CAC-14-12

Civil AviationCircular

On

Establishment and Implementation of SafetyManagement System in Aerodrome Operations

For
Flight Standard and Regulations Divisions

Version 2.0
11 May 2017

Civil Aviation Authority of Bangladesh

Record of Amendments

Revision/Version Number	Chapter Changed	Pages Replaced	Signature	Date

TABLEOFCONTENTS

Page

FOREWORD

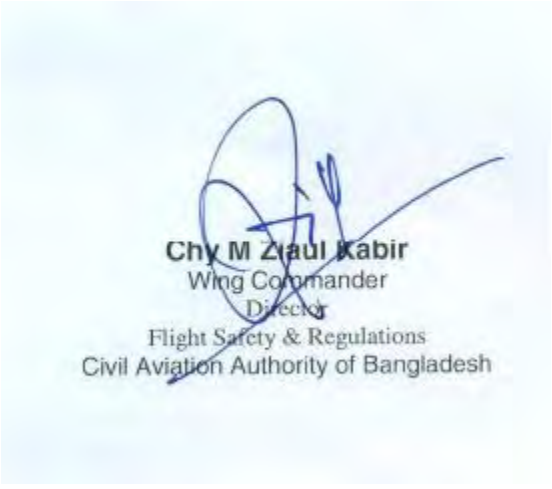
InexerciseofthepowersconferredbyRule4ofCivilAviationRules1984(CAR 84),and so delegated by the Chairman ofCivilAviationauthority,Bangladesh(CAAB), DFSR ispleasedtoissuethisCivil Aviation Circular(CAC-14-12) on Establishment and Implementation of SafetyManagementSystemin Aerodrome Operations, at Aerodrome.

AnAerodromecertificateholderisexpectedtocomplywiththeRuleslaiddowninthe Civil AviationRules1984 andSpecificationsofManualofAerodromeStandards(MAS), Bangladesh.There may besomecircumstances wherecomplianceofrequirementhavenot beenfollowedatanexistingaerodromebecauseofphysicalconstraintsandwherethe facility hadbeenprovidedearlierasperoldregulationsandcontinued tobeinoperation. Similarlytheremaybesituationwherecomplianceisnotpossiblealsoforanew aerodrome duetophysicalconstraints.ThesesituationsrequireCAA,Bangladeshtohaveprocedures forEstablishment and Implementation of SafetyManagementSystemin Aerodrome Operations at Aerodromefornon-complianceinrespectofanaerodromebeingissuedwitha certificate.

This Circular is issuedunder Rules4 ofCAR 84and in accordance with the provisions containedinRule260CofCAR84 andstipulatestheproceduresforapplicationof SafetyManagementSystemin Aerodrome OperationswithSARPsofMAS CAAB.

Theresponsibilityforthetechnicalmatterswithinthis Circular CAC-14-12istheresponsibilityoftheFlightSafetyandRegulationsDivisionofCAAB.

ThisCACisissuedandamendedundertheauthority delegated bytheChairmanofCivilAviationAuthority,Bangladesh.



1. REFERENCES

•ICAO Annex 14, Volume 1, Section 1.3
•*ANO(AD)A.5*
•ManualofAerodromeStandards(MAS),ANO(AD)A1and

2. PURPOSE

The purpose of this Advisory Circular (AC)is to assist aerodrome operators in Establishing and Implementing theSafety Management System for their aerodrome (Ref:ICAO Annex-19, 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 managementsystem(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,equipmentetc. In recent years we've learnt to add safety management to this list. Safety Managementis 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 amendmentto Annex 14,Volume 1

4.4 "As of November 23, 2006 States shallrequire, 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 andregular assessment of the safety levelachieved.

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

5. WHAT IS AN AERODROME SAFETY MANAGEMENT SYSTEM

5.1 ICAOhasdefinedanaerodromeSMSasa"systemforthemanagementof safety at an aerodrome, including the organizational 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 andstandards. Many of these requirements, including the operational provisions, will form part of your SMS.

5.3 AerodromeSMS'saredifferenttootherqualitysystemsthatyoumay have in place because the aerodrome SMS focuses on the human and organizationalaspectsoftheoperation of your aerodrome ratherthanthe product side.

5.4 Your aerodrome SMS enables you as the aerodrome operator to take ownership of aerodromesafety. And whilst you may not be directly involvedin allfacetsoftheaerodromeactivity,forexampleaircraft refueling, under the SMS approach you will have oversight of the safety outcomes of all aerodrome activities, including refueling.

5.5 AllaerodromesimplementinganSMSwillneedtodomorethansimply adoptoradapttheexistingAerodromeManualdocumentation.Youwill need to have a critical look at theprocedures currently in place. For instancewithaerodromeworks,theSMSwillneedtoincorporatesafety relatedclausesincontractsforworkattheaerodrome.Foraircraftparking control, it will need to include the full range ofapron activities, including aircraft apron maneuvering, parking position marking and aircraft parking management.

6. The development ofan appropriate and realistic SMS implementation plan will :

-Assist service providersin preparinga 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 safetyaccountabilities 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, commitmentand participation of management, supervisors and line operational workers. A Phase approach is suggested for the development of the SMS implementation plan andthe timeline for its implementation may be different, depending the complexity of the organization.

7. MAIN FEATURES OFAN AERODROME SAFETY MANAGEMENT SYSTEM

Froma Civil Aviation Safety Committee perspective there are a number of ways of achieving an acceptable aerodromeSMS 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 fromwithin the organization.

7.1.2 Theseniormanagementofyouraerodromeorganizationcan demonstratecommitmentto the SMS by providing adequate resources to operate the aerodrome, byprovidingtrainingforstaff and contractors, and by facilitating the flow of safety management information to all staff.

7.1.3 Policystatementsandprinciplesforyourorganizationneedtobe clearlydefined. These will outline your organizations fundamental approach to the management of safety at your aerodrome. They shouldcommityourorganization,atits highest level, to the fulfillmentof thatpolicy andthismeansagenuinecommitmentto achieving the policies not just doing it to achieve compliance.

7.1.4 Safetyobjectivesneedtobe set,alongwiththeprocesses necessarytomeetthoseobjectives.Thiswillincludeorganization of the SMS, including the staffing arrangements, and the assignment of individual and group responsibilities on safety matters.

7.1.5 Dependingonthesizeofyourorganizationitmaybenecessaryto allocate "safety" responsibility to aspecificpersonineachareaof your organization. Critical areas and functions include both internal groups (e.g. aerodrome reporting staff, airport lighting, airportmaintenance, etc)andexternalagenciessuchascontractors, consultants,suppliers,business partners,airlinesandotherservice companies.

7.2 Step 2 — Management Accountability

7.2.1 There needs to be one person within the aerodrome organizationwhois responsible for managing the SMS. ThispersonistheSafetyOfficerandwillreportdirectto theChiefExecutivesothatanyreports,recommendations or urgent issues can be assured of the highest level of consideration.

7.2.2 Dependingonthesizeofyouraerodrome,thesafetyofficer may be a full time permanent employee, and at the major capitalcity airportsthepersonmayhaveoneormore assistant.

7.2.3 Theresponsibilityofthesafetyofficerneedstobeclearly defined, however themost important thingisthatclear linesofcommunicationandresponsibilityexistbetween the safety officer and the senior management of your organization.

7.2.4 Depending onthesizeofyourorganization, thesafety officermayneedtobesupportedbyasafetyactiongroup or safety committee.This group would act as a source of expertiseandadviceparticularly withrespecttosafety recommendations and preparation of reports to senior management.

7.2.5 Thecommitteewouldalsoactasaforumfordiscussing aerodrome and organizational safety related issues. At large airportsthis maymeanacross-functionalcommitteethat takes in all ofthe operators' different operating areas.

7.2.6 Ideallythecommitteewouldbechairedbythesafety officerandmeetonaregularbasis.Minutesandaction itemsaretoberecordedaspartofthenormalfunctioning ofthe committee and made available to staff.

7.2.7 As part of SMS the aerodrome operators will monitor and analyse safety incidents/occurrences and trends and inform to FSR Division, CAAB, HQ with action taken. Aerodrome operators will also investigate the incidents/occurrences and trends there, to (as prescribed in Annex-19& Doc 9859)and forwardto FSR Division, CAAB HQ with safety recommendations in writings. In addition, in light of the investigation report aerodrome operators will take appropriate actions to the personnel involved with the occurrences (both officials/ workers of operators & stakeholders by issuingwarning letters, etc.)

7.3 Step 3 — Hazard Identification and Risk Management

7.3.1 AnSMSshouldincludeaformalriskassessmentprogram thatidentifiesthehazardsatyouraerodrome.Ahazardis

“asourceofpotentialorasituationwithapotentialto cause loss”.

7.3.2 Therearemanywaysofidentifyinghazardsat your aerodrome. Depending on the sizeand complexity of your aerodrome organization, the following methods may be useful:

•Brainstorming, where small discussion groups meet to generate ideas in a nonjudgmental way;

•Aformal review of the organizations standards, procedures andsystemsusingchecklistsgeneratedbystafffamiliar with audit processes;

•Surveys or questionnaires of staff;

•Internallyorexternallyconductedsafetyassessmentsand technicalinspections;

•Confidential reporting systems.

7.3.3 Somehazardsatyouraerodromemaybeobvious,suchas ineffective bird management, ortheymaybemoresubtle, such as utilizing inexperienced staff.

7.3.4 Havingidentifiedthehazardsatyouraerodrome,theythen needtobeassessed andranked inorderof risk potential. Factors to consider are the likelihood of the occurrence and theseverityof theconsequences. Priorities can then be establishedandstrategiesputin placetoremoveormanage the hazard.

7.3.5 it’salsoimportanttorecognizethathazardidentification andriskassessmentarenotstaticprocesses.Theyneedto be performed whenever:

•Amajor organizational change is being planned;

•Your organization is undergoing rapid expansion or contraction;

•Theintroductionofnewequipmentorfacilitiesisbeing 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 organization operates under.

7.4 Step 4 — Reporting System

7.4.1 TheSMSneedstoincludeanongoinghazardreporting, recordingandactiontakenprocess. Staffshouldbeableto report hazards or safety concerns as they become aware of them.

7.4.2 Forbestresults,andgreatestacceptanceamongststaff,the hazardreportingsystem shouldbejust,confidential,simple and convenient to use. For example at larger airports a simplecardsystem senttoadesignatedcontactpoint,such as the safety officer, wouldbe one way of achieving this.

7.4.3 Oncehazardsarereportedinthisway,theyneedtobe acknowledged and investigated.Feedbackaboutthehazard also needs to be provided in an appropriate manner. Feedback is essential in letting staff know that the reporting systemis working.

7.4.4 Theproceduresforinvestigatingreportsneedtobeclearly spelt out so they are transparent to all users.

7.5 Step 5 — Training and Education

7.5.1 TheaerodromeSMSshouldprovideforstafftrainingand competency,including the review and evaluation of the adequacyofthetrainingandthesystem fortesting competencies.

7.5.2 Both induction and recurrent training need tobe considered. For example, how often will your Aerodrome Reporting Officers orWorks Safety Officers be given training?

7.5.3 Newemployeesshouldbetrainedinthe organizations safety philosophies and SMS as part of "job specific training". Through this process they will need to be encouraged to adopt thesafety practices of the organization.

7.5.4 RecurrenttrainingisanessentialelementofanySMS,asit reinforces the positive aspects of a safe working environment and safe work practices.

7.5.5 ItgoeswithoutsayingthattheSMSneedstodetailthe procedures for training of staff when new equipment, new facilities, largeraero planetypes,newtechnologiesor processes are being introduced to your organization.

7.5 Step 6 — Audit and Assessment

7.5.1 Internalsafetyauditsorassessmentsshouldbecarriedout aspartoftheSMS. Theseassessmentscheckthatcorrect procedures are being followed. They should also include a checkoftheactivitiesofthirdpartiessuchascontractors 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 ofthe auditor or audit team.

7.5.3 Asecondaspectoftheinternalsafetyauditprocessisthe thorough investigationof all incidents,accidentsandnear misses. Rememberingofcoursethatheprimarypurposeof theinvestigation is touncover the rootcauses and contributing factors to theincident – not to apportion blame.

7.5.4 Everyincident/accidentoffersustheopportunitytolearn, not only what happened, but also why it happened. This is onlyrevealedhowever,ifincidentsand accidentsare thoroughly investigated. A fulland open investigation will reveal the human and organizational factors behind the incident.

7.7 Step 7 — Documentation and Data Control

7.7.1 WheretheSMSManualisastand–alonedocumentit should be subject to document control procedures, with a personappointedastheManualController.Asystem will needtobe putin placeto updateand distributethe 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 TheSMSdocumentshouldalsoclearlyindicatetheprocess the aerodromeoperator has in place for monitoring and updatingthemanualinlinewithchangesintheRegulations that govern its activities.

7.7.4 TheaerodromeSMSwillalsonecessitateareliable recordingsystem forallinternalsafetyaudits,technical inspectionsandspecialistreports. Thesystem should enable easy retrieval of this information.

7.8 Step 8 — Evaluation of SMS

7.8.1 it'suptotheChiefExecutiveOfficertoensurethatthe SMSisreviewedandevaluatedatregularintervals. The process of establishing your SMS will in effect lead you to decide how often this isbestachieved.

7.8.2 Regularreviews,inastructuredandsystematicwaywill enable you to measure the effectiveness of your SMS.

7.8.3 WhenyourSMSisinplace,Aerodrome Inspectorwill assess its effectiveness as part of the surveillanceprocess.

7.9 PuttingtheseeightelementsinplaceisofcoursejustthefirststageinbuildinganeffectiveSMS.Youwillneed tointegratetheseelementsintoyour organization for themto be fully effective.

8 SMS Implementation Plan – Phase approach

Phase1-SafetyPolicyandObjectives(Planning):

This phase should be the blueprint onhow the SMS requirements will be met and integrated tothe organization's workactivities. 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 thesafety performance indicators and safety performance targets.
- Develop a safety policy that contains at least addressed the followingpoints achieve the highest safety standards.
- Observe all applicable legal requirements and international standards, And best effective practices.
- Provide appropriate human andfinancialresources.
- Enforce safety as one primary responsibility of all managers.
- Ensure that the policy is understood, implemented and maintained at Alllevels.

Establish allocation of time for the SMS processes among the different Managementlayers of the organization

b) Management must establish the levelof expectation for the SMS and its usage by contractors and sub-contractorsontheirjobsites

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 teamto 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

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 andsub-contractors
- Identify who needs to be training for further phases
- Identify the costs associated to training
- Organize and set up schedules for training of allsupervisors 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 toCAA
- Others

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 accountabilityestablished
- 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 formofintervention tool to be used to collect reactive information

b) Decide which reporting systemwill be required and adapted to the organization.

- Mandatory reporting system
- Voluntary reporting systems

- 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 onthe 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 inwriting.

f) Identify administration process/responsibilities for implementing strategies

- Will we need a databaseto capture reactive data fromforms?
- 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

Objectives:

- Safety reporting system(forreactive 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 tothe organization based on reactive Processes

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

a) Determine what formofintervention 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 databaseto capture proactive andpredictive 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 toolsoncollecting information

f)Determine risk management levelsto be documented (as in phase 2)

g)Use the risk matrix as in Phase 2

h)Develop control and mitigation strategies

i)Briefsupervisors and frontline personnel on proactive and predictive processes

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 indicatorsand 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 predictiveprocesses completed for operational Personnel, managers and supervisors
- Convey safety critical information tothe organization based on reactive Processes

Phase 4: Operational Safety Assurance and Safety Promotion:

Acceptable levels of safety

a) Define safety performance indicatorsand 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 ofan 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
- 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 safetyperformance indicators
- and safety performance targets ofan acceptable level of safety

- Establish lines ofaccountability for measures ofreliability, 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 theirsafety responsibilities
- Procedures for Reactive evaluations inplace to verify the effectiveness of
- the systemfor control and mitigationofrisks (accidents, incidents and major events investigations)
- Training relevant to operational safety assurance
- Documentation relevant tooperational safety assurance

Identify changes required fromtrendanalysis 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

- Share "lessons learned" that promote improvement of the SMS
- Identify methods to communicatesuccesses 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 byall 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-evaluatestrategies and processesby the Safety Committee. Training on Proactive and safety assurance completed for operational personnel, managers and supervisors