




**Ethiopian Civil Aviation Authority
Aerodrome Safety and Standards Directorate**

**SMS Implementation Guide for Ethiopian
Airports**


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	Document Title: SMS Implementation Guide		Issue No. 1

ISSUE HISTORY			
Issue	Description of Change	Originator	Effective Date
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REFERENCE DOCUMENTS	
Document Number	Document Title
ISO 9001:2000	Quality Management system-Requirements, Clause 8.5.2 and 8.5.3
ICAO DOC 9859	Safety Management Manual
FAA Guide	SMS implementation guide, revision 3

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Document No: ECAA/AC/30		Page No.	
Approval	Name: Hanna T/work	Signature: 	Date: 13 th Dec. 2017



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	Company Name Ethiopian Civil Aviation Authority	Document No. ECAA/AGA/AC/30	
	Document Title: SMS Implementation Guide	Issue No. 1	Page No. Page 3 of 90

Table of Content

ISSUE HISTORY	2
RECORD OF AMENDMENTS	4
FORWARD.....	5
1.SMS IMPLEMENTATION GIDE PURPOSE	6
2.OBJECTIVE	7
3.APPLICABILITY	7
4.REFERENCES	7
5.SMS IMPLEMENTATION STRATEGY	8
6.IMPLEMENTATION LEVELS.....	10
7.IMPLEMENTATION PLAN	17
8.SMS PARTICIPATION VALIDATION PROGRAM.....	18
9.SMS IMPLEMENTATION PROCESSES.....	21
APPENDIX 1 SMS IMPLEMENTATION GUIDE	23
APPENDIX 2 SMS IMPLEMENTATION GUIDE	40
APPENDIX 3 SMS IMPLEMENTATION GUIDE	47
APPENDIX 4 SMS IMPLEMENTATION GUIDE	54
APPENDIX 5 PRELIMINARY GAP ANALYSIS TOOL	55
APPENDIX 6 DETAILED GAP ANALYSIS TOOL	60

PLEASE MAKE SURE THAT THIS IS THE CORRECT ISSUE BEFORE USE



Company Name

Ethiopian Civil Aviation Authority

Document No.

ECAA/AGA/AC/30

Document Title:

SMS Implementation Guide

Issue No.

1


Page No.

Page 4 of 90

RECORD OF AMENDMENTS

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PLEASE MAKE SURE THAT THIS IS THE CORRECT ISSUE BEFORE USE

	Company Name Ethiopian Civil Aviation Authority	Document No. ECAA/AGA/AC/30	
Document Title: SMS Implementation Guide		Issue No. 1	Page No. Page 5 of 90

FORWARD


This manual is designed to provide the Aerodrome Operator (Ethiopian Airport Enterprise) the necessary guidance and standard procedures for the implementation of Safety Management System to the required level.

It is emphasized that all matters pertaining to Operator's duties and responsibilities cannot be covered in this manual. Operator is expected to use good judgment in matters where specific guidance has not been given.

Comments and recommendations for revision/amendment action to this publication should be forwarded to **(Aerodrome Safety and Standards Directorate.)**

Ethiopian Civil Aviation
Addis Ababa
Ethiopia

PLEASE MAKE SURE THAT THIS IS THE CORRECT ISSUE BEFORE USE

	Company Name Ethiopian Civil Aviation Authority	Document No. ECAA/AGA/AC/30	
	Document Title: SMS Implementation Guide	Issue No. 1	Page No. Page 6 of 90

1. SMS IMPLEMENTATION GUIDE PURPOSE

The purpose of this document is to provide guidance on the implementation of Safety Management Systems (SMS). It has been developed to give sufficient understanding of SMS concepts and the development of management policies and processes to implement and maintain an effective SMS. It applies to Ethiopian Airport Enterprise Aerodromes.

This document meets ICAO Annex 19 requirements and will be assessed for compliance and effectiveness of an SMS using the ECAA SMS evaluation tools that can be found on the ECAA website.


a) This SMS Implementation Guide:

- (1) Contains guidance, expectations and procedures necessary to implement a Safety Management System (SMS) by Ethiopian Airport Enterprise.
- (2) Provides a three-level recognition system to acknowledge Ethiopian Airport Enterprise participation in the SMS development of their SMS in relation to ECAA expectations and international standards.

b) This implementation guide is not mandatory and does not constitute a regulation. Development and implementation of an SMS is mandatory, therefore, if operators have better option it is possible to execute by notifying to ECAA for approval. Aerodrome Safety and Standards Directorate (ECAA) encourages each Aerodrome Operator to develop and implement their own SMS, these systems is complement to regulatory compliance and with other certificate requirements, where applicable.

The overall objective of this implementation guide is to assist Ethiopian Airport Enterprise (EAE) in developing and implementing an integrated, comprehensive Safety Management System for their entire organization. Specifically, it will help ensure that a service provider's SMS will be capable of:

PLEASE MAKE SURE THAT THIS IS THE CORRECT ISSUE BEFORE USE

	Company Name Ethiopian Civil Aviation Authority	Document No. ECAA/AGA/AC/30	
	Document Title: SMS Implementation Guide	Issue No. 1	Page No. Page 7 of 90

- a) Receiving safety input from internal and external sources and integrating that information into their operational processes;
- b) Establishing and improving organizational safety policy to the highest level;
- c) Identifying, analyzing, assessing, controlling and mitigating safety hazards;
- d) Measuring, assuring and improving safety management at the highest level
- e) Promoting an improved safety culture throughout their entire organization; and
- f) Realizing a return on SMS investment through improved efficiency and reduced operational risk.

The implementation guide will also assist ECAA Certificate Management Teams (CMTs) in evaluating organizations' SMS programs and participating in further development of implementation and oversight strategies.

2. OBJECTIVE

Note: *Within the context of this document, the term "ECAA Certificate Management Team" or just plain CMT, refers to Aerodrome Safety and Standards Directorate Inspectors, Air navigation regulation Inspectors, Air operator Certificate Directorate and may be other Ad-hoc committee.*

3. APPLICABILITY


This implementation guide is designed for application by both certificated and non-certificated Aerodromes that desire to develop and implement an SMS. An SMS is currently required for Aerodrome certificate holders; and ECAA views the expectations in the SMS **Framework** to be the minimum characteristics (expectations) for a robust and therefore recognizable SMS, as developed by service providers. This implementation guide is based on the **SMS Framework**.

4. REFERENCES

The following references are recommended reading material for users of this implementation guide in development and implementation of an SMS.

- a) **Annex 19 to the convention of International Civil Aviation (ICAO) Safety Management**
- b) International Civil Aviation Organization (ICAO) Document 9859, ICAO Safety

PLEASE MAKE SURE THAT THIS IS THE CORRECT ISSUE BEFORE USE

	Company Name Ethiopian Civil Aviation Authority	Document No. ECAA/AGA/AC/30	
	Document Title: SMS Implementation Guide	Issue No. 1	Page No. Page 8 of 90

Management Manual (SMM)

c) ICAO Document 9734, *Safety Oversight Manual*

In order to fully understand the EAE's approach to SMS, it is important for the ECAA to be fully engaged during SMS development and implementation. Collaboration with the SMS implementation team will also provide the EAE with an opportunity to gain experience as well as using SMS as a tool for interfacing with their management.

ECAA will be responsible for participating in the development process meetings and gap analysis's including the Initial Workshop (described in Appendix 1) meeting and the presentation of an implementation plan by the Aerodrome operator. ECAA will also be responsible for reviewing the service provider's implementation plan and its accomplishment at each maturity level of the SMS implementation.


Specifically, ECAA is responsible to:

- (a) Oversee and review gap analysis processes;
- (b) Attend and participate in Orientation, Calibration and Validation meetings with the Aerodrome operators and SMS office;
- (c) Review the Aerodrome operators' implementation plan and other documents;
- (d) Discuss the requirements of the exit criteria for all phases with the Aerodrome operators SMS office.
- (e) Provide input and feedback to the SMS office regarding SMS implementation, documents and assessment tools.

5. SMS IMPLEMENTATION STRATEGY

Phased Implementation Initial SMS implementation strategy follows a four phased process similar to that outlined in the ICAO Safety Management Manual (SMM). ICAO.SMS requirements favor a phased implementation process. The SMS implementation guidance presented in this document closely parallels the ICAO recommended phased implementation process outlined in ICAO Document 9859.The phases of implementation are arranged in four levels of implementation "maturity

PLEASE MAKE SURE THAT THIS IS THE CORRECT ISSUE BEFORE USE

	Company Name Ethiopian Civil Aviation Authority	Document No. ECAA/AGA/AC/30	
Document Title: SMS Implementation Guide		Issue No. 1	Page No. Page 9 of 90


1) In the development and implementation of a SMS it is best to break down the overall complexity of the task into smaller, more manageable subcomponents. In this way, overwhelming and sometimes confusing complexity, and its underlying workload, may be turned into simpler and more transparent subsets of activities that only require minor increases in workloads and resources. This partial allocation of resources may be more commensurate with the requirements of each activity as well as the resources available to the service provider.

2) The reasons that justify why a phased approach to SMS implementation is recommended can be expressed as;

- (a) Providing a manageable series of steps to follow in implementing an SMS, including allocation of resources;
- (b) Effectively managing the workload associated with SMS implementation.
- (c) a third reason, quite distinct from the previous two, but equally important, is avoiding “cosmetic compliance”. Ethiopian Airport enterprise (EAE) should set as its objective the realistic implementation of a comprehensive and effective SMS, not the tokens of it. One simply cannot “buy” an SMS system or manual and expect the benefits of a fully implemented SMS.

3) Feedback from Experienced Aerodromes has shown that while full SMS implementation will certainly take longer, the robustness of the resulting SMS will be enhanced and early benefits realized as each implementation phase is completed. In this way, simpler safety management processes are established and benefits realized before moving on to processes of greater complexity. This is especially true with regard to Safety Risk Management (SRM). In the reactive phase (Level 2), The EAE will build an SRM system around known hazards which are already identified. This allows company resources to be focused on developing risk analysis, assessment and control processes (that frequently resolve old long term issues and hazards) unencumbered by the complexities necessary at the proactive (Level 3) and predictive phases (Level 4).

PLEASE MAKE SURE THAT THIS IS THE CORRECT ISSUE BEFORE USE

	Company Name Ethiopian Civil Aviation Authority	Document No. ECAA/AGA/AC/30	
	Document Title: SMS Implementation Guide	Issue No. 1	Page No. Page 10 of 90

4) In summary, guidance for a phased implementation of SMS aims at:

- (a) Providing a manageable series of steps to follow in implementing an SMS, including allocation of resources,
- (b) Effectively managing the workload associated with SMS implementation,
- (c) Pre-empting a “box checking” exercise, and
- (d) Realization of safety management benefits and return on investment during an SMS implementation project.

6. IMPLEMENTATION LEVELS

The overall objective of the levels is to “...develop and implement an integrated, comprehensive SMS for [the] entire organization.”

Figure 1 illustrates the levels of SMS development and implementation.

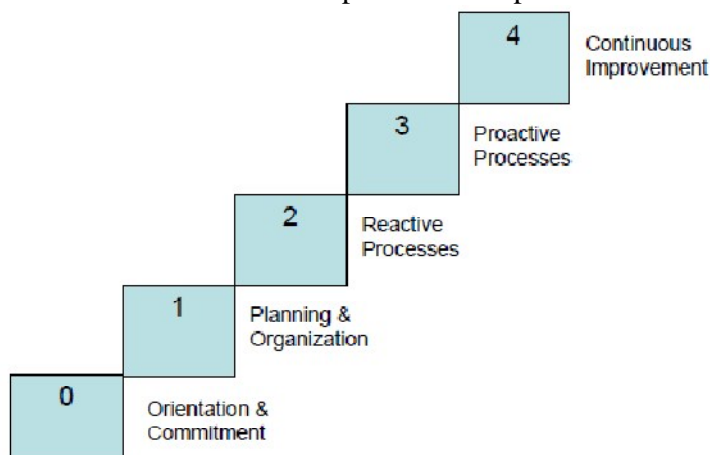



Figure 1 SMS Implementation Levels

a. Implementation Level Zero: Orientation & Commitment. Level zero is not so much a level as a status. It indicates that the operator has not started formal SMS development or implementation and includes the time period between a service provider’s first request for information from the ECAA on SMS implementation and when the service provider’s top management commits to implementing an SMS.

	Company Name Ethiopian Civil Aviation Authority	Document No. ECAA/AGA/AC/30	
	Document Title: SMS Implementation Guide	Issue No. 1	Page No. Page 11 of 90


- (1) Level zero is a time for the service provider to gather information, evaluate corporate goals and objectives and determine the viability of committing resources to an SMS implementation effort.
- (2) Face-to-face informational meetings between the ECAA SMS office and Aerodrome Safety and Standards Directorate is not normally conducted at level zero; however they may be conducted on a case-by-case basis.
- (3) In lieu of individual meetings, activities such as group outreach presentations and group seminars will be conducted in order to establish relationships and define SMS expectations for service provider's top management and oversight organizations.

b. Implementation Level One: Planning and Organization. Level 1 begins when a **service provider's** top management commits to providing the resources necessary for full implementation of SMS throughout the organization.

(1) Gap Analysis. The first step in developing an SMS is for the service provider to analyze its existing programs, systems, and activities with respect to the SMS functional expectations found in the *SMS Framework*. This analysis is a process and is called a "gap analysis," the "gaps" being those elements in the *SMS Framework* that are not already being performed by the Aerodrome operator (EAE).

- (a) The Gap Analyses process should consider and encompass the entire organization (e.g., functions, processes, organizational departments, etc.) to be covered by the SMS. As a minimum, the gap analysis and SMS should cover all of the expectations of the *SMS Framework*, Component as appropriate.
- (b) The gap analysis should be continuously be updated as the service provider progresses through the SMS implementation process. A detailed discussion and a set of tools are available in Appendixes 1, 5 and 6, to assist the EAE in conducting both the preliminary and detailed gap analysis process activities.


PLEASE MAKE SURE THAT THIS IS THE CORRECT ISSUE BEFORE USE

	Company Name Ethiopian Civil Aviation Authority	Document No. ECAA/AGA/AC/30	
	Document Title: SMS Implementation Guide	Issue No. 1	Page No. Page 12 of 90

(2) Implementation Plan. Once the gap analysis has been performed, an implementation plan is prepared. The implementation plan is simply a “road map” describing how the service provider intends to close the existing gaps by meeting the objectives and expectations in the *SMS Framework*.

- a) While no actual development activities are expected during level one, beyond those listed in the *SMS Framework*, Elements 1.1, 1.2 (partial), 1.3 and 4.1.1 (partial), the service provider organizes resources, assigns responsibilities, sets schedules and defines objectives necessary to address all gaps identified.
- b) It should be noted that at each level of implementation, top management’s approval of the implementation plan must include allocation of necessary resources.
- c) **Implementation Level Two: Reactive Process, Basic Risk Management.** At level two, the service provider develops and implements a basic SRM process and plan, organize and prepare the organization for further SMS development. Information acquisition, processing, and analysis functions are implemented and a tracking system for risk control and corrective actions are established. At this phase, the Aerodrome operator corrects known deficiencies in safety management practices and operational processes and develops an awareness of hazards and responds with appropriate systematic application of preventative or corrective actions. This allows the service provider to react to unwanted events and problems as they occur and develop appropriate remedial action. For this reason, this level is termed “reactive.” This will include complying with the expectations in Appendix 2. While this is not the final objective of an SMS, it is an important step in the evolution of safety management capabilities.
- d) **Implementation Level Three: Proactive Processes, Looking Ahead.** (Fully-Functioning SMS) Component 2.0 b (2) (a), of the *SMS Framework* expects SRM to be applied to initial design of systems, processes, organizations, and products, development of operational procedures, and planned changes to operational processes. The activities involved in the SRM process involve careful analysis of systems and tasks involved; identification of potential hazards in these functions, and development of risk controls.

PLEASE MAKE SURE THAT THIS IS THE CORRECT ISSUE BEFORE USE


	Company Name Ethiopian Civil Aviation Authority	Document No. ECAA/AGA/AC/30	
	Document Title: SMS Implementation Guide	Issue No. 1	Page No. Page 13 of 90

The risk management process developed at level two is used to analyze, document, and track these activities. Because the service provider is now using the processes to look ahead, this level is termed “proactive” At this level, however, these proactive processes have been implemented but their performance has not yet been proven.

- e) **Implementation Level Four: Continuous Improvement, Continued Assurance.** The final Level of SMS maturity is the continuous improvement level. Processes have been in place and their performance and effectiveness have been verified. The complete Safety assurance (SA) process, including continuous monitoring and the remaining features of the other SRM and SA processes are functioning. A major objective of a successful SMS is to attain and maintain this continuous improvement status for the life of the organization.

SMS Development Chart			
Components, Elements and Processes should be completed by the indicated Level of Implementation	Implementation Level		
	1	2	3
SMS Framework Expectation			
Component 1.0 Safety Policy and Objectives		X	
Element 1.1 Safety Policy	X		
Element 1.2 Management Commitment and Safety Accountabilities	(*1)	X	
Element 1.3 Key Safety Personnel	X		
Element 1.4 Emergency Preparedness and Response		X	
Element 1.5 SMS Documentation and Records		X	
Component 2.0 Safety Risk Management (SRM)		(*3)	X
Element 2.1 Hazard Identification and Analysis		X	
Process 2.1.1 System and Task Analysis			X
Process 2.1.2 Identify Hazards		X	
Element 2.2 Risk Assessment and Control		X	
Process 2.2.1 Analyze Safety Risk		X	
Process 2.2.2 Assess Safety Risk		X	

PLEASE MAKE SURE THAT THIS IS THE CORRECT ISSUE BEFORE USE

	Company Name Ethiopian Civil Aviation Authority	Document No. ECAA/AGA/AC/30	
	Document Title: SMS Implementation Guide	Issue No. 1	Page No. Page 14 of 90

Process 2.2.3 Control/Mitigate Safety Risk		X	
Component 3.0 Safety Assurance			X
Element 3.1 Safety Performance Monitoring and Measurement		X	
Process 3.1.1 Continuous Monitoring		X	
Process 3.1.2 Internal Audits by Operational Departments		X	
Process 3.1.3 Internal Evaluation		X	
Process 3.1.4 External Auditing of the SMS		X	
Process 3.1.5 Investigation		X	
Process 3.1.6 Employee Reporting and Feedback System		X	
Process 3.1.7 Analysis of Data		X	
Process 3.1.8 System Assessment		X	
Process 3.1.9 Preventive/Corrective Action		X	
Process 3.1.10 Management Review		X	
Element 3.2 Management of Change		(*3)	X
Element 3.3 Continual Improvement		X	
Component 4.0 Safety Promotion			X
Element 4.1 Competencies and Training X			X
Process 4.1.1 Personnel Expectations (Competence) (*2) X		(*2)	X
Process 4.1.2 Training X		X	
Element 4.2 Communication and Awareness		X	


(*1) Level 1 - only comply with expectations 1.2 B) 2) & 3)

(*2) Level 1 - only comply with expectation 4.1.1 B) 1)

(*3) Level 2 - Implementation of 2.0 B) 2) a), b) & d) and 3.2, will be limited in level 2 by the lack of the system/task analysis process (process 2.1.1)

ANALYSIS PROCESSES. Guidance and tools have been developed for use in directing and evaluating progress through the SMS implementation process. These tools are based on

PLEASE MAKE SURE THAT THIS IS THE CORRECT ISSUE BEFORE USE

	Company Name Ethiopian Civil Aviation Authority	Document No. ECAA/AGA/AC/30	
	Document Title: SMS Implementation Guide	Issue No. 1	Page No. Page 15 of 90

performance objectives and design expectations developed for each Component, Element and Process of the *SMS Framework*.

The *SMS Framework* is based upon ICAO requirements/guidance;

- This *SMS Implementation Guide* is based upon the *SMS Framework*, in question form; and The Preliminary and Detailed Gap Analysis Tools are based upon the *SMS implementation Guide* questions, in a user-friendly format.

a. System Description and Analysis. Prior to performing the preliminary gap analysis process, Aerodrome operator shall conduct a System Description and Analysis of their company operational functions.

(1) System Description and Analysis. Every system contains inherent potential safety vulnerabilities which are characterized in terms of hazards. The boundaries of the system, as per its formal description, must therefore be sufficiently wide to encompass all possible hazards that the system could confront or generate.


(2) Safety Consequences. The potential for loss or degradation of the system will be determined, in part, by the characteristics of the operational environment in which the system will be operated. The description of the environment should therefore, include any factors that could have a significant effect on safety. These factors will vary from one Airport to another. They could include, for example, geographic operational locations and facilities etc.

(3) Preparatory Briefings. After conducting these briefings the SMS office shall facilitate the System Description and Analysis activities. At the completion of the System Analysis, the preliminary gap analysis process should be conducted.

b. Preliminary Gap Analysis. The objectives of the preliminary gap analysis process are to:


- (1) Service provider Familiarization.** Familiarize service provider organization and SMS implementation team participants with the process of conducting a gap analysis process;
- (2) Company Configuration.** Gain a collective awareness of the company's configuration in terms of the allocation of functions to organizational departments of the company;

PLEASE MAKE SURE THAT THIS IS THE CORRECT ISSUE BEFORE USE

	Company Name Ethiopian Civil Aviation Authority	Document No. ECAA/AGA/AC/30	
	Document Title: SMS Implementation Guide	Issue No. 1	Page No. Page 16 of 90

- (3) Company Expectations.** Discuss the expectations of the *SMS Framework* (“standard”) to develop a common understanding of these expectations in the context of the company and its operations; and
- (4) Organizational Operations.** Gain a collective awareness of where the service provider’s operational functions stand with respect to the “Performance Objectives” of the *SMS Framework*, in the context of the company’s unique operations and environment.
- c. Detailed Gap Analysis.** As stated earlier, the detailed gap analysis process is a comprehensive, detailed assessment of each element and function of the organization’s systems as compared to the objectives and expectations of the *SMS Framework*. The detailed gap analysis process is performed on a schedule determined by the service provider. Involvement of SMS offices during the process is highly encouraged. The detailed gap analysis will be used to fully assess all parts of the *SMS Framework* in comparison to existing programs and processes at the company.
- (1)** Documentation or “objective evidence” of processes already in place should be recorded during the detailed gap analysis process. Objective evidence may take the form of physical documents, manual references, training material, records, interviews, observations, correspondence (email, memo, etc.), organizational charts, meeting minutes, etc. The Detailed Gap Analysis Tool may be used to record objective evidence by modifying the columns along the top to suit the service provider; however the operator may elect their own method of recording.
- (2)** It is important to note that if certain SMS expectations are not met, this is not a “deficiency.” The purpose of the gap analysis is to supplement the development of a comprehensive implementation plan. At the conclusion of the detailed gap analysis, the results should be summarized at the component/element/process level to facilitate more efficient implementation planning.
- (3)** The detailed gap analysis should be continuously updated as the company progresses through SMS implementation.

PLEASE MAKE SURE THAT THIS IS THE CORRECT ISSUE BEFORE USE

	Company Name Ethiopian Civil Aviation Authority	Document No. ECAA/AGA/AC/30	
	Document Title: SMS Implementation Guide	Issue No. 1	Page No. Page 17 of 90

d. Summary Gap Analysis Tool. The summary gap analysis is not a separate analysis but is a summary of the results of the detailed gap analysis. The same tool that was used for the preliminary gap analysis may be used for the summary gap analysis. During or at the end of the detailed gap analysis activity, the results may be summarized as the summary gap analysis at the component/ element/ process level and this summary may then be used by top management to track SMS implementation.

7. IMPLEMENTATION PLAN

Based on the results of the detailed gap analysis process, an Implementation plan is prepared to “fill the gaps”, the “gaps” being those elements in the *SMS Framework* that have not completely met expectations (e.g., are not already being performed) by the service provider. The SMS implementation plan is a realistic strategy for the implementation of an SMS that will meet the service provider’s safety objectives while supporting effective and efficient delivery of services. It describes how the service provider will achieve its corporate safety objectives and how it will meet any new or revised safety requirements, regulatory or otherwise.


a. Scope and Objective of the Plan. The implementation plan need not be complex or excessively detailed, but should provide a basic roadmap to meet the overall objective stated in the *SMS Framework* to, “...develop and implement an integrated, comprehensive SMS for [the] entire organization.”

(1) The SMS implementation plan, which may consist of more than one document, details the actions to be taken, by whom and within what time-frame. The implementation plan can be created in any format that is useful to the company but should provide at least the following:

- (a) Component/element/process reference from the *SMS Framework*;
- (b) Brief description of the actions to be taken and manual/s affected;
- (c.) Responsible organization and/or individual(s); and
- (d.) Expected completion date.

(2) The implementation plan should also span the entire SMS development process. It should start at preparation and organization, and continue through all levels of maturity. It should be

PLEASE MAKE SURE THAT THIS IS THE CORRECT ISSUE BEFORE USE

	Company Name Ethiopian Civil Aviation Authority	Document No. ECAA/AGA/AC/30	
	Document Title: SMS Implementation Guide	Issue No. 1	Page No. Page 18 of 90

updated as necessary (along with the detailed gap analysis) as the projects progress. At each level, top management’s approval of the implementation plan must include allocation of necessary resources.

8. SMS PARTICIPATION VALIDATION PROGRAM

a. Scope It is recognized that complete implementation of an SMS may take as long as 3 years to ensure that all aspects of the program are in place across all departments of the organization. The intent of this validation program is to allow service providers to implement an SMS in phases, in a standardized manner and to allow validation and acknowledgement at each level of participation.


b. Letters of Acknowledgement. Upon successful completion of each level, the service provider will receive a “Letter of Acknowledgement” attesting to their participation in the SMS Pilot Project (SMS PP) and their associated accomplishments in the development of their SMS. The Letter of Acknowledgement will be signed by the DG of ECAA or representative and will be issued to the service provider as outlined below.

Note: *Participation in the SMS PP and the issuance of Letters of Acknowledgement do not constitute formal acceptance or approval of individual SMS programs.*

c. Levels of Participation. Three levels of participation are specified for this validation program. Each service provider may develop their SMS in a modular fashion across their departments or across the functions of their organizations; however, attainment of the levels shown below are based on a comprehensive system covering all of the systems listed in Component 1.0, b, (1), (a) or (b) of the *SMS Framework*. The overall objective is to develop a comprehensive SMS covering the entire organization.

(1) SMS Level One: Commitment, Planning and Organization. This level will be validated when a service provider demonstrates that they have successfully conducted a thorough

PLEASE MAKE SURE THAT THIS IS THE CORRECT ISSUE BEFORE USE

	Company Name Ethiopian Civil Aviation Authority	Document No. ECAA/AGA/AC/30	
	Document Title: SMS Implementation Guide	Issue No. 1	Page No. Page 19 of 90

preliminary and detailed gap analysis, implemented the processes corresponding to level one of this.


SMS Implementation Guide, Appendix 1, developed a comprehensive implementation plan and Presented it to the SMS implementation team. While no actual development activities are expected during this level, beyond those listed in the *SMS Framework*, Elements 1.1, 1.2 (partial), 1.3 and 4.1.1 (partial), the service provider commits resources, assigns responsibilities, sets schedules and defines objectives in their implementation plan necessary to comply with all expectations of the *SMS Framework*.

(2) SMS Level Two: Reactive Process, Basic Risk Management. This level will be validated when a service provider demonstrates that they have successfully implemented the processes corresponding to level two of this *SMS Implementation Guide, Appendix 2*. At this level, all of the processes of the SMS have been designed and implemented in accordance with the *SMS Framework*; however they are only working in a reactive capacity. Sufficient data has not yet been accumulated at this point to enable proactive analysis.

(3) SMS Level Three: Proactive Processes, Looking Ahead. This level will be validated when an service provider demonstrates that they have successfully implemented the processes corresponding with level three of this *SMS Implementation Guide, Appendix 3*, At this level, the service provider is considered to have a fully instituted SMS, however due to their relative newness the performance and effectiveness of the SMS processes have not yet been validated for continued system effectiveness.

c. Letter of Acknowledgement Protocol. The protocols for recommendation of a Letter of Acknowledgement, attesting to the service provider’s participation in and the development of an SMS are as follows:

PLEASE MAKE SURE THAT THIS IS THE CORRECT ISSUE BEFORE USE


	Company Name Ethiopian Civil Aviation Authority	Document No. ECAA/AGA/AC/30	
	Document Title: SMS Implementation Guide	Issue No. 1	Page No. Page 20 of 90

(1) **Letter of Recommendation.** The assigned ECAA’s experts, at completion of a successful Level 1, 2 or 3 Exit Briefing, will forward a letter of recommendation and required documents to the SMS Transition.

(2) **Exit Level Checklist.** An Exit Level Expectation Checklist (included as an attachment to Appendixes 1, 2 and 3) will be completed by the ECAA’s team of experts and included with the letter of recommendation. It should be noted that involvement, commitment and endorsement of the exit level checklist by a respective Inspector, Supervisor or the Manager will be required for a successful recommendation. Specific documentation that should accompany letters of recommendations and checklist for each level is shown below:

Level	Documents Required
1	Exit Level 1 Checklist with all expectations completed (initialed) plus: <ul style="list-style-type: none"> • Management Commitment Letter; • Safety Policy; • Comprehensive SMS implementation plan (Summary) for the entire organization through SMS Implementation Level 4; and • SMS Training Plan for all employees.
2	Exit Level 2 Checklist with all expectations completed (initialed) plus: <ul style="list-style-type: none"> • Objective evidence that SRM processes and procedures have been applied to at least one existing hazard and that the mitigation process has been initiated; • Updated comprehensive SMS implementation plan (Summary) for all elements to take the organization through Level 4; and • Updated SMS Training Plan for all employees.
3	Exit Level 3 Checklist with all expectations completed (initialed) plus: <ul style="list-style-type: none"> • Objective evidence that SRM processes and procedures have been applied to all Component 2.0 b (2) (a), (b) & (d), operating processes; • Objective evidence that SRM processes and procedures have been applied to at least one existing hazard and that the mitigation process has been initiated; • Updated comprehensive SMS implementation plan (Summary) for all elements; and • Updated SMS Training Plan for all employees.

PLEASE MAKE SURE THAT THIS IS THE CORRECT ISSUE BEFORE USE


	Company Name Ethiopian Civil Aviation Authority	Document No. ECAA/AGA/AC/30	
	Document Title: SMS Implementation Guide	Issue No. 1	Page No. Page 21 of 90

9. SMS IMPLEMENTATION PROCESSES

The SMS implementation process is based on meeting the expectations of the *SMS Framework*. Specific implementation details and guidance for each level of implementation maturity are contained in Appendixes 1 through 4. Additional tools and reference material are in Appendixes 5 and 6.


- a) APPENDIX 1 - Level 1 Detailed Guidance and Expectations
- b) APPENDIX 2 - Level 2 Detailed Guidance and Expectations
- c) APPENDIX 3 - Level 3 Detailed Guidance and Expectations
- d) APPENDIX 4 - Level 4 Detailed Guidance and Expectations (in final development)
- e) APPENDIX 5 - Preliminary Gap Analysis Tool
- f) APPENDIX 6 - Detailed Gap Analysis Tool

PLEASE MAKE SURE THAT THIS IS THE CORRECT ISSUE BEFORE USE

	Company Name Ethiopian Civil Aviation Authority	Document No. ECAA/AGA/AC/30	
Document Title: SMS Implementation Guide		Issue No. 1	Page No. Page 22 of 90

Appendix 1
Level 1 Expectations
To:
SAFETY MANAGEMENT SYSTEM (SMS)
IMPLEMENTATION GUIDE
For:
Ethiopian Airport Enterprise

PLEASE MAKE SURE THAT THIS IS THE CORRECT ISSUE BEFORE USE

	Company Name Ethiopian Civil Aviation Authority	Document No. ECAA/AGA/AC/30	
	Document Title: SMS Implementation Guide	Issue No. 1	Page No. Page 23 of 90

APPENDIX 1

SMS IMPLEMENTATION GUIDE

Note: Some discussion and guidance from the SMS Implementation Guide is reproduced here, so that this Appendix may be used as a stand-alone document.

Implementation Level One: Planning and Organization


Level 1 Objective:

- Complete comprehensive preliminary and detailed gap analyses; and
- Complete a detailed implementation plan.

Level 1 Activities: To plan, organize and prepare the service provider for SMS development. These include:

- Top management commitment to implement SMS, define safety policy and convey safety expectations and objectives to its employees (*SMS Framework* Element 1.1; “Safety Policy”);
- Top management commitment to insure adequate resources are available to implement SMS (in Accordance with *SMS Framework* Element 1.2 b (2));
- Designating a management official who will be responsible for SMS development (*SMS Framework* Element 1.3; “Key Safety Personnel”);
- Defining safety-related positions for those who will participate in SMS development and implementation (in accordance with *SMS Framework* Element 1.2 b (3));
- Completing a preliminary and detailed gap analysis on the entire organization for all elements of the *SMS Framework*.
- Comprehensive SMS Implementation Plan addressing implementation of all design expectations of the *SMS Framework* for the entire organization; and
- Identifying safety competencies necessary (In accordance with *SMS Framework* Element 4.1.1b (1), addressing identified training competency needs in a training plan covering each phase of development.

PLEASE MAKE SURE THAT THIS IS THE CORRECT ISSUE BEFORE USE

	Company Name Ethiopian Civil Aviation Authority	Document No. ECAA/AGA/AC/30	
Document Title: SMS Implementation Guide		Issue No. 1	Page No. Page 24 of 90

Level 1 Process Overview: Four groups of level 1 activity:

- **Preparation:** Complete the necessary coordination in preparation for activities;
- **Initial Workshop:** Meet for a two to three-day workshop and complete a preliminary gap analysis;

Gap Analysis/Implementation Plan: At the completion of the Initial Workshop, the service provider begins detailed gap analysis and implementation plan activities. During these activities, progress on both the detailed gap analysis and implementation plan should be reviewed with the assigned Aerodrome Inspector team during one (or several) calibration/review meeting(s) (Calibration Sessions) of one to two days in length; and

Presentation/Evaluation of Implementation Plan: When ready, the service provider will present a comprehensive detailed gap analysis and implementation plan to the ECAA’s assigned experts a one-day (Validation Session) meeting for review, consensus and agreement (between all parties) to move on to level 2 or for agreement of maturity level.

Detailed Procedures:

The “Flow Diagram of Level 1 Activities” at Figure 2 outlines detailed guidance for Level 1, activities. Each activity in the process is represented as a step that corresponds with the flow diagram box numbers.



Company Name

Ethiopian Civil Aviation Authority

Document No.

ECAA/AGA/AC/30

Document Title:

SMS Implementation Guide

Issue No.

1

Page No.

Page 25 of 90

Preparation

**Initial Workshop
(Pre-brief & Onsite
Orientation Session)**

**Gap Analysis/
Implementation Plan
(Includes Calibration &
Review Session (s))**

**1. Initial
Contact**

**5. Orientation:
SMS
Concepts**

**9. Detail
Gap Analysis**

**2. Statements
Of
Commitment**

**6. Familiarization
-Tools and
Guidance**

**10. Comprehensive
Implementation
Plan**

**3. Organize
Team**

**7. System
Description &
Analysis**

**11. Prepare
Safety Policy/
Objectives**

**4. Operator
Profile**

**8. Preliminary
Gap
Analysis**

**12. Calibration &
Review
Session(s)**


5. Orientation

**13. Present
Implementation
Plan**

**15. Begin
Implementation**

**14. Validation of
Gap Analysis/
Implementation
Plan**

PLEASE MAKE SURE THAT THIS IS THE CORRECT ISSUE BEFORE USE

	Company Name Ethiopian Civil Aviation Authority	Document No. ECAA/AGA/AC/30	
	Document Title: SMS Implementation Guide	Issue No. 1	Page No. Page 26 of 90

Step 1: Initial Contact. Initial communication may come from a service provider to either the ECAA Aerodrome (Principal Inspectors) or the ECAA State Safety Program Directorate (SSP). The receiving ECAA representative will complete as much of a SMS Pilot Project Inquiry Information sheet as possible and forward this information to Ethiopian Airport Enterprise Safety Management Office.

Note: *From this point on, all communication and activity between the Aerodrome operator and Regulatory will be coordinated and/or shared with the EAE SMS office.*

Step 2: Statements of Commitment. Statements of Commitment must be received from the Airport Enterprise top management. Progress beyond this point will not proceed without **firm** commitments from EAE. Statements of Commitment may be in the form of a written document, electronic document, email, memo or meeting notes.


Note: *Since resources will be allocated from service provider during the Implementation of an SMS, it is necessary that some form of written commitment be obtained.*

Step 3: Organize Team. The Aerodrome Safety and Standards Director will coordinate appointment of an SMS Point-of-Contact (POC). The POC will act as a facilitator between the service provider and Regulatory by assisting the operator through the SMS implementation process, as well as the point-lead, for all site visits and evaluations.

An “Information Package” on the service provider that includes any dialog or background information the POC might need will be developed by the team. Once the team for the service provider is formed, the POC will coordinate the first onsite face-to-face meeting with the EAE SMS representative and Specific Aerodrome Operator. (Initial Workshop, Orientation Session).

Step 4: Prepare Service provider Profile.

Service provider Profile: All necessary information regarding the service provider is compiled and shared with the Aerodrome Inspector and other stakeholders.

	Company Name Ethiopian Civil Aviation Authority	Document No. ECAA/AGA/AC/30	
	Document Title: SMS Implementation Guide	Issue No. 1	Page No. Page 27 of 90

Step 5: Orientation: SMS Concepts.

Top Management Pre-brief: The EAE SMS office will arrange with the service providers respective ECAA and EAE Managers, an onsite Pre-brief. This is a separate briefing prior to the commencement of the Initial Workshop with the service provider, preferably one day prior to the Initial Workshop date.

The objective of the Pre-brief is to:

- Review the SMS “Key Points” Presentation;
- Discuss the SMS implementation program;
- Briefly familiarize Management CMT with SMS implementation process;
- Review Level 1 expectations (see below);
- Review Initial Workshop agenda;
- Review all SMS documents and tools (*SMS Framework, SMS Implementation Guide* and gap analysis process/tools); and


After arrangements for the top management have been confirmed with the SMS Office Manager, courtesy calls to the Principal Inspectors will be made to answer any questions they might have. If the Manager or Principal’s desire an agenda or subjects for discussion significantly different from the above objectives, contact Aerodrome representative (POC).

The Management Pre-brief will normally take half a day to complete. As a minimum, the Principal Inspectors will attend the Pre-brief. Additionally, the Safety Unit Supervisors and the SMS Office Manager are encouraged to attend. Other members of stakeholders may attend as agreed upon by the SMS office.

Step 6: Familiarization: Tools and Guidance. Day 2, Afternoon:

The implementation Team will facilitate an in-depth walk through of the **SMS Framework, and SMS Implementation Guide** (including an in-depth review of the Preliminary/Detailed Gap Analysis Tools and processes). The *Level 1 Tools & Guidance* PowerPoint presentation may be utilized in conjunction with handouts and/or a projected display of the actual tools and guidance material.

PLEASE MAKE SURE THAT THIS IS THE CORRECT ISSUE BEFORE USE

	Company Name Ethiopian Civil Aviation Authority	Document No. ECAA/AGA/AC/30	
	Document Title: SMS Implementation Guide	Issue No. 1	Page No. Page 28 of 90

Step 7: System Description and Analysis. Day 2, Afternoon or Day 3, morning:

The purpose of the System Description and Analysis is to gain a collective understanding of how the service provider’s operational functions compare with respect to the “Performance Objectives” of the *SMS Framework*. This will assist both the service provider and stakeholders with their understanding of SMS expectations in the context of the service provider’s unique operations and environment.

Prior to the gap analyses it's beneficial to get an idea of how the service provider is structured. Much of this information will initially be gathered during Step 4, Prepare Service provider Profile, and from questionnaires, discussion, etc.; however all such information should then be finalized onsite during the Orientation Session.


Step 8: Preliminary Gap Analysis. Day 3:

Objective: The objective of the preliminary gap analysis is to:

- Familiarize service provider and Managers participants with the process of conducting a gap analysis process.
- Gain a collective awareness of the company’s configuration in terms of the allocation of functions to organizational departments of the company. This will help to organize the subsequent and more in-depth detailed gap analysis and planning activities.
- Discuss the expectations of the *SMS Framework* to develop a common understanding of these expectations in the context of the company and its operations. This may be a combined presentation/discussion format facilitated by the SMS implementation team.
- Obtain an initial idea of the company’s status across its operational divisions in terms of SMS requirements versus processes and programs already in place.

Input: The preliminary gap analysis process is confined to a high level assessment, based on the judgment of service provider officials and discussion with the Top management and implementation team to develop an initial idea of where the service provider stands with respect to the *SMS Framework* expectations. It is a high level “off the top of the head” subjective

PLEASE MAKE SURE THAT THIS IS THE CORRECT ISSUE BEFORE USE

	Company Name Ethiopian Civil Aviation Authority	Document No. ECAA/AGA/AC/30	
	Document Title: SMS Implementation Guide	Issue No. 1	Page No. Page 29 of 90

analysis; a detailed analysis will be completed later, during Step 9, with the detailed gap analysis process.


Procedures: The preliminary gap analysis is accomplished in a group meeting environment and is focused at the “Performance Objective” level for each Component, Element and Process contained within the *SMS Framework*. The Preliminary Gap Analysis Tool is used to facilitate the analysis process. SMS implementing team will assist the service provider and their Manager in conducting the preliminary gap analysis. Each SMS Component, Element and Process within the *SMS Framework* will be assessed for matching service provider operational processes. These will be scored using the assessment scale below.

For those elements or processes that are deemed to have been already developed, the service provider may provide objective evidence in terms of references to existing documentation, however, it is not necessary to conduct a rigorous document review at this stage of the project. The Preliminary Gap Analysis Tool may be used to summarize the results of the preliminary gap analysis, including documentation of existing programs, but these results may also be maintained in any manner of the service provider’s choosing.

Output: The completed Preliminary Gap Analysis Tool or other documentation should be maintained for input into the detailed gap analysis process and as a reference for future planning and analysis.

Preliminary Gap Analysis - Assessment Scale All elements of the preliminary gap analysis will be given a subjective score, as defined in Figure 3, below, based on the judgment of the company’s management. All individual questions receiving less than a score of 1 will be reviewed by the service provider and implementation team for creation of a mutually agreeable solution.

PLEASE MAKE SURE THAT THIS IS THE CORRECT ISSUE BEFORE USE

	Company Name Ethiopian Civil Aviation Authority	Document No. ECAA/AGA/AC/30	
	Document Title: SMS Implementation Guide	Issue No. 1	Page No. Page 30 of 90

Assessment Rating Scale	Word Picture
This objective of the <i>SMS Framework</i> is not performed. NP = Not Performed	NP = Not Performed
This objective of the <i>SMS Framework</i> is in place; however it does not include all SMS processes.	PAR = Partial
This objective of the <i>SMS Framework</i> is in place; and it does include all SMS processes.	COM = Complete

Figure 3 – Preliminary Gap Analysis Assessment Scale

Prior to departing from the Orientation Session, the SMS implementation team will coordinate a tentative schedule for a Calibration Session meeting. It should also be noted that additional meetings might be desirable (e.g. Safety Assurance Seminar) during the Level 1 process. Flexibility to respond to the needs of the Top managers and service provider should be allowed.


Step 9: Detail Gap Analysis.

Objective: The objective of the detailed gap analysis is to:

- Determine what components of a SMS may already be in place; and
- To provide a basis for implementation planning.

Input: During the detailed gap analysis, it is necessary to receive input from all organizational and functional areas of the service provider that will be covered by the SMS in order to determine accurate “gaps” and to facilitate a comprehensive implementation plan. It does not however, require actual development of any of the elements during level one, beyond those listed in the *SMS Framework*, Elements 1.1, 1.2 (partial), 1.3 and 4.1.1 (partial).

Procedure: The detailed gap analysis process is performed by the service provider and is accomplished at the “Design Expectation” level for each Component, Element and Process contained within the *SMS Framework*. It is a detailed analysis of each element of the SMS, as applied to each operational process of the service provider, as compared to the expectations of

	Company Name Ethiopian Civil Aviation Authority	Document No. ECAA/AGA/AC/30	
	Document Title: SMS Implementation Guide	Issue No. 1	Page No. Page 31 of 90

the *SMS Framework*. It is performed in a manner and on a schedule determined by the service provider. Involvement of management members during the process is encouraged. As with the preliminary gap analysis, each SMS Component, Element and Process within the *SMS Framework* will be scored using the assessment scale below.


Documentation or “objective evidence” of processes already in place should be recorded during the detailed gap analysis process. For those elements that are considered already developed, the service provider should provide objective evidence in terms of references to existing manuals or other documentation. Objective evidence may also take the form of training material, records, interviews, observations, correspondence (email, memo, etc.), organizational charts, meeting minutes, etc.

SMS is currently at initial stage, and therefore any findings that SMS expectations are not met should not be construed as a “deficiency.” Such findings or “gaps” discovered during the detailed gap analysis process are used to develop a comprehensive implementation plan and represent opportunities for future improved safety performance. At the conclusion of the detailed gap analysis, the results should be summarized at the component/element/process level to facilitate more efficient implementation planning. The detailed gap analysis should be continuously updated as the company progresses through SMS implementation.

Note: *The service provider may require several months to complete a thorough detailed gap analysis. This is an extremely important activity, upon which the development and implementation of the SMS depends. It is, therefore, more important to conduct an in depth and Comprehensive job than to meet arbitrary timelines.*

Output: The results of the completed detailed gap analysis function as input to the service provider’s implementation plan.

PLEASE MAKE SURE THAT THIS IS THE CORRECT ISSUE BEFORE USE


	Company Name Ethiopian Civil Aviation Authority	Document No. ECAA/AGA/AC/30	
	Document Title: SMS Implementation Guide	Issue No. 1	Page No. Page 32 of 90

Detailed Gap Analysis - Assessment Scale All questions on the Detailed Gap Analysis Tool should receive a subjective score, as defined in Figure 4, below. All individual questions receiving less than a score of 1 will be reviewed by the service provider, management and the implementation team for creation of a mutually agreeable solution.

Assessment Level	Assessment Rating Scale Word Picture	Assessment Scale Value
Not Performed	No action has been taken on this expectation of the <i>SMS Framework</i> .	NP
Planned	A plan exists with resources and schedule identified to meet this expectation of the <i>SMS Framework</i> .	PLN
Documented	The expectations of this element/process are incorporated into company documents such as Manuals, training material, and work instructions.	DOC
Implemented	Identifiable actions have satisfied this expectation of the <i>SMS Framework</i> . Resources have been allocated to accomplish the objectives of the elements, in accordance with SMS expectations. These actions have been observed in policies, procedures, organizational actions, and employee actions. However, performance need not be demonstrated at this level.	IMP
Demonstrated	This element of the service provider's SMS has been subjected to at least one round of evaluation/auditing to demonstrate performance and there is evidence these expectations are being performed and are effective. further, there are no identifiable reasons suggesting that continued sustainment will not occur.	DEM

Figure 4 – Detailed Gap Analysis Assessment Scale

PLEASE MAKE SURE THAT THIS IS THE CORRECT ISSUE BEFORE USE

	Company Name Ethiopian Civil Aviation Authority	Document No. ECAA/AGA/AC/30	
	Document Title: SMS Implementation Guide	Issue No. 1	Page No. Page 33 of 90

Growth and Maturity: It is recommended that the detailed gap analysis be maintained, along with the implementation plan. It should be updated on a periodic basis as a means of measuring progress as the SMS is implemented.

Summarizing the Detailed Gap Analysis (Summary Gap Analysis): The summary gap analysis is not a separate analysis, nor is it a required process. It is a summary of the results of the detailed gap analysis. The results may be summarized at the performance objective level for each component, element and process and may be used by senior management to track SMS implementation. The same tool that was used for the preliminary gap analysis may be used for the summary gap analysis.

Step 10: Comprehensive Implementation Plan.

Objective: The objective of the implementation plan is to address the gaps noted during the detailed gap analysis by establishing responsibility, assigning tasks/actions and developing a timeline for completion.


Input: Based on the results of the detailed gap analysis, an implementation plan is prepared to describe how the service provider plans to “fill the gaps” between their existing organization and the objectives/expectations of the *SMS Framework*.

Procedures: The implementation plan need not be complex or excessively detailed but should provide a basic roadmap to meet the overall objectives and expectations as stated in the *SMS Framework* to, “...develop and implement an integrated, comprehensive SMS for [the] entire organization.”

The SMS implementation plan, which may consist of more than one document, details the actions to be taken, by whom and in what timeframe. The implementation plan can be created in any format that is useful to the company but should provide at least the following:

- Component/element/process reference from the *SMS Framework*,

PLEASE MAKE SURE THAT THIS IS THE CORRECT ISSUE BEFORE USE

	Company Name Ethiopian Civil Aviation Authority	Document No. ECAA/AGA/AC/30	
Document Title: SMS Implementation Guide		Issue No. 1	Page No. Page 34 of 90

- Brief description of the location of objective evidence indicating that the service provider is meeting the objectives and expectations of each component, element or process;
- Brief description of the actions to be taken to resolve existing gaps and how the actions and processes will be documented;
- Responsible organization and/or individual(s), and
- Expected completion date.

The implementation plan should also span the entire SMS development process through all levels of maturity and should be updated as necessary as the project progresses. At each level, top management's approval of the implementation plan should include allocation of necessary resources element 1.2 b (2).

Output: The completed implementation plan is the guidance for the service provider's organization to complete the transition to a robust SMS through Level 4.


Step 11: Prepare Safety Policy/Objectives.

Top management will define the service provider's safety policy and convey the expectations and objectives to its employees. Top management will designate a management official who will be responsible for SMS development. Each of the items in element 1.1 in the SMS Framework should be addressed in the top management policy statement or other company documentation addressed by top management.

Step 12: Calibration and Review Session(s).

During the gap analysis and planning process, additional onsite face-to-face program reviews between the service provider, Managers, and implementation team may be conducted to review of the progress of the detailed gap analysis process and implementation planning activities. This may include one or more meetings, as necessary. Program calibration and reviews may involve some or all of the following, depending on the status and progress of the project and the objectives of the particular review. Service providers may be asked to:

PLEASE MAKE SURE THAT THIS IS THE CORRECT ISSUE BEFORE USE

	Company Name Ethiopian Civil Aviation Authority	Document No. ECAA/AGA/AC/30	
	Document Title: SMS Implementation Guide	Issue No. 1	Page No. Page 35 of 90

- Forward their most current detailed gap analysis and implementation plan to their Managers and implementation team at least 1 week prior to the Session;
- Brief an overview of their detailed gap analysis results;
- Brief gaps found and how they intend to develop processes to close the gaps;
- Present objective evidence of current conformities;
- Brief SMS training accomplished and future training needs;
- Brief an overview of progress on their implementation plan; and
- Discuss any problems and barriers to progress.


The objective is to ensure the processes are performed correctly in scope, depth & detail. These “calibration” or “status checks” can be important parts of the process because they are an opportunity for the implementation team to assist in SMS implementation course corrections, if needed, provide additional training, if needed, and to gather data and to provide feedback to the service provider/Managers on their planning process. At the conclusion of the detailed gap analysis, a copy will be provided to the ECA for documenting purposes. Additionally, the service provider is requested to present a possible date for exiting Level 1.

Note: *Program reviews are “in-progress” events and the service provider may require 2 or 3 more months to finalize their gap analysis and implementation plan. Again, it should be noted that additional meetings might be desirable (e.g., Assurance/Validation Seminar) during the Level 1 process. Flexibility during the implementation process should be allowed so the implementation team can respond to the needs of the Management and service provider.*

Step 13: Presentation of Implementation Plan.

During the final face-to-face meeting (Validation Session) between the service provider, ECAA and implementation team, the service provider will present a detailed overview and discussion of their SMS implementation plan. The service provider will forward their most current detailed gap analysis and implementation plan to their Manager and implementation team at least 1 week prior to the Validation Session.

PLEASE MAKE SURE THAT THIS IS THE CORRECT ISSUE BEFORE USE

	Company Name Ethiopian Civil Aviation Authority	Document No. ECAA/AGA/AC/30	
	Document Title: SMS Implementation Guide	Issue No. 1	Page No. Page 36 of 90

Step 14: Validation of Gap Analysis/Implementation Plan.


This step involves consensus on the gap analysis and implementation plan among service provider, ECAA and implementation team. Agreement will be required that the service provider has satisfied Level 1, Exit Criteria (see below) and is ready to move to Level 2.

Level 1 - Exit Expectations:

While no actual development activities are expected during level one, beyond those listed in the *SMS Framework*, Elements 1.1, 1.2 (partial), 1.3 and 4.1.1 (partial), the following items are expected prior to Level 1 exit:

- Objective Evidence of top management’s commitment to implement SMS, define safety policy and convey safety expectations and objectives to its employees (*SMS Framework* Element 1.1; “Safety Policy”);
- Objective Evidence of top management’s commitment to ensure adequate resources are available to implement SMS (in accordance with *SMS Framework* Element 1.2 b (2));
- Designation of a management official who will be responsible for SMS development (*SMS Framework* Element 1.3; “Key Safety Personnel”);
- Definition of safety-related positions for those who will participate in SMS development and implementation (in accordance with *SMS Framework* Element 1.2 b (3));
- Completed preliminary and detailed gap analyses on the entire organization for all elements of the *SMS Framework*.
- Completed comprehensive SMS implementation plan for all elements to take the service provider through Level 4.
- Identified safety competencies necessary (in accordance with *SMS Framework* Element 4.1.1,b (1), completed training commensurate with Level 1 implementation phase of maturity for those competencies and a developed training plan for all employees (in accordance with *SMS Framework* Element 4.1.2, b).

PLEASE MAKE SURE THAT THIS IS THE CORRECT ISSUE BEFORE USE

	Company Name Ethiopian Civil Aviation Authority	Document No. ECAA/AGA/AC/30	
	Document Title: SMS Implementation Guide	Issue No. 1	Page No. Page 37 of 90

Level 1 - Output Documents


- Management Commitment definition;
- Safety Policy;
- Comprehensive SMS implementation plan (Summary) for the entire organization through SMS Implementation Level 4; and
- SMS Training Plan for all employees.

At successful exit from Level 1, the Implementation team will begin the SMS Participation Validation Program

Step 15: Begin Implementation. The service provider will begin implementation of Level 2 *SMS Framework* objectives and expectations throughout their organization.


Exit - Level 1 Criteria - Worksheet			
Level 1			
To be completed during Level 1 joint assessment. Forward completed ECAA.			
Exit Expectation	Validated	Initials	Date
1. Objective evidence of top management's commitment to implement SMS, define safety policy and convey safety expectations and objectives to its employees (<i>SMS Framework</i> Element 1.1; "Safety Policy"),			
2. Objective evidence of top management's commitment to ensure adequate resources are available to implement SMS (in accordance with <i>SMS Framework</i> Element 1.2 b (2),			
3, Designation of a management official who will be responsible for SMS development (<i>SMS Framework</i> Element 1.3; "Key Safety Personnel"),			
4. Definition of safety-related positions for those who will participate in SMS development and implementation (in accordance with <i>SMS Framework</i> Element 1.2 b (3),			
5. Completed Preliminary and Detailed Gap Analysis' for the entire organization on all elements of the <i>SMS Framework</i> (<i>SMS Implementation Guide</i> , Section 5, 8 & 9),			

PLEASE MAKE SURE THAT THIS IS THE CORRECT ISSUE BEFORE USE

	Company Name Ethiopian Civil Aviation Authority	Document No. ECAA/AGA/AC/30	
	Document Title: SMS Implementation Guide	Issue No. 1	Page No. Page 38 of 90


6. Comprehensive SMS Implementation Plan addressing implementation of all design expectations of the <i>SMS Framework</i> , (outlined in the <i>SMS Assurance Guide</i> and listed in the Detailed Gap Analysis Tool) for the entire organization, and			
7. Identified safety competencies necessary (in accordance with <i>SMS Framework</i> Element 4.1.1 b (1), completed training commensurate with Level 1, implementation phase of maturity for those competencies and developed a training plan for all employees.			
Output Documents	Document Attached?		
8. Management Commitment document.	<input type="checkbox"/> Yes <input type="checkbox"/> No		
9. Safety Policy.	<input type="checkbox"/> Yes <input type="checkbox"/> No		
10. Summary of SMS Implementation Plan	<input type="checkbox"/> Yes <input type="checkbox"/> No		
11. SMS Training Plan for all employees.	<input type="checkbox"/> Yes <input type="checkbox"/> No		

PLEASE MAKE SURE THAT THIS IS THE CORRECT ISSUE BEFORE USE

	Company Name Ethiopian Civil Aviation Authority	Document No. ECAA/AGA/AC/30	
Document Title: SMS Implementation Guide		Issue No. 1	Page No. Page 39 of 90

Appendix 2
Level 1 Expectations
To:
SAFETY MANAGEMENT SYSTEM (SMS)
IMPLEMENTATION GUIDE
For:
Ethiopian Airport Enterprise

PLEASE MAKE SURE THAT THIS IS THE CORRECT ISSUE BEFORE USE

	Company Name Ethiopian Civil Aviation Authority	Document No. ECAA/AGA/AC/30	
	Document Title: SMS Implementation Guide	Issue No. 1	Page No. Page 40 of 90

APPENDIX 2

SMS IMPLEMENTATION GUIDE

Note: Some discussion and guidance from the SMS Implementation Guide is reproduced here, so that this Appendix may be used as a stand-alone document.

Implementation Level Two: Reactive Process, Basic Risk Management

Level 2 Objective:

The objective of Level 2 is to correct known deficiencies in safety management practices and operational processes.

Note: These known deficiencies may be based on a variety of sources including past inspection and audit reports, accident and incident investigations and employee reports, among others. The Service provider will plan, organize and prepare the organization for further SMS development. This will include complying with the following expectations in the SMS Framework:

A. Component 1.0 Safety Policy and Objectives

Element 1.1 Safety Policy (From Level 1)

Element 1.2 Management Commitment and Safety Accountabilities

Element 1.3 Key Safety Personnel (From Level 1)

Element 1.4 Emergency Preparedness

Element 1.5 SMS Documentation and Records

B. Component 2.0 Safety Risk Management (except 2.0 b (2) (a), (b) & (d),

Element 2.1 Hazard Identification and Analysis

Process 2.1.2 Identify Hazards

Element 2.2 Risk Assessment and Control

Process 2.2.1 Analyze Safety Risk


Process 2.2.2 Assess Safety Risk

Process 2.2.3 Control/Mitigate Safety Risk

Component 3.0 Safety Assurance (except 3.2 Management of Change)

Element 3.1 Safety Performance Monitoring and Measurement

PLEASE MAKE SURE THAT THIS IS THE CORRECT ISSUE BEFORE USE

	Company Name Ethiopian Civil Aviation Authority	Document No. ECAA/AGA/AC/30	
	Document Title: SMS Implementation Guide	Issue No. 1	Page No. Page 41 of 90

Process 3.1.1 Continuous Monitoring

Process 3.1.2 Internal Audits by Operational Departments

Process 3.1.3 Internal Evaluation

Process 3.1.4 External Auditing of the SMS

Process 3.1.5 Investigation

Process 3.1.6 Employee Reporting and Feedback System

Process 3.1.7 Analysis of Data

Process 3.1.8 System Assessment

Process 3.1.9 Preventive/Corrective Action

Process 3.1.10 Management Review

Element 3.3 Continual Improvement

C. Component 4.0 Safety Promotion (except Element 4.1 Competencies and Training

Process 4.1.1 Personnel Expectations (Competence)

Process 4.1.2 Training

Element 4.2 Communication and Awareness

Level 2 Input:


The outputs, documentation, detailed gap analysis and implementation plan from the Level 1 exit process will provide the initial input for Level 2 development.

Additional input includes results from:

- Internal Evaluation Program (IEP),
- Aviation Safety Action Plan (ASAP),
- Continuing Analysis and Surveillance (CAS),
- Previous internal and external audit reports and evaluations,
- Accident and incident investigations, and
- Employee reports and/ or feedback.

Level 2 Process Overview:

PLEASE MAKE SURE THAT THIS IS THE CORRECT ISSUE BEFORE USE

	Company Name Ethiopian Civil Aviation Authority	Document No. ECAA/AGA/AC/30	
	Document Title: SMS Implementation Guide	Issue No. 1	Page No. Page 42 of 90

At this step, the service provider develops and implements basic safety risk management and safety assurance processes. Information acquisition, processing, and analysis functions are implemented and a tracking system for risk control and corrective actions is developed. This allows the service provider to systematically address known problems and react to newly identified problems as they occur and to develop appropriate remedial action.

At the end of Level 2, most of the essential safety management structure and basic identification, analysis and assessment functions of an SMS will be in place, however because the forward looking systems and task analyses have not yet been conducted, the system is still functioning at a reactive level. For this reason, this level is termed “reactive.” While this is not the final objective of an SMS, it is an important step in the evolution of safety management capabilities.

Level 2 Procedures:

During the Level 2 implementation phase, the service provider will:


1. Develop basic safety information management and analytical processes,
2. Identify, analyze and assess known hazards,
3. Design and implement risk controls,
4. Develop basic safety assurance and analytical processes, to include management reviews,
5. Develop non-punitive voluntary employee reporting system, and
6. Identify, document and complete necessary training relevant to SMS implementation at Level -2.

Level 2 Output:

Completion Criteria: The documentation and performance desired for level 2 exit status assessment are listed below:

1. Processes and procedures documented for operating the SMS to the level of reactive analysis, assessment and mitigating actions;
2. Develop documentation relevant to SMS implementation plan and SRM components (reactive processes);
3. Initiate and document voluntary non-punitive employee reporting and feedback program;

PLEASE MAKE SURE THAT THIS IS THE CORRECT ISSUE BEFORE USE

	Company Name Ethiopian Civil Aviation Authority	Document No. ECAA/AGA/AC/30	
	Document Title: SMS Implementation Guide	Issue No. 1	Page No. Page 43 of 90

4. Conducted SMS training for the staff directly involved in the SMS process to at least the level necessary for the SMS reactive processes;
5. Apply Safety Risk Management (SRM) processes and procedures to at least one known (existing) hazard and initiate the mitigation process to control / mitigate the risk associated with the hazard.;
6. Update the detailed gap analysis on the entire organization for all elements of the SMS Framework; and
7. Update the comprehensive SMS implementation plan for all elements to take the service provider through Level 4.

Documents: Documentation or objective evidence for the following (The elements and processes implemented during level 1 have already been documented and need not be repeated for Level 2):

8. Objective evidence that SRM processes and procedures have been applied to at least one existing hazard and that the mitigation process has been initiated.
9. Updated comprehensive SMS implementation plan for all elements to take the service provider through Level 4.
10. Updated SMS Training Plan for all employees.

Once the process and procedural items listed above have been completed, there will a joint assessment of the status of the service provider's SMS development. The service provider will present their progress (to include updated and current detailed gap analysis and implementation plan) to their oversight organization and the implementation team prior to proceeding to Level 3.

In conducting the document review and assessment, it should be noted that the objective is to develop and implement the specific processes and procedures necessary for applying SMS reactively for the systems listed in the *SMS Framework*, Component 1.0 b (1) (a) or (b), as appropriate.

At completion of Level 2, the implementation team will begin the SMS Participation Validation Program process and ensure a "Letter of Acknowledgement" is delivered to the Service provider.

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Company Name

Ethiopian Civil Aviation Authority

Document No.

ECAA/AGA/AC/30

Document Title:

SMS Implementation Guide

Issue No.

1

Page No.

Page 44 of 90


Exit - Level 2 Criteria - Worksheet

Level 2

To be completed during Level 2 joint assessment. Forward completed ECAA.


Exit Expectation	Validated	Initials	Date
1. Processes and procedures documented for operating the SMS to the level of reactive analysis, assessment and mitigating actions;			
2. Develop documentation relevant to SMS implementation plan and SRM components (reactive processes);			
3. Document and initiate voluntary non-punitive employee reporting and feedback program;			
4. Completed SMS training for the staff directly involved in the SMS process and initiated training for all employees to at least the level necessary for the SMS reactive processes;			
5. Apply Safety Risk Management (SRM) processes and procedures to at least one known (existing) hazard and initiate the mitigation process to control / mitigate the risk associated with the hazard;			
6. Update the detailed gap analysis on the entire organization for all elements of the <i>SMS Framework</i> ; and			
7. Update comprehensive SMS implementation plan for all elements to take the service provider through Level 4.			
Output Documents	Document Attached?		
8. Objective evidence that SRM processes and procedures have been applied to at least one existing hazard and that the mitigation process has been initiated.	<input type="checkbox"/> Yes <input type="checkbox"/> No		
9. Updated comprehensive SMS implementation plan (or summary) for all elements to take the service provider through Level 4.	<input type="checkbox"/> Yes <input type="checkbox"/> No		
10. Updated SMS Training Plan for all employees.	<input type="checkbox"/> Yes <input type="checkbox"/> No		

PLEASE MAKE SURE THAT THIS IS THE CORRECT ISSUE BEFORE USE

	Company Name Ethiopian Civil Aviation Authority	Document No. ECAA/AGA/AC/30	
Document Title: SMS Implementation Guide		Issue No. 1	Page No. Page 45 of 90

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PLEASE MAKE SURE THAT THIS IS THE CORRECT ISSUE BEFORE USE

	Company Name Ethiopian Civil Aviation Authority	Document No. ECAA/AGA/AC/30	
Document Title: SMS Implementation Guide		Issue No. 1	Page No. Page 46 of 90

**Appendix 3
Level 3 Expectations**


To:

**SAFETY MANAGEMENT SYSTEM (SMS)
IMPLEMENTATION GUIDE**

For:

Ethiopian Airport Enterprise

PLEASE MAKE SURE THAT THIS IS THE CORRECT ISSUE BEFORE USE

	Company Name Ethiopian Civil Aviation Authority	Document No. ECAA/AGA/AC/30	
	Document Title: SMS Implementation Guide	Issue No. 1	Page No. Page 47 of 90

APPENDIX 3

SMS IMPLEMENTATION GUIDE

Note: *Some discussion and guidance from the SMS Implementation Guide is reproduced here, so that this Appendix maybe used as a stand-alone document.*

Level 3 - Detailed Guidance and Expectations

Level 3: Proactive Processes, Looking Ahead. (Fully Functioning SMS) Component 2.0 b (2) (a), of the *SMS Framework* expects Safety Risk Management (SRM) to be applied to initial design of systems, organizations, and products, development of operational procedures, and planned changes to operational processes. The activities that make up the SRM process involve careful analysis of systems and tasks, identification of potential hazards in these functions, and development of risk controls. The risk management process developed at level two is used to analyze, document, and track these activities. At this level, the service provider is now using the processes to look ahead, this level is called “proactive.” At this level, however, these proactive processes have been implemented but their performance has not yet been proven.

The service provider will develop processes to understand the critical characteristics of its systems and operational environment and apply this knowledge to the identification of hazards, risk decision-making, and the design of risk controls.

Level 3 Objective:


The first overall objective of SMS development is captured in the first objective of the policy component of the *SMS Framework*:

“The Ethiopian Airport Enterprise will develop and implement an integrated, comprehensive SMS for its entire Airports.”

The specific objective of Level 3 is to develop processes to understand the critical characteristics of its systems and operational environment and apply this knowledge to the identification of hazards, risk decision-making, and the design of risk controls. This will include complying with the following expectations in the *SMS Framework*:

- Demonstrated performance of Level 2 Expectations;

PLEASE MAKE SURE THAT THIS IS THE CORRECT ISSUE BEFORE USE

	Company Name Ethiopian Civil Aviation Authority	Document No. ECAA/AGA/AC/30	
Document Title: SMS Implementation Guide		Issue No. 1	Page No. Page 48 of 90

- Objective evidence that the processes are being updated maintained and practiced;
- Apply the Safety Risk Management process to all Element 2.0 b (2) (a), (b) & (d) operating processes;
- Comply with Process 2.1.1;
- Comply with Element 3.2;
- Comply with Element 4.1;
- Comply with Element 4.1.1;
- Apply the SRM processes and procedures to at least one existing hazard and initiate the mitigation process; and
- Complete all SMS Staff and employee training commensurate with this level of implementation phase maturity.

Level 3 Input:


The outputs, documentation and Implementation Plan from the Level 2 Exit process will provide the initial input for Level 2 development. Additional input includes results from Internal Evaluation Program, previous internal and external audit reports, accident and incident investigations and employee reports.

Level 3 Procedure:

During the Level 3 implementation phase, the service provider will:

1. Implement Safety Risk Management for proactive and predictive processes.
 - Initial designs of systems, organizations, and/or products;
 - The development of operational procedures; and
 - Planned changes to the operational processes
2. System and task descriptions will be developed to the level of detail necessary to:
 - Identify hazards;
 - Develop operational procedures; and
 - Develop and implement risk controls.
3. Perform training relevant to proactive and predictive processes.

PLEASE MAKE SURE THAT THIS IS THE CORRECT ISSUE BEFORE USE

	Company Name Ethiopian Civil Aviation Authority	Document No. ECAA/AGA/AC/30	
	Document Title: SMS Implementation Guide	Issue No. 1	Page No. Page 49 of 90

- Personnel Competency and Training.
4. Develop documentation relevant to proactive and predictive processes.
 - SMS Implementation Plan, and
 - SMS Documentation.
 5. Incorporate identified hazards from System and Task Analyses into SRM process.
 6. Refine safety information management and analytical processes to incorporate proactive safety management processes for:
 - Information acquisition
 - Analysis of data
 - System assessment
 - Preventive and corrective actions
 - Management reviews
 7. Initiate policy and procedures for:
 - Management of Change, and
 - Continual Improvement.
 8. Complete training of all employees commensurate with the Level 3 implementation phase of maturity.


Level 3 Output:

Completion Criteria: Once the objectives and procedures outlined above have been completed, there will be a joint assessment of the status of SMS development by the service provider, the ECAA and the implementation team prior to proceeding to Level 4. The documentation and Gap Analysis Tools used for Level 3 status assessment are listed below. In conducting the document review and assessment, it should be noted that the objective is to develop and implement the full capabilities necessary for applying SMS.

Assessment Criteria: The service provider must have accomplished at least the following:

- Demonstrated performance of Level 2 expectations;
- Objective evidence that all SMS processes are being updated maintained and practiced;

PLEASE MAKE SURE THAT THIS IS THE CORRECT ISSUE BEFORE USE

	Company Name Ethiopian Civil Aviation Authority	Document No. ECAA/AGA/AC/30	
	Document Title: SMS Implementation Guide	Issue No. 1	Page No. Page 50 of 90


- Objective evidence that the SRM process has been conducted on all Component 2.0 b (2), (a), (b) & (d), operating processes;
- Objective evidence of compliance with Process 2.1.1;
- Objective evidence of compliance with Element 3.2;
- Objective evidence of compliance with Element 4.1;
- Objective evidence of compliance with Element 4.1.1;
- All applicable SMS processes and procedures must have been applied to at least one existing hazard and the mitigation process must have been initiated;
- Complete SMS training for the staff directly involved in the SMS process to the level of accomplishing all SMS processes; and
- Complete employee training commensurate with this level of implementation phase maturity.

Documents: All processes and procedures for operating the SMS should be documented. This document, or documents, should cover all processes and procedures necessary from information gathering through SRM and mitigation. As the Safety Assurance processes are not mature enough, at this point, to be verifiable, as a minimum the policy and procedures will be documented. The service provider must provide documentation or objective evidence for the following:

- Objective evidence that SRM processes and procedures have been applied to all Component 2.0 b (2), (a), (b) & (d), operating processes;
- Objective evidence that SRM processes and procedures have been applied to at least one existing hazard and that the mitigation process has been initiated;
- Updated comprehensive SMS implementation plan for all elements; and
- Updated SMS Training Plan for all employees.

When conducting the document review and assessment, the objective is to develop and implement the specific processes and procedures necessary for applying SMS proactively for the systems listed in the *SMS Framework*, Component 1.0 b (1), (a) or (b), as appropriate.

PLEASE MAKE SURE THAT THIS IS THE CORRECT ISSUE BEFORE USE


	Company Name Ethiopian Civil Aviation Authority	Document No. ECAA/AGA/AC/30	
	Document Title: SMS Implementation Guide	Issue No. 1	Page No. Page 51 of 90

At completion of Level 3, the implementation team will begin the SMS implementation Program Validation process and insure a Letter of Participation is delivered to the Service Provider.

Exit - Level 3 Criteria - Worksheet			
Level 3			
To be completed during Level 3 Validation Session. Forward completed copy to ECAA			
Exit Expectation	Validated	Initials	Date
1. Demonstrated performance of Level 2 Expectations;			
2. Objective evidence that all SMS processes are being updated, maintained and practiced;			
3. Objective evidence that the Safety Risk Management process has been conducted on all Component 2.0 b (2), (a), (b) & (d), operating processes;			
4. Objective evidence of compliance with Process 2.1.1;			
5. Objective evidence of compliance with Element 3.2;			
6. Objective evidence of compliance with Element 4.1;			
7. Objective evidence of compliance with Process 4.1.1;			
8. All applicable SMS processes and procedures must have been applied to at least one existing hazard and the mitigation process must have been initiated.			
9. Complete SMS training for the staff directly involved in the SMS process to the level of accomplishing all SMS processes;			
10. Complete employee training commensurate with this level of implementation phase maturity;			


Output Documents	Document Attached?
11. Objective evidence that SRM processes and procedures have been applied to all Component 2.0 b (2), (a), (b) & (d), operating processes;	<input type="checkbox"/> Yes <input type="checkbox"/> No
12. Objective evidence that SRM processes and procedures have been applied to at least one existing hazard and that the mitigation process has been initiated;	<input type="checkbox"/> Yes <input type="checkbox"/> No
13. Updated comprehensive SMS implementation plan (or summary) for all elements; and	<input type="checkbox"/> Yes <input type="checkbox"/> No
14. Updated SMS Training Plan for all employees.	<input type="checkbox"/> Yes <input type="checkbox"/> No

PLEASE MAKE SURE THAT THIS IS THE CORRECT ISSUE BEFORE USE

	Company Name Ethiopian Civil Aviation Authority	Document No. ECAA/AGA/AC/30	
Document Title: SMS Implementation Guide		Issue No. 1	Page No. Page 52 of 90

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PLEASE MAKE SURE THAT THIS IS THE CORRECT ISSUE BEFORE USE


	Company Name Ethiopian Civil Aviation Authority	Document No. ECAA/AGA/AC/30	
Document Title: SMS Implementation Guide		Issue No. 1	Page No. Page 53 of 90

Appendix 4
Level 4 Expectations
To:
SAFETY MANAGEMENT SYSTEM (SMS)
IMPLEMENTATION GUIDE
For:

Ethiopian Airport Enterprise

Ethiopian Civil Aviation Authority

PLEASE MAKE SURE THAT THIS IS THE CORRECT ISSUE BEFORE USE

	Company Name Ethiopian Civil Aviation Authority	Document No. ECAA/AGA/AC/30	
	Document Title: SMS Implementation Guide	Issue No. 1	Page No. Page 54 of 90

APPENDIX 4

SMS IMPLEMENTATION GUIDE

Note: *Some discussion and guidance from the SMS Implementation Guide is reproduced here, so that this Appendix maybe used as a stand-alone document.*

Level 4 - Detailed Guidance and Expectations

Level 4: Continuous Improvement. The final level of SMS maturity is the continuous improvement level. Processes have been in place and their performance and effectiveness has been verified. The complete safety assurance process, including continuous monitoring and the remaining features of the other SRM and safety assurance processes are functioning. A major objective of a successful SMS is to attain and maintain this continuous improvement status for the life of the organization.


Level 4 Objective

The overall objective of SMS development is captured in the first objective of the policy component of the *SMS Framework*:

“The Service Provider will develop and implement an integrated, comprehensive SMS for its entire organization.”

The specific objective of Level 4 is for the service provider to verify the performance and effectiveness of their SMS management practices and operational processes.

PLEASE MAKE SURE THAT THIS IS THE CORRECT ISSUE BEFORE USE

	Company Name Ethiopian Civil Aviation Authority	Document No. ECAA/AGA/AC/30	
	Document Title: SMS Implementation Guide	Issue No. 1	Page No. Page 55 of 90

Appendix 5

Preliminary Gap Analysis Tool

To:


**SAFETY MANAGEMENT SYSTEM (SMS)
IMPLEMENTATION GUIDE**

For:

Ethiopian Airport Enterprise


Ethiopian Civil Aviation Authority

PLEASE MAKE SURE THAT THIS IS THE CORRECT ISSUE BEFORE USE

	Company Name Ethiopian Civil Aviation Authority	Document No. ECAA/AGA/AC/30	
	Document Title: SMS Implementation Guide	Issue No. 1	Page No. Page 56 of 90


Preliminary Aerodrome Operator Gap Analysis Tool
<i>Component 1.0 Safety Policy and Objectives</i>
<i>Policy: General Expectations</i> Performance Objective <p>The organization will develop and implement an integrated, comprehensive SMS for its entire Airport and will incorporate a procedure to identify and maintain compliance with current safety-related legal, regulatory, and statutory requirements</p>
Element 1.1 Safety Policy Performance Objective
<p>Top management will define the organization's Safety Policy and convey its expectations and objectives to its employees.</p>
<i>Element 1.2 Management Commitment and Safety Accountabilities</i> Performance Objective
<p>The organization will define, document, and communicate the safety roles, responsibilities, and authorities throughout its organization.</p>
<i>Element 1.3 Key Safety Personnel</i> Performance Objective
<p>The organization will appoint a management representative to manage, monitor and coordinate the SMS processes throughout its organization.</p>
<i>Element 1.4 Emergency Preparedness and Response</i> Performance Objective
<p>The organization will develop and implement procedures that it will follow in the event of an accident, incident or operational emergency to mitigate the effects of these events.</p>
<i>Element 1.5 SMS Documentation and Records</i> Performance Objective
<p>The organization will have documented safety policies, objectives, procedures, a document/record management process, and a management plan that meet organizational safety expectations and objectives.</p>
<i>Component 2.0 Safety Risk Management</i> <i>Safety Risk Management: General Expectations</i> Performance Objective
<p>The organization will develop processes to understand the critical characteristics of its systems and operational environment and apply this knowledge to identify hazards, analyze and assess risk and design risk controls.</p>

PLEASE MAKE SURE THAT THIS IS THE CORRECT ISSUE BEFORE USE

	Company Name Ethiopian Civil Aviation Authority	Document No. ECAA/AGA/AC/30	
	Document Title: SMS Implementation Guide	Issue No. 1	Page No. Page 57 of 90

<i>Element 2.1 Hazard Identification and Analysis:</i>
Process 2.1.1 System Description and Task Analysis Performance Objectives
<p>The organization will describe and analyze its systems, operations, and operational environment to gain an understanding of critical design and performance factors, processes, and activities to identify hazards.</p>
Process 2.1.2 Identify Hazards Performance Objective
<p>The organization will identify and document the hazards in its operations that are likely to cause death, serious physical harm, or damage to equipment or property in sufficient detail to determine associated level of risk and risk acceptability</p>
<i>Element 2.2 Risk Assessment and Control</i>
Process 2.2.1 Analyze Safety Risk Performance Objective
<p>The organization will determine and analyze the severity and likelihood of potential events associated with identified hazards and will identify risk factors associated with unacceptable levels of severity or likelihood.</p>
Process 2.2.2 Assess Safety Risk Performance Objective
<p>The organization will assess risk associated with each identified hazard and define risk acceptance procedures and levels of management that can make safety risk acceptance decisions.</p>
Process 2.2.3 Control/Mitigate Safety Risk Performance Objective
<p>The organization will design and implement a risk control for each identified hazard for which there is an unacceptable risk, to reduce risk to acceptable levels. The residual or substitute risk will be analyzed before implementing any risk control.</p>
Component 3: Safety Assurance <i>Safety Assurance: General Expectations</i> Performance Objective
<p>The organization will monitor, measure, and evaluate the performance of their systems to identify new hazards, measure the effectiveness of risk controls, (to include preventative and corrective actions) and ensure compliance with regulatory requirements.</p>
<i>Element 3.1 Safety Performance Monitoring and Measurement:</i>
Process 3.1.1 Continuous Monitoring Performance Objective
<p>The organization will monitor operational data, including products and services received from contractors, to identify hazards, measure the effectiveness of safety risk controls, and assess system performance.</p>
Process 3.1.2 Internal Audits by SMS office Performance Objective
<p>The organization will perform regularly scheduled internal audits of its operational processes, including those performed by ECAA Inspectors, to verify safety performance and evaluate the</p>

PLEASE MAKE SURE THAT THIS IS THE CORRECT ISSUE BEFORE USE

	Company Name Ethiopian Civil Aviation Authority	Document No. ECAA/AGA/AC/30	
	Document Title: SMS Implementation Guide	Issue No. 1	Page No. Page 58 of 90

effectiveness of safety risk controls.

Process 3.1.3 Internal Evaluation Performance Objective

The organization will conduct internal evaluations of the SMS and operational processes at planned intervals to determine that the SMS conforms to its objectives and expectations.

Process 3.1.4 External Auditing of the SMS Performance Objective

The organization will include the results of assessments performed by ECAA (oversight organizations), and other external audit results, in its data analysis.

Process 3.1.5 Investigation Performance Objective

The organization will establish procedures to collect data and investigate incidents, accidents, and instances of potential regulatory non-compliance to identify potential new hazards or risk control failures.

Process 3.1.6 Employee Reporting and Feedback System Performance Objective

The organization will establish and maintain a confidential employee safety reporting and feedback system. Data obtained from this system will be monitored to identify emerging hazards and to assess performance of risk controls in the operational systems.

Process 3.1.7 Analysis of Data Performance Objective

The organization will analyze the data described in SMS Framework Processes 3.1.1 thru 3.1.6, to assess the risk controls' performance and effectiveness in the organization's operational processes and the SMS, and to identify root causes of deficiencies and potential new hazards.

Process 3.1.8 System Assessment Performance Objective


The organization will perform an assessment of the safety performance and effectiveness of risk controls, conformance to SMS expectations as stated within the SMS Assurance Guide, and the objectives of the safety policy.

Element 3.2 Management of Change
Performance Objective

The organization's management will identify and determine acceptable safety risk for changes within the organization that may affect established processes and services by new system design, changes to existing system designs, new operations/procedures, or modified operations/procedures.


Element 3.3 Continuous Improvement
Performance Objective

The organization will promote continuous improvement of its SMS through recurring application of Safety Risk Management (Component 2.0), Safety Assurance (Component 3.0), and by using safety lessons learned and communicating them to all personnel.

	Company Name Ethiopian Civil Aviation Authority	Document No. ECAA/AGA/AC/30	
	Document Title: SMS Implementation Guide	Issue No. 1	Page No. Page 59 of 90

<i>Process 3.3.1 Preventive/Corrective Action</i> Performance Objective
The organization will take preventive and corrective action to eliminate the causes of nonconformance, identified during analysis, to prevent recurrence.
<i>Process 3.3.2 Management Review</i> Performance Objective
Top management will conduct regular reviews of the SMS to assess the performance and effectiveness of an organization's operational processes and the need improvements.
Component 4: Safety Promotion <i>Safety Promotion: General Expectations</i> Performance Objective
Top management will promote the growth of a positive safety culture and communicate it throughout the organization.
<i>Element 4.1 Competencies and Training</i> Process 4.1.1 Personnel Expectations (Competence) Performance Objective
The organization will document competency requirements for those positions identified in Element 1.2 b, (3) and 1.3 and ensure those requirements are met.
Process 4.1.2 Training Performance Objective
The organization will develop, document, deliver and regularly evaluate training necessary to meet competency requirements of Process 4.1.1 b, (1).
<i>Element 4.2 Communication and Awareness</i> Performance Objective
Top management will communicate the output of its SMS to its employees, and will provide its oversight organization access to SMS outputs in accordance with established agreements and disclosure programs.

PLEASE MAKE SURE THAT THIS IS THE CORRECT ISSUE BEFORE USE


	Company Name Ethiopian Civil Aviation Authority	Document No. ECAA/AGA/AC/30	
Document Title: SMS Implementation Guide		Issue No. 1	Page No. Page 60 of 90

Appendix 6
Detailed Gap Analysis Tool
To:
SAFETY MANAGEMENT SYSTEM (SMS)
IMPLEMENTATION GUIDE
For:

Ethiopian Airport Enterprise


Ethiopian Civil Aviation Authority

PLEASE MAKE SURE THAT THIS IS THE CORRECT ISSUE BEFORE USE

	Company Name Ethiopian Civil Aviation Authority	Document No. ECAA/AGA/AC/30	
	Document Title: SMS Implementation Guide	Issue No. 1	Page No. Page 61 of 90


Component 1.0 Safety Policy and Objectives	
<i>Policy: General Expectations</i>	
Performance Objective	
<p>An organization will develop and implement an integrated, comprehensive SMS for its entire organization and will incorporate a procedure to identify and maintain compliance with current safety-related, regulatory, and other requirements.</p>	
Design Expectations	
<i>Management Accountability</i>	
<p>The organization will clearly identify who is responsible for the quality of the organizational management processes (name, position, organization). Procedures will also define who is responsible for accomplishing the process. <i>Reference: SMS Framework 1.2 b, (3) (R/A)</i></p>	
<i>Procedure: Scope -</i>	
<p>Does the organization's SMS include the complete scope and life cycle of the organization's systems, including -</p>	
Operational Control?	
Maintenance and inspection?	
Infrastructure Development?	
Aircraft refueling?	
Training? etc.	
<i>Procedure: Management</i>	
<p>Does the organization require the SMS processes to be -</p>	
Documented?	
Monitored?	
Measured?	
Analyzed?	
<i>Procedure: Promotion of Positive Safety Culture</i>	
<p>Does the organization promote a positive safety culture as in Component 4.0 B? <i>Reference: SMS Framework 1.0 b, (4)(a) (P)</i></p>	
<i>Procedure: Quality Policy</i>	
<p>Does top management ensure that the organization's quality policy, if present, is consistent with (or not in conflict with) it's SMS? <i>Reference: SMS Framework 1.0 b, (4) (b) (P)</i></p>	

PLEASE MAKE SURE THAT THIS IS THE CORRECT ISSUE BEFORE USE

	Company Name Ethiopian Civil Aviation Authority	Document No. ECAA/AGA/AC/30	
	Document Title: SMS Implementation Guide	Issue No. 1	Page No. Page 62 of 90

<i>Procedure: Safety Management Planning</i>	
Does the organization establish and maintain measurable criteria that accomplish the objectives of its safety policy? <i>Reference: SMS Framework 1.0 b, (4) (e) (PM)</i>	
Does the organization establish and maintain a safety management plan to describe methods for achieving the safety objectives set forth in its Safety Policy? <i>Reference: SMS Framework 1.0 b, (4) (g) (PM)</i>	
<i>Procedure: Regulatory Compliance</i>	
Does the organization ensure the SMS complies with legal and regulatory requirements? <i>Reference: SMS Framework 1.0 b, (4) (c) (P)</i>	
Does the organization identify current ECAA policy, legal, regulatory and statutory requirements applicable to the SMS? <i>Reference: SMS Framework 1.0 b, (4) (d) (P)</i>	
<i>Outputs and Measures</i>	
Does the organization ensure all SMS outputs are -	
Recorded?	
Monitored?	
Measured? <i>Reference: SMS Framework 1.0 b, (3) (c) (I/P)</i>	
Analyzed?	
The organization will periodically measure performance objectives and design expectations of the general Safety Policy Component.	
<i>Controls</i>	
Does the organization establish and maintain supervisory and operational controls to ensure procedures are followed for safety related operations and activities? <i>Reference: SMS Framework 1.0 b, (4) (f) (C)</i>	
<i>Bottom Line Assessment</i>	
Has the organization developed and implemented an integrated, comprehensive SMS for its entire organization and incorporated a procedure to identify and maintain compliance with current safety related, regulatory, and other requirements?	
Element 1.1 Safety Policy	
Performance Objective	
Top management will define the organization's Safety Policy and convey its expectations and objectives to its employees.	

PLEASE MAKE SURE THAT THIS IS THE CORRECT ISSUE BEFORE USE

	Company Name Ethiopian Civil Aviation Authority	Document No. ECAA/AGA/AC/30	
	Document Title: SMS Implementation Guide	Issue No. 1	Page No. Page 63 of 90

Design Expectations Management Accountability
Does top management define the organization's Safety Policy? <i>Reference: SMS Framework 1.1 b, (1) (P/R/A)</i>
Procedure
Does the organization's safety policy include the following -
A commitment to implement and maintain the SMS?
A commitment to continuously improve the level of safety?
A commitment to managing safety risk?
A commitment to comply with all applicable regulatory requirements?
A commitment to encourage employees to report safety issues without reprisal, as per SMS Framework Employee Reporting and Feedback System Process 3.1.6?
Clear standards for acceptable behavior for all employees?
Is the safety policy documented?
Outputs and Measures
Does the Safety Policy provide guidance to management on setting safety objectives?
Does the Safety Policy provide guidance to management on reviewing safety objectives?
Does the organization ensure the safety policy is communicated, with visible management endorsement, to all employees and responsible parties?
Does the organization ensure the Safety Policy is reviewed periodically to verify it remains relevant and appropriate to the organization?
Does the organization identify and communicate management and individuals' safety performance responsibilities?
Does the organization have methods to periodically measure performance objectives and design expectations of the Safety Policy Element?
Bottom Line Assessment
Has top management defined the organization's Safety Policy and conveyed the expectations and objectives of that policy to its employees?
Element 1.2 Management Commitment and Safety Accountabilities
The organization will define, document, and communicate the safety roles, responsibilities, and authorities throughout its organization.
Design Expectations
Does the organization ensure top management has the ultimate responsibility for the SMS?
Does the organization's top management provide the resources needed to implement and maintain the SMS?

PLEASE MAKE SURE THAT THIS IS THE CORRECT ISSUE BEFORE USE



Company Name

Ethiopian Civil Aviation Authority

Document No.

ECAA/AGA/AC/30

Document Title:

SMS Implementation Guide

Issue No.

1

Page No.

Page 64 of 90

Does the organization define levels of management that can make safety risk acceptance decisions as described in Component 2.0, b, (4) (c)?

Procedure/Output/Measure

Does the organization ensure that aviation safety-related positions, responsibilities, and authorities are -

Defined?

Documented?

Communicated throughout the organization?

The organization will periodically measure performance objectives and design expectations of the Management Commitment and Safety Accountability Element?

Bottom Line Assessment

Has the organization defined, documented, and communicated the safety roles, responsibilities, and authorities throughout the organization?

Element 1.3 Key Safety Personnel

Performance Objective

The organization will appoint a management representative to manage, monitor and coordinate the SMS processes throughout its organization.

Design Expectations

Management Responsibility/Procedure

Did top management appoint a member of management who, irrespective of other responsibilities, will be responsible for and authorized to -

Ensure that SMS processes are established, implemented, and maintained?

Reference: SMS Framework 1.3 b, (1)(a) (R/A/P)

Report to top management on the performance of the SMS and what needs to be improved?

Ensure the organization communicates its safety requirements throughout the organization?

Outputs and Measures

Does the organization ensure that Key Safety Personnel positions, responsibilities, and authorities are communicated throughout the organization?

The organization will periodically measure performance objectives and design expectations of the Key Safety Personnel Element 1.3?

Bottom Line Assessment

Has the organization appointed a management representative to manage, monitor and coordinate the SMS processes throughout its organization?

Element 1.4 Emergency

Preparedness and Response

The organization will develop and implement procedures that it will follow in the event of an

PLEASE MAKE SURE THAT THIS IS THE CORRECT ISSUE BEFORE USE



Company Name

Ethiopian Civil Aviation Authority

Document No.

ECAA/AGA/AC/30

Document Title:

SMS Implementation Guide

Issue No.

1

Page No.

Page 65 of 90

accident, incident or operational emergency to mitigate the effects of these events.

Design Expectations

Management Responsibility

The organization will clearly identify who is responsible for the quality of the Emergency Preparedness and Response Process and associated documentation. Procedures will also define who is responsible for accomplishing the process.

Procedure

Does the organization establish procedures across all operational departments as expected in Safety Policy and Objectives Component 1.0 b, (1)(a) or (b), to -

Identify hazards which have potential for accidents, incidents or operational emergencies?

Coordinate and plan the organization's response to accidents, incidents or operational emergencies?

Execute periodic exercises of the organization's emergency response procedures?

Outputs and Measures

The organization will: (1) identify interfaces between the emergency response functions of different operational elements of the organization, and (2) periodically measure performance objectives and design expectations of the Emergency Preparedness and Response Element.

Has the organization developed and implemented procedures that it will follow in the event of an accident, incident or operational emergency to mitigate the effects of these events?

Element 1.5 SMS Documentation and Records

Performance Objective

The organization will have documented safety policies, objectives, procedures, a document/record management process, and a management plan that meet organizational safety expectations and objectives.

Design Expectations

Management Responsibility

The organization will clearly identify who is responsible for the quality of the Documentation and Records Process. Procedures will also define who is responsible for accomplishing the process.

Procedure: Document Contents

Does the organization establish and maintain, in paper or electronic format, information to describe the following -


Safety policies?

Safety objectives?

SMS expectations?


Safety-related procedures and processes?

PLEASE MAKE SURE THAT THIS IS THE CORRECT ISSUE BEFORE USE

	Company Name Ethiopian Civil Aviation Authority	Document No. ECAA/AGA/AC/30	
	Document Title: SMS Implementation Guide	Issue No. 1	Page No. Page 66 of 90


Accountabilities, responsibilities and authorities for safety-related procedures and processes?
Interactions and interfaces between safety related procedures and policies?
SMS outputs?
<i>Procedure: Document Quality</i>
Does the organization require all documentation be -
Legible?
Dated (with the dates of revisions)?
Readily identifiable?
Maintained in an orderly manner?
Retained for a specified period as determined by the organization? Note: Under voluntary implementation of the SMS, the SMS records system does not require FAA approval.
Does the organization control all documents to ensure -
They are easily located?
They are periodically reviewed?
They are revised as needed?
Authorized personnel approve them for adequacy?
Does the organization ensure that all current document versions are available at all locations where essential SMS operations are performed?
Does the organization ensure that obsolete documents are either removed as soon as possible, or that they are not used accidentally?
<i>Outputs and Measures</i>
Has the organization maintained their safety management plan in accordance with the objectives and expectations contained within this Element?
Does the organization ensure SMS records are -
Identified?
Maintained?
Disposed of?
Legible?
Easy to identify?
Traceable to the activity involved?
Easy to find?
Protected against damage?
Protected against deterioration?
Protected against loss?
Annotated with record retention times?
The organization will periodically measure performance objectives and design expectations of

PLEASE MAKE SURE THAT THIS IS THE CORRECT ISSUE BEFORE USE

	Company Name Ethiopian Civil Aviation Authority	Document No. ECAA/AGA/AC/30	
	Document Title: SMS Implementation Guide	Issue No. 1	Page No. Page 67 of 90

the Documentation and Records Element.
Bottom Line Assessment
Has the organization clearly defined and documented (in paper or electronic format) safety policies, objectives, procedures, and document/record maintenance processes and established, implemented, and maintained a safety management plan that meets the safety expectations and objectives?
Component 2.0 Safety Risk Management
Safety Risk Management: General Expectations Performance Objective
The organization will develop processes to understand the critical characteristics of its systems and operational environment and apply this knowledge to identify hazards, analyze and assess risk and design risk controls.
Design Expectations Input
The organization will identify inputs (interfaces) for this Component obtained from the critical expectations of its systems and operational environment?
Procedure
Does the organization's SMS, at a minimum, include the following processes -
System description and task analysis?
Hazard Identification?
Safety Risk Analysis?
Safety Risk Assessment?
Safety Risk Control and Mitigation?
Does the organization's SMS processes apply to -
Initial designs of systems, organizations, and/or products?
The development of operational procedures?
Hazards that are identified in the safety assurance functions (described in Component 3.0, b)?
Planned changes to the operational processes?
Does the organization establish feedback loops between assurance functions described in the Continuous Monitoring Process 3.1.1,b, to evaluate the effectiveness of safety risk controls?
Does the organization define acceptable and unacceptable levels of safety risk (for example, does the organization have a safety risk matrix)?
Does the organization's safety risk acceptance process include descriptions of the following -
Severity levels?
Likelihood levels?

PLEASE MAKE SURE THAT THIS IS THE CORRECT ISSUE BEFORE USE

	Company Name Ethiopian Civil Aviation Authority	Document No. ECAA/AGA/AC/30	
	Document Title: SMS Implementation Guide	Issue No. 1	Page No. Page 68 of 90

Level of management that can make safety risk acceptance decisions in accordance with Element 1.2 b (3)?

Does the organization define acceptable risk for hazards that will exist in the short-term while safety risk control/mitigation plans are developed and implemented?

Outputs and Measures

The organization will: (1) identify interfaces between the Safety Risk Management Component (this Component) and the Safety Assurance Component (3.0), and (2) periodically measure performance objectives and design expectations of the safety risk management component.

Controls

The organization will ensure that: (1) procedures are followed for safety-related operations and activities, and (2) they periodically review supervisory and operational controls to ensure the effectiveness of the Safety Risk Management Component (2.0).

Bottom Line Assessment

Has the organization developed processes to understand the critical characteristics of its systems and operational environment and applied this knowledge to the identification of hazards, risk analysis and risk assessment, and the design of risk controls?

***Element 2.1 Hazard
Identification and Analysis:
Process 2.1.1 System and Task Analysis***

The organization will describe and analyze its systems, operations, and operational environment to gain an understanding of critical design and performance factors, processes, and activities to identify hazards.

Design Expectations

Input

Inputs (interfaces) for the System Description and Task Analysis process will be obtained from the Safety Risk Management Component 2.0 b, (2).

Management Responsibility

The organization will clearly identify who is responsible for the quality of the System Description and Task Analysis Process. Procedures will also define who is responsible for accomplishing the process.


Procedure

Does the organization develop system descriptions and task analysis to the level of detail necessary to -

Identify hazards?


Develop operational procedures?

Develop and implement risk controls?

	Company Name Ethiopian Civil Aviation Authority	Document No. ECAA/AGA/AC/30	
	Document Title: SMS Implementation Guide	Issue No. 1	Page No. Page 69 of 90

<i>Outputs and Measures</i>
<p>The organization will: (1) identify interfaces between the system description and task analysis function (this process) and the Hazard Identification Process 2.1.2 below, and (2) Periodically measure performance objectives and design expectations of the System Description and Task Analysis Process (2.1.1).</p>
<i>Controls</i>
<p>The organization will ensure that: (1) procedures are followed for safety-related operations and activities, and (2) they periodically review supervisory and operational controls to ensure the effectiveness of the System Description and Task Analysis Process (2.1.1).</p>
Bottom Line Assessment
<p>Has the organization analyzed its systems, operations and operational environment to gain an understanding of critical design and performance factors, processes, and activities to identify hazards?</p>
Process 2.1.2 Identify Hazards
Performance Objective
<p>The organization will identify and document the hazards in its operations that are likely to cause death, serious physical harm, or damage to equipment or property in sufficient detail to determine associated level of risk and risk acceptability.</p>
Design Expectations
<i>Input</i>
<p>Inputs (interfaces) for the Hazard Identification Process will be obtained from the System Description and Task Analysis Process 2.1.1, to include a new hazard identified from the Safety Assurance Component 3.0, failures of risk controls due to design deficiencies found in the System Assessment Process 3.1.8 (b) (3), and/or from any other source.</p>
<i>Management Responsibility</i>
<p>The organization will clearly identify who is responsible for the quality of the Hazard Identification Process. Procedures will also define who is responsible for accomplishing the process.</p>
<p>Does the organization identify hazards for the entire scope of each system, as defined in the system description? Note: While it is recognized that identification of every conceivable hazard is impractical, aviation service providers are expected to exercise due diligence in identifying and controlling significant and reasonably foreseeable hazards related to their operations.</p>
<p>Does the organization document the identified hazards?</p>
<p>Does the organization have a means of tracking hazard information?</p>
<p>Does the organization manage hazard information through the entire Safety Risk Management Process?</p>

PLEASE MAKE SURE THAT THIS IS THE CORRECT ISSUE BEFORE USE

	Company Name Ethiopian Civil Aviation Authority	Document No. ECAA/AGA/AC/30	
	Document Title: SMS Implementation Guide	Issue No. 1	Page No. Page 70 of 90

The organization will: (1) identify interfaces between this process and the Analysis of Safety Risk Process (2.2.1, below), and (2) periodically measure performance objectives and design expectations of the Hazard Identification Process.

Controls

The organization will ensure that: (1) procedures are followed for safety-related operations and activities, and (2) they periodically review supervisory and operational controls to ensure the effectiveness of the Hazard Identification Process.

Bottom Line Assessment

Has the organization identified and documented hazards that are likely to cause death, serious physical harm, or damage to equipment or property in sufficient detail to determine associated risk and acceptability?

Element 2.2 Risk Assessment and Control

Process 2.2.1 Analyze Safety Risk

Performance Objective

The organization will determine and analyze the severity and likelihood of potential events associated with identified hazards and will identify risk factors associated with unacceptable levels of severity or likelihood.

Design Expectations

Input

Inputs (interfaces) for this process will be obtained from the Hazard Identification Process (2.1.2).

Management Responsibility

The organization will clearly identify who is responsible for the quality of the Safety Risk Analysis Process. Procedures will also define who is responsible for accomplishing the process.

Procedure

Does the organization's safety risk analysis functions include -

Analysis of existing safety risk controls?

Triggering mechanisms?

Safety risk of a reasonably likely outcome from the existence of a hazard?

Does the organization's reasonably likely outcomes from the existence of a hazard, include estimations of the following -


Likelihood?

Severity?

Outputs and Measures


The organization will: (1) identify interfaces between the risk analysis functions (this process) and the Risk Assessment Process 2.2.2, below), and (2) periodically measure performance

PLEASE MAKE SURE THAT THIS IS THE CORRECT ISSUE BEFORE USE

	Company Name Ethiopian Civil Aviation Authority	Document No. ECAA/AGA/AC/30	
	Document Title: SMS Implementation Guide	Issue No. 1	Page No. Page 71 of 90


objectives and design expectations of the Risk Analysis Process
<i>Controls</i>
The organization will ensure that: (1) procedures are followed for safety-related operations and activities, and (2) they periodically review supervisory and operational controls to ensure the effectiveness of the Analysis of Safety Risk Process.
Bottom Line Assessment
Has the organization determined and analyzed the factors related to the severity and likelihood of potential events associated with identified hazards and identified factors associated with unacceptable levels of severity or likelihood?
Process 2.2.2 Assess Safety Risk
Performance Objective
The organization will assess risk associated with each identified hazard and define risk acceptance procedures and levels of management that can make safety risk acceptance decisions.
Design Expectations
<i>Input</i>
Inputs (interfaces) for this process will be obtained from the Safety Risk Analysis Process 2.2.1 in terms of estimated severity and likelihood.
<i>Management Responsibility</i>
The organization will clearly identify who is responsible for the quality of the Safety Risk Assessment Process. Procedures will also define who is responsible for accomplishing the process.
<i>Procedure</i>
Does the organization analyze each hazard for its safety risk acceptability using their safety risk acceptance process as described in the SMS Framework Component 2.0, b(4)?
<i>Outputs and Measures</i>
The organization will: (1) identify interfaces between the risk assessment functions (this process) and the Control/Mitigate Safety Risk Process 2.2.3.below, and (2) periodically measure performance objectives and design expectations of the Safety Risk Assessment Process.
<i>Controls</i>
The organization will ensure that: (1) procedures are followed for safety-related operations and activities, and (2) they periodically review supervisory and operational controls to ensure the effectiveness of the Safety Risk Assessment Process.
Bottom Line Assessment
Has the organization assessed risk associated with identified hazards and defined risk acceptance procedures and levels of management that can make safety risk acceptance decisions?

PLEASE MAKE SURE THAT THIS IS THE CORRECT ISSUE BEFORE USE

	Company Name Ethiopian Civil Aviation Authority	Document No. ECAA/AGA/AC/30	
	Document Title: SMS Implementation Guide	Issue No. 1	Page No. Page 72 of 90

Process 2.2.3 Control/Mitigate Safety Risk
Performance Objective
<p>The organization will design and implement a risk control for each identified hazard for which there is an unacceptable risk, to reduce risk to acceptable levels. The potential for residual risk and substitute risk will be analyzed before implementing risk controls.</p> <p>Note: Although Process 2.2.3 is very similar to the Preventive/Corrective Action Process 3.3.1, the primary differences are:</p> <ul style="list-style-type: none"> • Process 2.2.3 is used during the design of a system (often looking to the future) or in the redesign of a non-performing system where system requirements are being met, however the system is not producing the desired results. • Process 2.2.3 is also used when new hazards are discovered during the safety assurance processes that were not taken into account during initial design. • Process 3.3.1 is used to develop actions to bring a non-performing system back into conformance to its design requirements.
Design Expectations
<i>Input</i>
<p>Inputs (interfaces) for the Control/Mitigation Safety Risk process will be obtained from the Safety Risk Assessment Process 2.2.2.</p>
Management Responsibility
<p>The organization will clearly identify who is responsible for the quality of the Control/Mitigate Safety Risk Process. Procedures will also define who is responsible for accomplishing the process.</p>
Procedure
<p>Does the organization have a safety risk control/mitigation plan for each hazard with unacceptable risk?</p>
<p>Are the organization's safety risk controls -</p>
<p>Clearly described?</p>
<p>Evaluated to ensure that the expectations have been met?</p>
<p>Ready to be used in their intended operational environment?</p>
<p>Documented?</p>
<p>Does the organization ensure that substitute risk will be evaluated when creating safety risk controls and mitigations?</p>
Outputs and Measures
<p>The organization will: (1) identify interfaces between the risk control/mitigation functions (this process) and the Safety Assurance Component 3.0, specifically 3.1.1 thru 3.1.6,below, and (2)</p>

PLEASE MAKE SURE THAT THIS IS THE CORRECT ISSUE BEFORE USE

	Company Name Ethiopian Civil Aviation Authority	Document No. ECAA/AGA/AC/30	
	Document Title: SMS Implementation Guide	Issue No. 1	Page No. Page 73 of 90

periodically measure performance objectives and design expectations of the risk Control/Mitigate Safety Risk Process.

Controls

The organization will ensure that: (1) procedures are followed for safety-related operations and activities, and (2) they periodically review supervisory and operational controls to ensure the effectiveness of the safety risk control process.

Bottom Line Assessment

Has the organization designed and implemented a risk control for each identified hazard for which there is unacceptable risk, to reduce to acceptable levels the potential for death, serious physical harm, or damage to equipment or property? Has the residual or substitute risk been analyzed before implementing any risk control?

Component 3.0: Safety Assurance

Safety Assurance: General Expectations

Performance Objective

The organization will monitor, measure, and evaluate the performance of their systems to identify new hazards, measure the effectiveness of risk controls, (to include preventative and corrective actions) and ensure compliance with regulatory requirements.

Design Expectations

Input

Inputs (interfaces) for this component will be obtained from the Safety Risk Management Component 2.0.

Management Responsibility

The organization will clearly identify who is responsible for the quality of the Safety Assurance Component. Procedures will also define who is responsible for accomplishing the process.

Procedure

Does the organization monitor their systems and operations to -

Identify new hazards?

Measure the effectiveness of safety risk controls?

Ensure compliance with regulatory requirements applicable to the SMS


Is the organization's safety assurance function based upon a comprehensive system description and task analysis as described in Process 2.1.1, System Description and Task Analysis?

Does the organization collect the data necessary to demonstrate the effectiveness of its -

The SMS?


Outputs and Measures

The organization will identify interfaces between the data acquisition processes (3.1.1 to 3.1.6) and -

	Company Name Ethiopian Civil Aviation Authority	Document No. ECAA/AGA/AC/30	
	Document Title: SMS Implementation Guide	Issue No. 1	Page No. Page 74 of 90

The system assessment process (2.2.2)
The hazard identification process (2.1.2)
The organization will periodically measure performance objectives and design expectations of the Safety Assurance Component?
Controls
The organization will ensure that: (1) procedures are followed for safety-related operations and activities, and (2) they periodically review supervisory and operational controls to ensure the effectiveness of the Safety Assurance Component.
Bottom Line Assessment
Has the organization monitored, measured ,and evaluated the performance of their systems to identify new hazards, measure the effectiveness of risk controls, (to include preventative and corrective actions) and ensured compliance with regulatory requirements?
Element 3.1 Safety Performance Monitoring and Measurement:
Performance Objective
The organization will monitor operational data, including products and services received from contractors, to identify hazards, measure the effectiveness of safety risk controls, and assess system performance
Design Expectations
Input
Inputs (interfaces) for this process will be obtained from the Risk Assessment Process 2.2.2, Risk Control/Mitigation Process 2.2.3, System Assessment Process 3.1.8 or Preventive/Corrective Action Process 3.3.1
Management Responsibility
The organization will clearly identify who is responsible for the quality of the Continuous Monitoring Process. Procedures will also define who is responsible for accomplishing the process.
Procedure
Does the organization monitor operational data (e.g., duty logs, crew reports, work cards, process sheets, and reports from the employee safety feedback system specified in Process 3.1.6) to -
Determine whether it conforms to safety risk controls (described in Process 2.2.3)?
Measure the effectiveness of safety risk controls (described in Process 2.2.3)?
Assess SMS system performance?
Identify hazards?
Does the organization monitor products and services from contractors?
Outputs and Measures

PLEASE MAKE SURE THAT THIS IS THE CORRECT ISSUE BEFORE USE

	Company Name Ethiopian Civil Aviation Authority	Document No. ECAA/AGA/AC/30	
	Document Title: SMS Implementation Guide	Issue No. 1	Page No. Page 75 of 90

The organization will: (1) identify interfaces between these continuous monitoring functions and the Analysis of Data Process 3.1.7 below, and (2) periodically measure performance objectives and design expectations of the Continuous Monitoring Process.

Controls

The organization will ensure that: (1) procedures are followed for safety-related operations and activities, and (2) they periodically review supervisory and operational controls to ensure the effectiveness of the Continuous Monitoring Process.

Bottom Line Assessment

Has the organization monitored operational data, including products and services received from contractors, to identify hazards, measure the effectiveness of safety risk controls, and assess system performance?

Process 3.1.2 Internal Audits by Operational Departments Performance Objective

The organization will perform regularly scheduled internal audits of its operational processes, including those performed by contractors, to verify safety performance and evaluate the effectiveness of safety risk controls.

Design Expectations Input

Inputs (interfaces) for this process will be obtained from the Control/Mitigate Safety Process 2.2.3.

Management Responsibility

The organization will clearly identify who is responsible for the quality of the Internal Auditing Process. Procedures will also define who is responsible for accomplishing the process.

Procedure:

Does the organization's line management ensure regular internal audits of safety related functions of the organization's operational processes (production system) are conducted?

Procedure: Auditing of Contractors

Does the organization's line management ensure regular audits are conducted of their safety-related departmental functions which are performed by subcontractors?

Procedure: Objectives of Audits

Does the organization conduct regular audits to -


Determine conformity to safety risk controls?

Assess safety risk controls' performance?

Procedure: Audit Planning


Does the organization's audit program planning take into account -

PLEASE MAKE SURE THAT THIS IS THE CORRECT ISSUE BEFORE USE

	Company Name Ethiopian Civil Aviation Authority	Document No. ECAA/AGA/AC/30	
	Document Title: SMS Implementation Guide	Issue No. 1	Page No. Page 76 of 90


Safety criticality of the processes to be audited?
Results of previous audits?
<i>Procedure: Audit Program Management</i>
Does the organization define -
Audits, including -
Criteria?
Scope?
Frequency?
Methods?
How the auditors will be selected?
How they will ensure that auditors do not audit their own work?
<i>Procedure: Documentation</i>
Does the organization define -
Internal audit responsibilities?
Expectations for -
Planning audits?
Conducting audits?
Reporting results?
Does the organization define -
Internal audit responsibilities?
Expectations for -
Planning audits?
Conducting audits?
Does the organization define -
Internal audit responsibilities?
Expectations for -
Planning audits?
Conducting audits?
Reporting results?
Maintaining records?
Audits of contractors and vendors?
<i>Outputs and Measures</i>
The organization will: (1) identify interfaces between the Internal Audits of Operational Departments Process and the Analysis of Data Process 3.1.7 below, and (2) periodically measure performance objectives and design expectations of the Internal Audits of Operational Departments Process.

PLEASE MAKE SURE THAT THIS IS THE CORRECT ISSUE BEFORE USE

	Company Name Ethiopian Civil Aviation Authority	Document No. ECAA/AGA/AC/30	
	Document Title: SMS Implementation Guide	Issue No. 1	Page No. Page 77 of 90

<i>Controls</i>
The organization will ensure that: (1) procedures are followed for safety-related operations and activities, and (2) they periodically review supervisory and operational controls to ensure the effectiveness of the Internal Audit of Operational Departments Process
Bottom Line Assessment
Has the organization performed regularly scheduled internal audits of its operational processes, including those performed by contractors, to determine the performance and effectiveness of risk controls?
Process 3.1.3 Internal Evaluation
Performance Objective
The organization will conduct internal evaluations of the SMS and operational processes at planned intervals to determine that the SMS conforms to its objectives and expectations.
Design Expectations
<i>Input</i>
Inputs (interfaces) for this process will be obtained from the Risk Assessment Process 2.2.2 or Control/Mitigate Safety Risk Process 2.2.3.
<i>Management Responsibility</i>
The organization will clearly identify who is responsible for the quality of the Internal Evaluation Process. Procedures will also define who is responsible for accomplishing the process.
<i>Procedure</i>
Does the organization ensure internal evaluations of operational processes and the SMS are conducted at planned intervals, to determine that the SMS conforms to objectives and expectations? Note: Sampling of SMS output measurement is a primary control under Component 1.0, b, (3) (c) and (4) (e).
Does the organization's planning of the internal evaluation program take into account
Safety criticality of the processes to be evaluated?
Results of previous evaluations?
<i>Procedure: Program Contents</i>
Does the organization define -
Evaluation's, including -
Criteria?
Scope?
Frequency?
Methods?

PLEASE MAKE SURE THAT THIS IS THE CORRECT ISSUE BEFORE USE

	Company Name Ethiopian Civil Aviation Authority	Document No. ECAA/AGA/AC/30	
	Document Title: SMS Implementation Guide	Issue No. 1	Page No. Page 78 of 90

<i>Procedure: Documentation</i>
Does the organization's evaluation program include an evaluation of the operational departments described in SMS Framework Safety Policy Component 1.0 b, (1) & (2)?
<i>Procedure: Independence of Evaluators</i>
Does the organization ensure the person or organization performing evaluations of operational processes are independent of the process being evaluated?
<i>Outputs and Measures</i>
The organization will: (1) identify interfaces between this process and the Analysis of Data Process 3.1.7 below, and (2) periodically measure performance objectives and design expectations of the Internal Evaluation Process.
<i>Controls</i>
The organization will ensure that: (1) procedures are followed for safety-related operations and activities, and (2) they periodically review supervisory and operational controls to ensure the effectiveness of the Internal Evaluation Process.
Bottom Line Assessment
Has the organization conducted internal evaluations of the SMS and operational processes at planned intervals to determine that the SMS conforms to its requirements?
Process 3.1.5 Investigation
Performance Objective
The organization will establish procedures to collect data and investigate incidents, accidents, and instances of potential regulatory non-compliance to identify potential new hazards or risk control failures.
Design Expectations
<i>Input</i>
Inputs (interfaces) for this process will be obtained from the Control/Mitigate Safety Risk Process 2.2.3 and as needed upon occurrence of events.
<i>Management Responsibility</i>
The organization will clearly identify who is responsible for the quality of the Investigation Process. Procedures will also define who is responsible for accomplishing the process.
<i>Procedure</i>
Does the organization ensure it collects data on-
Incidents?
Accidents?
Potential regulatory non-compliance?
Does the organization ensure that procedures are established to investigate -

PLEASE MAKE SURE THAT THIS IS THE CORRECT ISSUE BEFORE USE



Company Name

Ethiopian Civil Aviation Authority

Document No.

ECAA/AGA/AC/30

Document Title:

SMS Implementation Guide

Issue No.

1

Page No.

Page 79 of 90

Accidents?

Incidents?

Instances of potential regulatory noncompliance?

Outputs and Measures

The organization will: (1) identify interfaces between this process and the Analysis of Data Process 3.1.7 below, and (2) periodically measure performance objectives and design expectations of the Investigation Process.

Controls

The organization will ensure that: (1) procedures are followed for safety-related operations and activities, and (2) they periodically review supervisory and operational controls to ensure the effectiveness of the Investigation Process.

Bottom Line Assessment

Has the organization established procedures to collect data and investigate incidents, accidents, and instances of potential regulatory non-compliance that occur to identify potential new hazards or risk control failures?

Process 3.1.6 Employee Reporting and Feedback System***Performance Objective***

The organization will establish and maintain a confidential Employee Safety Reporting and Feedback System. Data obtained from this system will be monitored to identify emerging hazards and to assess performance of risk controls in the operational systems.

Design Expectations***Input***

Inputs (interfaces) for the Employee Reporting and Feedback System will be obtained from employees.

Management Responsibility

The organization will clearly identify who is responsible for the quality of the Employee Reporting and Feedback Process. Procedures will also define who is responsible for accomplishing the process.

Procedure

Has the organization established and maintained a confidential Employee Reporting and Feedback System as in Component 4.0 b, (1) (e), Safety Promotion?

Does the organization ensure employees are encouraged to use the Safety Reporting and Feedback System without fear of reprisal and to encourage submission of solutions/safety improvements where possible?

Does the organization ensure data from the Safety Reporting and Feedback System is monitored to identify emerging hazards?

PLEASE MAKE SURE THAT THIS IS THE CORRECT ISSUE BEFORE USE



Company Name

Ethiopian Civil Aviation Authority

Document No.

ECAA/AGA/AC/30

Document Title:

SMS Implementation Guide

Issue No.

1

Page No.

Page 80 of 90

Does the organization ensure the data collected in the Employee Reporting and Feedback System is included in the analyses conducted under SMS Framework Analysis of Data Process 3.1.7?

Outputs and Measures

The organization will: (1) identify interfaces between this process and the Analysis of Data Process 3.1.7 below, and (2) periodically measure performance objectives and design expectations of the Employee Reporting and Feedback Process.

Controls

The organization will ensure that: (1) procedures are followed for safety-related operations and activities, and (2) they periodically review supervisory and operational controls to ensure the effectiveness of the Employee Reporting and Feedback Process.

Bottom Line Assessment

Has the organization established and maintained a Confidential Employee Safety Reporting and Feedback System? Are the data obtained from this system monitored to identify emerging hazards and to assess performance of risk controls in the operational systems?

Process 3.1.7 Analysis of Data

Performance Objective

The organization will analyze the data described in SMS Framework Processes 3.1.1 thru 3.1.6, to assess the risk controls' performance and effectiveness in the organization's operational processes and the SMS, and to identify root causes of deficiencies and potential new hazards.

Design Expectations

Input

Inputs (interfaces) for this process will be obtained from the data acquisition processes 3.1.1 thru 3.1.6.

Management Responsibility

The organization will clearly identify who is responsible for the quality of the Analysis of data Process. Procedures will also define who is responsible for accomplishing the process.

Procedure


Does the organization analyze the data that it collects to demonstrate the effectiveness of - Risk controls in the organization's operational processes (SMS Framework Safety Policy Component 1.0 b, (1) (a) & (b))?

The organization's SMS?

Does the organization ensure it analyzes the data it collects to identify root causes of deficiencies and potential new hazards and evaluate where improvements can be made in the organization's - Operational processes (SMS Framework Safety Policy Component 1.0 b, (1) (a) & (b))?


The SMS?

PLEASE MAKE SURE THAT THIS IS THE CORRECT ISSUE BEFORE USE

	Company Name Ethiopian Civil Aviation Authority	Document No. ECAA/AGA/AC/30	
	Document Title: SMS Implementation Guide	Issue No. 1	Page No. Page 81 of 90

<i>Outputs and Measures</i>
The organization will: (1) identify interfaces between this process and the System Assessment Process 3.1.8 below, and (2) periodically measure performance objectives and design expectations of the Analysis of Data Process.
<i>Controls</i>
The organization will ensure that: (1) procedures are followed for safety-related operations and activities, and (2) they periodically review supervisory and operational controls to ensure the effectiveness of the Analysis of Data Process.
<i>Bottom Line Assessment</i>
Has the organization analyzed the data described in SMS Framework processes 3.1.1 thru 3.1.6 to assess the risk controls' performance and effectiveness in the organization's operational processes and the SMS and to identify root causes of deficiencies and potential new hazards?
<i>Process 3.1.8 System Assessment</i>
The organization will perform an assessment of the safety performance and effectiveness of risk controls, conformance to SMS expectations as stated herein, and the objectives of the safety policy.
<i>Design Expectations</i>
<i>Input</i>
Inputs (interfaces) for this process will be obtained from the Analysis of Data Process 3.1.7.
<i>Management Responsibility</i>
The organization will clearly identify who is responsible for the quality of the System Assessment Process. Procedures will also define who is responsible for accomplishing the process.
<i>Procedure</i>
Does the organization assess the performance and effectiveness of the -
Safety-related functions of operational processes (Safety Policy Component 1.0 b (1) (a)) against their requirements?
SMS against its objectives and expectations?
Does the organization record system assessments and risk control performance reports that result in a finding of -
Conformity or nonconformity with existing safety risk controls and/or SMS expectations, including regulatory requirements applicable to the SMS?
New hazards found?
<i>Outputs and Measures</i>
Does the organization use the Safety Risk Management (Component 2.0) if risk assessment and risk control performance indicates -

PLEASE MAKE SURE THAT THIS IS THE CORRECT ISSUE BEFORE USE

	Company Name Ethiopian Civil Aviation Authority	Document No. ECAA/AGA/AC/30	
	Document Title: SMS Implementation Guide	Issue No. 1	Page No. Page 82 of 90

That new hazards or potential hazards have been found?
That the system needs to be changed?
Does the organization maintain records of assessments in accordance with the requirements of SMS Documentation and Records Element 1.5?
The organization will identify interfaces between the system assessment function and
The hazard identification function (2.1.2, Identify Hazards Element)
The preventive and corrective action function (3.3.1, Preventive/Corrective Action Element)
The organization will periodically measure performance objectives and design expectations of the System Assessment Process?
Controls
The organization will ensure that: (1) procedures are followed for safety-related operations and activities, and (2) they periodically review supervisory and operational controls to ensure the effectiveness of the System Assessment Process.
Bottom Line Assessment
Has the organization assessed risk controls' performance and effectiveness, conformance with SMS requirements, and the objectives of the safety policy?
Element 3.2 Management of Change
Performance Objective
The organization's management will identify and determine acceptable safety risk for changes within the organization that may affect established processes and services by new system design, changes to existing system designs, new operations/procedures, or modified operations/procedures.
Design Expectations
Input
Inputs (interfaces) for this process will be obtained from proposed changes to systems, processes, procedures, or organizational structures.
Management Responsibility
The organization will clearly identify who is responsible for the quality of the Management of Change Process. Procedures will also define who is responsible for accomplishing the process.
Procedure
Does the organization ensure it does not implement any of the following until the level of safety risk of each identified hazard is determined to be acceptable for -
New system designs?
Changes to existing system designs?
New operations or procedures?
Modifications to existing operations or procedures?

PLEASE MAKE SURE THAT THIS IS THE CORRECT ISSUE BEFORE USE



Company Name

Ethiopian Civil Aviation Authority

Document No.

ECAA/AGA/AC/30

Document Title:

SMS Implementation Guide

Issue No.

1

Page No.

Page 83 of 90

The organization will: (1) ensure that this process is interfaced with the SRM process (System Description and Task Analysis 2.1.1), and (2) periodically measure performance objectives and design expectations of the Management of Change Process.

Controls

The organization will ensure that: (1) procedures are followed for safety-related operations and activities, and (2) they periodically review supervisory and operational controls to ensure the effectiveness of the Management of Change Process.

Bottom Line Assessment

Has the organization’s management assessed risk for changes within the organization that may affect established processes and services by new system designs, changes to existing system designs, new operations/procedures or modified operations/procedures?

Element 3.3 Continuous Improvement

Performance Objective

The organization will promote continuous improvement of its SMS through recurring application of SRM (Component 2.0), SA (Component 3.0), and by using safety lessons learned and communicating them to all personnel.

Design Expectations

Input

Inputs (interfaces) for this process will be obtained through continuous application of Safety Risk Management (Component 2.0), Safety Assurance (Component 3.0) and the outputs of the SMS, including safety lessons learned.

Management Responsibility

The organization will clearly identify who is responsible for the quality of the Continual Improvement Process. Procedures will also define who is responsible for accomplishing the process.

Procedure

Does the organization continuously improve the effectiveness of the SMS and of safety risk controls through the use of the safety and quality policies, objectives, audit and evaluation results, analysis of data, corrective and preventive actions, and management reviews?

Does the organization develop safety lessons learned and -


Use safety lessons learned to promote continuous improvement of safety?

Ensure that safety lessons learned are communicated to all personnel?

Outputs and Measures

The organization will: (1) ensure that trend analysis of safety and quality policies, objectives, audit and evaluation results, analysis of data, and corrective and preventive actions are interfaced with Management Review Process 3.3.2, below), and (2) periodically measure performance

PLEASE MAKE SURE THAT THIS IS THE CORRECT ISSUE BEFORE USE

	Company Name Ethiopian Civil Aviation Authority	Document No. ECAA/AGA/AC/30	
	Document Title: SMS Implementation Guide	Issue No. 1	Page No. Page 84 of 90

objectives and design expectations of the Continual Improvement Process.

Controls

The organization will ensure that: (1) procedures are followed for safety-related operations and activities, and (2) they periodically review supervisory and operational controls to ensure the effectiveness of the Continuous Improvement Process.

Bottom Line Assessment

Has the organization promoted continuous improvement of its SMS through recurring application of Safety Risk Management (Component 2.0), Safety Assurance (Component 3.0), and by using safety lessons learned and communicating them to all personnel?

Process 3.3.1 Preventive/Corrective Action

Performance Objective

The organization will take preventive and corrective action to eliminate the causes or potential causes of nonconformance identified during analysis, to prevent recurrence.

Note: Although Process 2.2.3 (Control/Mitigate Safety Risk) is very similar to Process 3.3.1, the primary differences are:

- Process 2.2.3 is used during the design of a system (often looking to the future) or in the redesign of a non-performing system where system requirements are being met, but the system is not producing the desired results.
- Process 2.2.3 is also used where new hazards are discovered during Safety Assurance that were not taken into account during initial design.
- Process 3.3.1 is used to develop actions to bring a non-performing system back into conformance to its design requirements.

Design Expectations

Inputs

Inputs (interfaces) for this process will be obtained from System Assessments (Process 3.1.8) with findings of non-performing risk controls.

Management Responsibility

The organization will clearly identify who is responsible for the quality of the Preventive/Corrective Action Process. Procedures will also define who is responsible for accomplishing the process.

Procedure

Does the organization develop the following -


Preventive actions for identified potential nonconformities with risk controls?

Corrective actions for identified nonconformities with risk controls

Does the organization consider safety lessons learned in the development of -


Does the organization take necessary preventive and corrective action based on the findings of

PLEASE MAKE SURE THAT THIS IS THE CORRECT ISSUE BEFORE USE

	Company Name Ethiopian Civil Aviation Authority	Document No. ECAA/AGA/AC/30	
	Document Title: SMS Implementation Guide	Issue No. 1	Page No. Page 85 of 90

investigations?
Does the organization prioritize and implement preventive and corrective actions in a timely manner?
<i>Outputs and Measures</i>
Does the organization keep and maintain records of the disposition and status of preventive and corrective actions according to established record retention policy?
The organization will: (1) identify interfaces between this process and the Continuous Monitoring Process 3.1.1 above, and (2) periodically measure performance objectives and design expectations of the Preventive and Corrective Action Process.
<i>Controls</i>
The organization will ensure that: (1) procedures are followed for safety-related operations and activities, and (2) they periodically review supervisory and operational controls to ensure the effectiveness of the Preventive and Corrective Action Process.
Bottom Line Assessment
Has the organization taken preventive or corrective actions to eliminate the causes of non-conformances, identified during analysis, to prevent recurrence?
Process 3.3.2 Management Review
Performance Objective
Top management will conduct regular reviews of the SMS to assess the performance and effectiveness of an organization's operational processes and the need improvements.
Design Expectations
<i>Input</i>
Inputs (interfaces) for this process will be obtained from the outputs of Safety Risk Management (Component 2.0) and Safety Assurance (Component 3.0) activities including -
Hazard identification (Process 2.1.2)
Risk analysis (severity and likelihood) (Process 2.2.1)
Risk assessments (Process 2.2.2)
Risk control/mitigation plans (Process 2.2.3)
Results of analysis of data (Process 3.1.7)
<i>Management Responsibility</i>
The organization will clearly identify who is responsible for the quality of the Management Review Process. Procedures will also define who is responsible for accomplishing the process.
<i>Procedure</i>
Does top management conduct regular reviews of the SMS, including the outputs of the Safety Risk Management Process, the outputs of the Safety Assurance Process, and safety lessons learned?

PLEASE MAKE SURE THAT THIS IS THE CORRECT ISSUE BEFORE USE

	Company Name Ethiopian Civil Aviation Authority	Document No. ECAA/AGA/AC/30	
	Document Title: SMS Implementation Guide	Issue No. 1	Page No. Page 86 of 90

Does top management include in its reviews of the SMS, an assessment of the need for improvements to the organization's operational processes and SMS?

Outputs and Measures

The organization will keep records of the disposition and status of management reviews according to the organization's record retention policy.

The organization will: (1) identify interfaces between this process and the Hazard Identification Process (2.1.2, above) and Preventive and Corrective Action Process (3.3.1, above), and (2) periodically measure performance objectives and design expectations of the Management Review Process.

Controls

The organization will ensure that: (1) procedures are followed for safety-related operations and activities, and (2) they periodically review supervisory and operational controls to ensure the effectiveness of the Management Review Process.

Bottom Line Assessment

Has top management conducted regular reviews of the SMS, including outputs of Safety Risk Management (Component 2.0), Safety Assurance (Component 3.0), and lessons learned? Has management reviews included assessing the performance and effectiveness of an organization's operational processes and the need for improvements?

Component 4.0: Safety Promotion

Safety Promotion: General Expectations

Performance Objective

Top management will promote the growth of a positive safety culture and communicate it throughout the organization.

Design Expectations

Input

Inputs (interfaces) will be identified between top management and organizational personnel.

Management Responsibility

The organization will clearly identify who is responsible for the quality of the Safety Promotion Component (4.0). Procedures will also define who is responsible for accomplishing the process.

Procedure/Output/Measure

Does top management promote the growth of a positive safety culture through -


Publication of Top Management's stated commitment to safety to all employees?

Visible demonstration of their commitment to the SMS?

Communication of the safety responsibilities for the organization's personnel?


Clear and regular communication of safety policy, goals, expectations, standards, and performance to all employees of the organization?

PLEASE MAKE SURE THAT THIS IS THE CORRECT ISSUE BEFORE USE

	Company Name Ethiopian Civil Aviation Authority	Document No. ECAA/AGA/AC/30	
	Document Title: SMS Implementation Guide	Issue No. 1	Page No. Page 87 of 90


An effective employee reporting and feedback system that provides confidentiality?
Use of a safety information system that provides an accessible efficient means to retrieve information?
Allocation of resources essential to implement and maintain the SMS?
The organization will periodically measure performance objectives and design expectations of the Safety Promotion Component.
<i>Controls</i>
The organization will ensure that: (1) procedures are followed for safety-related operations and activities, and (2) they periodically review supervisory and operational controls to ensure the effectiveness of the Safety Promotion Component.
Bottom Line Assessment
Has top management promoted the growth of a positive safety culture and communicate it throughout the organization.
<i>Element 4.1 Competencies and Training</i> Process 4.1.1 Personnel Expectations (Competence)
Performance Objective
The organization will document competency requirements for those positions identified in Element 1.2 b, (3) and 1.3 and ensure those requirements are met.
Design Expectations <i>Input</i>
Inputs (interfaces) for this process will be identified between top management and the key safety personnel referenced in Management Commitment and Safety Accountabilities Element 1.2 b, (3) & Key Safety Personnel Element 1.3.
<i>Management Responsibility</i>
The organization will clearly identify who is responsible for the quality of the Personnel Expectations Process. Procedures will also define who is responsible for accomplishing the process.
<i>Procedure</i>
Does the organization identify the competency requirements for safety-related positions identified in Management Commitment and Safety Accountabilities Element 1.2 b, (3) & Key Safety Personnel Element 1.3?
<i>Outputs and Measures</i>
Does the organization ensure that the personnel in the safety-related positions identified in Management Commitment and Safety Accountabilities Element 1.2 b, (3) & Key Safety Personnel Element 1.3 meet the documented competency requirements of Personnel Expectations Process 4.1.1 b, (1)?

PLEASE MAKE SURE THAT THIS IS THE CORRECT ISSUE BEFORE USE

	Company Name Ethiopian Civil Aviation Authority	Document No. ECAA/AGA/AC/30	
	Document Title: SMS Implementation Guide	Issue No. 1	Page No. Page 88 of 90

<p>The organization will periodically measure performance objectives and design expectations of the Personnel Expectations Process.</p>
<p><i>Controls</i></p>
<p>The organization will ensure that: (1) procedures are followed for safety-related operations and activities, and (2) they periodically review supervisory and operational controls to ensure the effectiveness of the personnel qualification and training process.</p>
<p>Bottom Line Assessment</p>
<p>Has the organization documented competency requirements for those positions identified in Management Commitment and Safety Accountabilities Element 1.2 b, (3) and Key Safety Personnel Element 1.3 and ensured those requirements were met?</p>
<p>Process 4.1.2 Training</p>
<p>Performance Objective</p>
<p>The organization will develop, document, deliver and regularly evaluate training necessary to meet to meet competency requirements of Process 4.1.1 b (1).</p>
<p>Design Expectations</p>
<p><i>Input</i></p>
<p>Inputs (interfaces) for the Training Process will be obtained through the outputs of the SMS and the documented competency expectations of Personnel Expectations Process 4.1.1 b, (1)</p>
<p><i>Management Responsibility</i></p>
<p>The organization will clearly identify who is responsible for the quality of the SMS Training Process. Procedures will also define who is responsible for accomplishing the process.</p>
<p><i>Procedure</i></p>
<p>Does the organization's training meet the competency expectations of Personnel Expectations Process 4.1.1 b, (1) for the personnel in the safety-related positions identified in Management Commitment and Safety Accountability Element 1.2 b, (3) & Key Safety Personnel Element 1.3?</p>
<p>Does the organization consider scope, content, and frequency of training required to meet and maintain competency for those individuals in the positions identified in Management Commitment and Safety Accountability Element 1.2 b, (3) and Key Safety Personnel 1.3.</p>
<p>Does the organization's employees receive training commensurate with their -</p>
<p>Position level within the organization?</p>
<p>Impact on the safety of the organization's products or services?</p>
<p>Does the organization maintain training currency by periodically -</p>
<p>Reviewing the training?</p>
<p>Updating the training?</p>
<p><i>Outputs and Measures</i></p>
<p>The organization will maintain records of required and delivered training.</p>

PLEASE MAKE SURE THAT THIS IS THE CORRECT ISSUE BEFORE USE

	Company Name Ethiopian Civil Aviation Authority	Document No. ECAA/AGA/AC/30	
	Document Title: SMS Implementation Guide	Issue No. 1	Page No. Page 89 of 90

The organization will: (1) identify interfaces between safety lessons learned and the training functions, as well as the interfaces between the training functions and the delivery of training deemed to be necessary to meet competency requirements of (4.1.1 b, 1, above), and (2) periodically measure performance objectives and design expectations of SMS Training Process

Controls

Does the organization ensure that safety related training media is periodically reviewed and updated for target populations?

The organization will ensure that: (1) procedures are followed for safety-related operations and activities, and (2) they periodically review supervisory and operational controls to ensure the effectiveness of the SMS Training Process

Bottom Line Assessment

Has the organization developed, documented, delivered and regularly evaluated training necessary to meet to meet competency expectations of the Personnel Expectations Process 4.1.1 b, (1).

Element 4.2 Communication and Awareness

Performance Objective

Top management will communicate the output of its SMS to its employees, and will provide its oversight organization access to SMS outputs in accordance with established agreements and disclosure programs.

Design Expectations

Input

Inputs (interfaces) for this process will be obtained from the outputs of Safety Risk Management (2.0) and Safety Assurance (3.0) including -

Hazard identification (2.1.2)

Risk severity and likelihood (2.2.1)

Risk assessments (2.2.2)

Risk control/mitigation plans (2.2.3)

Safety lessons learned

Results of analysis of data (3.1.7)


Management Responsibility

The organization will clearly identify who is responsible for the quality of the Communication and Awareness Process. Procedures will also define who is responsible for accomplishing the process.

Procedure/Output/Measure

Does the organization ensure it communicates outputs of the SMS, rationale behind controls, preventive and corrective actions and ensure awareness of SMS objectives to its employees?

PLEASE MAKE SURE THAT THIS IS THE CORRECT ISSUE BEFORE USE

	Company Name Ethiopian Civil Aviation Authority	Document No. ECAA/AGA/AC/30	
	Document Title: SMS Implementation Guide	Issue No. 1	Page No. Page 90 of 90

Does the organization ensure it provides its oversight organization access to the outputs of the SMS in accordance with established agreements and disclosure programs?

Does the organization interface with other organization's SMSs to cooperatively manage issues of mutual concern?

Does the organization periodically measure performance objectives and design expectations of the Communication and Awareness Process?

Controls

The organization will ensure that: (1) procedures are followed for safety-related operations and activities, and (2) they periodically review supervisory and operational controls to ensure the effectiveness of the Communication and Awareness Process.

Bottom Line Assessment

Has top management communicated the output of its SMS to employees and provided its oversight organization access to SMS outputs in accordance with established agreements and disclosure programs?

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