adopt the safety practices of the organization.
- 7.5.4 Recurrent training is an essential element of any SMS, as it reinforces the positive aspects of a safe working environment and safe work practices.
- 7.5.5 It goes without saying that the SMS needs to detail the procedures for training of staff when new equipment, new facilities, larger aeroplane types, new technologies or processes are being introduced to your organisation.

### 7.5 Step 6 — Audit and Assessment

- 7.5.1 Internal safety audits or assessments should be carried out as part of the SMS. These assessments check that correct procedures are being followed. They should also include a check of the activities of third parties such as contractors and consultants.
- 7.5.2 Procedures that provide for internal safety audit of the system need to be clearly stated so that there is no confusion over the role of the auditor or audit team.

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- 7.5.3 A second aspect of the internal safety audit process is the thorough investigation of all incidents, accidents and near misses. Remembering of course that the primary purpose of the investigation is to uncover the root causes and contributing factors to the incident – not to apportion blame.
- 7.5.4 Every incident/ accident offers us the opportunity to learn, not only what happened, but also why it happened. This is only revealed however, if incidents and accidents are thoroughly investigated. A full and open investigation will reveal the human and organisational factors behind the incident.

### 7.7 Step 7 — Documentation and Data Control

- 7.7.1 Where the SMS Manual is a stand-alone document it should be subject to document control procedures, with a person appointed as the Manual Controller. A system will need to be put in place to update and distribute the document.
- 7.7.2 Smaller aerodrome operators may find it easier to document their SMS within their Aerodrome Manual. Large aerodrome operators, on the other hand, will most likely have their SMS as a separate document as they do with other documents required by CAAB.
- 7.7.3 The SMS document should also clearly indicate the process the aerodrome operator has in place for monitoring and updating the manual in line with changes in the Regulations that govern its activities.
- 7.7.4 The aerodrome SMS will also necessitate a reliable recording system for all internal safety audits, technical inspections and specialist reports. The system should enable easy retrieval of this information.

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### 7.8 Step 8 — Evaluation of SMS

**7.8.1** It's up to the Chief Executive Officer to ensure that the SMS is reviewed and evaluated at regular intervals. The process of establishing your SMS will in effect lead you to decide how often this is best achieved.

**7.8.2** Regular reviews, in a structured and systematic way will enable you to measure the effectiveness of your SMS.

**7.8.3** When your SMS is in place, Aerodrome Inspector will assess its effectiveness as part of the surveillance process.

**7.9** Putting these eight elements in place is of course just the first stage in building an effective SMS. You will need to integrate these elements into your organisation for them to be fully effective.

## 8 SMS Implementation Plan – Phase approach

Phase 1-Safety Policy and Objectives(Palnning):

This phase should be the blueprint on how the SMS requirements will be met and integrated to the organization's work activities. In order to achieve that, the following issues should be completed,

a) Management commitment to SMS implementation:

❖ Identify the safety objectives of the organization

- Objectives as a precise tangible elements to be validated (through the different phases) and linked to the safety performance indicators and safety performance targets.
- Develop a safety policy that contains at least addressed the following points Achieve the highest safety standards.
- Observe all applicable legal requirements and international standards, and best effective practices.
- Provide appropriate human and financial resources.
- Enforce safety as one primary responsibility of all managers.
- Ensure that the policy is understood, implemented and maintained at all levels.

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- ❖ Establish allocation of time for the SMS processes among the different management layers of the organization
- b) Management must establish the level of expectation for the SMS and its usage by contractors and sub-contractors on their jobsites
- ❖ Write SMS requirements into the contracting process
  - ❖ Establish the SMS requirements in the bidding documentation
- c) Safety communication
- ❖ Communicate, with visible endorsement, the safety policy to all staff
  - ❖ Establish means to communicate safety related issues that could include:
    - Safety policies and procedures
    - Newsletters
    - Bulletins
    - Website

### **Establishment of SMS Organizational Structure**

- a) The implementation planning team to propose an SMS structure; and,
- b) Safety responsibilities of key personnel (detailed information on functions and selection criteria in Chapt. xx):
- ❖ The safety office – *Corporate functions*
    - Advising senior management on safety matters
    - Assisting line managers
    - Overseeing hazard identification systems
  - ❖ The safety manager – *Responsibilities*
    - Responsible individual and focal point for the development and maintenance of an effective safety management system
    - The safety manager functions and selection criteria

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### ❖ The Safety Review Board (SRB):

- High level committee
- Strategic safety functions

### ❖ Safety Action Group(s) (SAG):

- Reports to SRB and takes strategic direction from SRB

## c) Approval of SMS implementation plan and initial training

- Draft SMS implementation plan developed
- Identify the costs associated to training and planning of the implementation
- Draft budget for SMS implementation
- Approve initial budget for SMS implementation plan
- SMS implementation plan signed by accountable executive

## d) Training

- Introduction of SMS concepts accordingly to the level of all workers, contractors and sub-contractors
- Identify who needs to be training for further phases
- Identify the costs associated to training
- Organize and set up schedules for training of all supervisors and workers

## **Coordination of the emergency response plan**

### a) Internal coordination

- Emergency planning team established
- Emergency planning coordinator appointed
- For procedures in place refer (chapt.xx)
- others\*

### b) External coordination

- established with search and rescue services
- established with Civil Aviation Authority (CAA) and investigation agencies
- Emergency Action Plan submitted to CAA
- Others

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### **Documentation**

- a) Develop the safety library of the organization
- b) Development of SMSM (related to planning phase)
- c) Safety library in place
- d) Information on Phase 1 collected and distributed to the organization

### **Phase 1 Timeline - 1 to 6 months**

Depends on the complexity of the organization

Objectives:

- safety objectives of the organization approved by accountable executive
- Safety Policy signed by accountable executive
- Safety Policy distributed all across the organization
- SMS organizational structure in place
- Lines of safety accountability established
- Approval of SMS implementation plan and initial training
- Emergency response planning in place
- Draft proposal of safety policy
- Gap Analysis results delivered
- Proposal of SMS organizational structure including allocation of resources and time for the SMS processes among the different management layers of the organization
- Estimated budget for SMS processes

### **Phase 2: Safety Risk Management(Reactive processes):**

Means of collecting, recording, acting on and generating feedback about hazards and risks in operations **according to the results of the gap analysis**

- a) Determine what form of intervention tool to be used to collect reactive information
- b) Decide which reporting system will be required and adapted to the organization.
  - Mandatory reporting system
  - Voluntary reporting systems

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- Confidential reporting systems
- c) Determine what Matrix to be used (as suggested in Chapt. xx or a new creation)
- Customize the Risk Matrix to suit the organizational complexity
  - Develop Risk Matrix instructions on the forms and/or in the training
- d) Determine risk management levels to be documented (i.e. intolerable, tolerable or acceptable)
- e) Write such requirements into the bid documentation for contractors, if necessary and notify contractors and sub-contractors in writing.
- f) Identify administration process/responsibilities for implementing strategies
- Will we need a database to capture reactive data from forms?
  - Who will maintain filing/database?
  - Who will analyze data for trends?
  - How will trends be communicated to?
  - Develop control and mitigation strategies (for reactive processes)
- g) Build the safety library
- h) Collect information for safety performance indicators
- ii) Train-the-Trainer(s)
- ij) Train the Supervisors
- k) Train the front line personnel
- l) Provide ongoing coaching and guidance by supervisors to front line personnel

### **Phase 2 Time line - x to y months**

Depends on the complexity of the organization

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### Objectives:

- Safety reporting system (for reactive processes) in place
- Safety library in place
- Risk assessment matrix in place for reactive processes
- Formal procedure to translate operational safety data into hazard-related information
- Training on reactive processes completed for operational personnel and managers and supervisors
- Convey safety critical information to the organization based on reactive processes

### Phase 3: Safety Risk Management (proactive and predictive processes)

- a) Determine what form of intervention tool to be used to collect proactive and predictive information (e.g., confidential reporting systems, flight data analysis, normal operations monitoring etc.)
- b) Update guidelines, procedures, hardware and software to support the proactive and predictive intervention tools.
- c) Review and update the reporting policy
- d) Identify administration process/responsibilities
  - Will we need a database to capture proactive and predictive data from forms?
  - Who will maintain filing/database?
  - Who will analyze data for trends?
  - How will trends be communicated to?
- e) Train flight safety manager on specific intervention tools on collecting information
- f) Determine risk management levels to be documented (as in phase 2)
- g) Use the risk matrix as in Phase 2
- h) Develop control and mitigation strategies
- i) Brief supervisors and frontline personnel on proactive and predictive processes

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j) Requirements into the bid documentation for contractors and sub-contractors in writing

k) Develop safety performance indicators and targets (Chapt. xx)

### **Phase 3 Time line - x to y months**

#### **Depends on the complexity of the organization**

#### **Objectives:**

- Safety reporting system (for proactive and predictive processes) in place
- Safety performance indicators and targets approved by CEO
  
- Risk control/mitigation strategies developed
- Safety performance indicators and targets reviewed by the Safety Review Board (SRB) or equivalent
- Training on proactive and predictive processes completed for operational personnel, managers and supervisors
- Convey safety critical information to the organization based on reactive processes

### **Phase 4: Operational Safety Assurance and Safety Promotion:**

#### **Acceptable levels of safety**

- a) Define safety performance indicators and safety performance targets of an acceptable level(s) of safety of the organization
- b) Establish safety requirements to deliver the safety performance indicators and safety performance targets of an acceptable level of safety
- c) Acceptable levels of safety established and submitted to the CAA

#### **Safety performance monitoring and measurement (Chap.XX)**

Define the process by which the safety performance of the organization is verified in comparison to the approved safety policies and objectives

- Safety reporting
- Safety studies
- Safety reviews

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- Audits
- Surveys
- Internal safety investigations for occurrences or events that are not required to be investigated or reported to the CAA
- Define safety performance indicators and safety performance targets of an acceptable level(s) of safety of the organization
- Establish safety requirements to deliver the safety performance indicators and safety performance targets of an acceptable level of safety
- Establish lines of accountability for measures of reliability, availability and/or accuracy related to safety requirements

### **Management of change**

Assess internal and external changes

- Identify affected established processes and services
- Arrangements to ensure safety performance

### **SMS continuous improvement**

- Proactive evaluation of facilities, equipment, documentation and procedures completed through audits and surveys
- Proactive evaluation of the individuals' performance completed to verify the fulfilment of their safety responsibilities
- Procedures for Reactive evaluations in place to verify the effectiveness of the system for control and mitigation of risks ( accidents, incidents and major events investigations)
- Training relevant to operational safety assurance
- Documentation relevant to operational safety assurance

Identify changes required from trend analysis of Risks being reported

- Safe Work Practices being updated
- Additions to the Safety Program

### **Safety Promotion**

Effective methods to promote safety in this phase should include among others:

- Review, revise and communicate changes to your organization's SMS usage and standards

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- Share “lessons learned” that promote improvement of the SMS
- Identify methods to communicate successes of SMS (i.e. after training is completed, trends identified in the documentation submitted, changes to the safety related programs, etc.)
- Review safety policy including the reporting policy
- Promote participation by all personnel in the identification of hazards

#### **Phase 4 Time line - x to y months**

Depends of the complexity of the organization

Objectives:

- Acceptable levels of Safety established and submitted to the Civil Aviation Authority
- Revised Safety strategies and processes approved by the CEO
- Processes for safety performance monitoring and measurement approved and established
- Re-evaluate strategies and processes by the Safety Committee. Training on proactive and safety assurance completed for operational personnel, managers and supervisors

Chairman, Civil Aviation Authority, Bangladesh is pleased to issue this Advisory Circular in pursuance of Rule 4& 260C(8) of CAR '84

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