SAFETY MANAGEMENT SYSTEM MANUAL (SMSM)

Issue 03, Revision 04 dated 12 Jun 2025

BỘ XÂY DỰNG **CỤC HÀNG KHÔNG VIỆT NAM**	**CỘNG HOÀ XÃ HỘI CHỦ NGHĨA VIỆT NAM** **Độc lập - Tự do - Hạnh phúc**
Số: 1042 /QĐ-CHK	*Hà Nội, ngày 14 tháng 07 năm 2025*

QUYẾT ĐỊNH

V/v phê chuẩn Tài liệu Hệ thống quản lý an toàn SMSM ban hành 03 sửa đổi 04 ngày 12/06/2025 của Tổng Công ty Hàng không Việt Nam - CTCP

CỤC TRƯỞNG CỤC HÀNG KHÔNG VIỆT NAM

Căn cứ Luật Hàng không dân dụng Việt Nam ngày 29/06/2006 và Luật sửa đổi, bổ sung một số điều của Luật Hàng không dân dụng Việt Nam ngày 21/11/2024;

Căn cứ Nghị định 66/2015-NĐ-CP ngày 12/08/2015 quy định về Nhà chức trách hàng không

Căn cứ Thông tư số 01/2011/TT-BGTVT ngày 27/01/2011 của Bộ trưởng Bộ Giao thông vận tải ban hành Bộ quy chế An toàn hàng không dân dụng lĩnh vực tàu bay và khai thác tàu bay và Thông tư số 03/2016/TT-BGTVT ngày 31/3/2016, Thông tư 21/2017/TT-BGTVT ngày 30/6/2017, Thông tư số 56/2018/TT-BGTVT ngày 11/12/2018 và Thông tư số 42/2020/TT-BGTVT ngày 31/12/2020 sửa đổi, bổ sung một số điều của Bộ quy chế An toàn Hàng không dân dụng lĩnh vực tàu bay và khai thác tàu bay;

Căn cứ Quyết định số 09/QĐ-BXD của Bộ Xây dựng ngày 10/3/2025 quy định chức năng, nhiệm vụ, quyền hạn và cơ cấu tổ chức của Cục Hàng không Việt Nam;

Xét đề nghị của Tổng Công ty Hàng không Việt Nam - CTCP (TCT HKVN) tại Công văn số 716/TCTHK-ATCL ngày 13/06/2025 về việc đề nghị Cục HKVN xem xét, phê chuẩn Tài liệu Hệ thống quản lý an toàn SMSM ban hành 03 sửa đổi 04 ngày 12/06/2025;

Theo đề nghị của Trưởng phòng Tiêu chuẩn an toàn bay,

QUYẾT ĐỊNH:

Điều 1. Phê chuẩn tài liệu **Tài liệu Hệ thống quản lý an toàn (SMSM) ban hành 03 sửa đổi 04 ngày 12/06/2025** của TCT HKVN.

Điều 2. Quyết định có hiệu lực kể từ ngày ký.

Điều 3. Trưởng phòng Tiêu chuẩn an toàn bay, TCT HKVN và các tổ chức, cá nhân có liên quan chịu trách nhiệm thi hành Quyết định này./.

Nơi nhận:
- Như Điều 3;
- Cục trưởng (để báo cáo);
- Lưu: VT, TCATB (dpham).

KT. CỤC TRƯỞNG
PHÓ CỤC TRƯỞNG

BỘ XÂY DỰNG * CỤC HÀNG KHÔNG VIỆT NAM *

Hồ Minh Tấn

TỔNG CÔNG TY HÀNG KHÔNG VIỆT NAM	**CỘNG HOÀ XÃ HỘI CHỦ NGHĨA VIỆT NAM**
Số: 1503/QĐ-TCTHK-ATCL	**Độc lập - Tự do - Hạnh phúc**
	Hà Nội, ngày 21 tháng 7 năm 2025

QUYẾT ĐỊNH
Về việc ban hành tài liệu Hệ thống quản lý an toàn ban hành 03, sửa đổi 04 của Tổng công ty Hàng không Việt Nam.

TỔNG GIÁM ĐỐC
TỔNG CÔNG TY HÀNG KHÔNG VIỆT NAM

Căn cứ Luật Doanh nghiệp số 68/2014/QH13 ngày 26/11/2014;

Căn cứ Điều lệ Tổng công ty Hàng không Việt Nam;

Căn cứ Quyết đinh số 1042/QĐ-CHK ngày 14/7/2025 của Cục trưởng Cục HKVN về việc phê chuẩn tài liệu Hệ thống quản lý an toàn, ban hành 03, sửa đổi 04 của Tổng Công ty Hàng không Việt Nam – CTCP (TCTHK);

Theo đề nghị của Trưởng ban Ban An toàn – Chất lượng,

QUYẾT ĐỊNH:

Điều 1. Ban hành kèm theo Quyết định này tài liệu Hệ thống quản lý an toàn số ban hành 03, số sửa đổi 04 của TCTHK.

Điều 2. Quyết định này có hiệu lực từ ngày ký.

Điều 3. Thủ trưởng các CQ, ĐV và các cá nhân liên quan của TCTHK chịu trách nhiệm thi hành Quyết định này./.

Nơi nhận:
- Cục HKVN (để b/c);
- HĐQT (để b/c);
- TGĐ (để b/c);
- Các P.TGĐ;
- Thư ký TCT;
- Các CQ, ĐV (Danh sách đính kèm);
- Lưu: VT, ATCL, (NVPHONG) (04).

KT. TỔNG GIÁM ĐỐC
PHÓ TỔNG GIÁM ĐỐC

Đinh Văn Tuấn

CHAPTER 0
DOCUMENT CONTROL PAGES

LIST OF EFFECTIVE PAGES

Section/Item	Page	Issue Number	Revision Number	Revision Date
LOEP	P1 - P6	03	04	12 Jun 2025
LONR	P1	03	04	12 Jun 2025
SIG	P1 - P2	03	04	12 Jun 2025
LOD	P1 - P2	03	04	12 Jun 2025
TOC	P1 - P5	03	04	12 Jun 2025
1.1	P1	03	00	14 Sep 2018
1.2	P1	03	00	14 Sep 2018
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1.4	P1	03	04	12 Jun 2025
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1.7	P1 - P3	03	04	12 Jun 2025
2.1	P1	03	02	01 Aug 2023
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3.2	P1	03	00	14 Sep 2018
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4.2	P1	03	00	14 Sep 2018
4.3	P1	03	00	14 Sep 2018
4.4	P1	03	00	14 Sep 2018
5.1	P1	03	00	14 Sep 2018

Safety Management System Manual issue 03, revision 04 is compiled by Safety – Quality Department, approved by CAAV.

Prepared by	Reviewed by	Approved by
Nguyen Dang Quang Director Safety-Quality Dept. Date: 12/6/2025	Dinh Van Tuan Vice President Vietnam Airlines - JSC Date: 13 /6/2025	CAAV / FSSD CONTROL Tran Van Viet CAAV Date: 14 / 7 /2025

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Section/Item	Page	Issue Number	Revision Number	Revision Date
5.2	P1	03	00	14 Sep 2018
5.3	P1	03	00	14 Sep 2018
6.1	P1	03	04	12 Jun 2025
6.2	P1 - P2	03	01	30 Dec 2021
6.2	P3	03	00	14 Sep 2018
6.2	P4	03	01	30 Dec 2021
6.2	P5	03	00	14 Sep 2018
6.3	P1	03	04	12 Jun 2025
6.4	P1	03	04	12 Jun 2025
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8.2	P2	03	00	14 Sep 2018
8.2	P3	03	04	12 Jun 2025

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Prepared by	Reviewed by	~~Approved by~~
		CAAV / FSSD CONTROL
Nguyen Dang Quang	Dinh Van Tuan	Tran Van Viet
Director	Vice President	
Safety-Quality Dept.	Vietnam Airlines - JSC	CAAV
Date: 12/6/2025	Date: 13 /6/2025	Date: 14 / 7 /2025

Section/Item	Page	Issue Number	Revision Number	Revision Date
8.2	P4	03	03	20 May 2024
8.2	P5	03	02	01 Aug 2023
8.2	P6	03	04	12 Jun 2025
8.2	P7	03	02	01 Aug 2023
8.3	P1	03	01	30 Dec 2021
8.3	P2	03	04	12 Jun 2025
8.3	P3	03	01	30 Dec 2021
8.3	P4	03	00	14 Sep 2018
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10.8	P1 - P4	03	04	12 Jun 2025

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Nguyen Dang Quang Director Safety-Quality Dept. Date: 12/6/2025	Dinh Van Tuan Vice President Vietnam Airlines - JSC Date: 13 /6/2025	CONTROL Tran Van Viet CAAV Date: 14 / 7 /2025

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10.9	P1 - P2	03	04	12 Jun 2025
11.1	P1	03	04	12 Jun 2025
11.2	P1	03	04	12 Jun 2025
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11.10	P1	03	04	12 Jun 2025
12.1	P1 - P6	03	01	30 Dec 2021
12.2	P1	03	01	30 Dec 2021
13.1	P1	03	00	14 Sep 2018
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14.5	P1	03	00	14 Sep 2018
14.6	P1 - P2	03	00	14 Sep 2018

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Nguyen Dang Quang	Dinh Van Tuan	Tran Van Viet
Director	Vice President	
Safety-Quality Dept.	Vietnam Airlines - JSC	CAAV
Date: 12/6/2025	Date: 13 /6/2025	Date: 14 / 7 /2025

CAAV/ISO CONTROL

Section/Item	Page	Issue Number	Revision Number	Revision Date
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15.5	P1	03	00	14 Sep 2018
15.6	P1	03	04	12 Jun 2025
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AP	P1	03	03	20 May 2024
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AP	P11 - P16	03	00	14 Sep 2018
AP	P17 - P20	03	01	30 Dec 2021

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Nguyen Dang Quang Director Safety-Quality Dept. Date: 12/6/2025	Dinh Van Tuan Vice President Vietnam Airlines - JSC Date: 13 /6/2025	CAAV / FSSD CONTROL Tran Van Viet CAAV Date: 14 / 7 /2025

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AP	P21	03	04	12 Jun 2025
AP	P22 - P32	03	02	01 Aug 2023
AP	P33 - P39	03	00	14 Sep 2018
AP	P40	03	01	30 Dec 2021
AP	P41 - P42	03	02	01 Aug 2023
AP	P43 - P45	03	01	30 Dec 2021
AP	P46 - P67	03	00	14 Sep 2018
AP	P68 - P70	03	01	30 Dec 2021
AP	P71 - P74	03	00	14 Sep 2018

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LIST OF NORMAL REVISIONS

Issue number	Revision number	Effective date	Approval
Issue 01	Rev 01	30 Dec 2010	CAAV
Issue 01	Rev 02	18 Jan 2012	CAAV
Issue 01	Rev 03	11 Feb 2014	CAAV
Issue 02	Rev 00	10 May 2017	CAAV
Issue 03	Rev 00	26 Oct 2018	CAAV
Issue 03	Rev 01	27 Apr 2022	CAAV
Issue 03	Rev 02	20 Sep 2023	CAAV
Issue 03	Rev 03	19 Jun 2024	CAAV
Issue 03	Rev 04	14 Jul 2025	CAAV

LIST OF SIGNIFICANT CHANGES

Section/ Item	List of significant changes
Chapter 0. Document control pages	
LOTEP	Update LOEP
LOTR	Update new Issue and Revision
TSIG	Update changes
LOD	Update list of distribution.
TOC	Update table of content
Chapter 1: General Introduction	
1.4	Update the diagram of the Flight Safety Document System
1.6	Reorder the definitions and add the definition of Vietnam Airlines
1.7	Add abbreviations and number each abbreviation
Chapter 2. SMS Regulatory requirements	
2.3.3	Add a section on Specific Regulation and Requirements
2.3.2.1	Add a section on Regulation on the Use of Psychoactive Substances
Chapter 6: Safety Accountabilities and Key Safety Personnel	
6.1	Update the Safety Management System Organizational Chart.
6.3.1 d) 2)	Update the name to Digital Transformation and Technology Department; add Pacific Airlines as a member of SRB
6.4.1 c) 2)	Add Pacific Airlines as a member of SAG 1, 2 and 3
Chapter 8. Safety data and reporting	
8.2.2.3 d)	Add a provision requiring SQD to review and reclassify the severity level of occurrences/incidents
8.2.4 a)	Confidential reporting: Add the reporting provisions related to "Human Performance"
8.3.2.3	Add regulations on reporting the use or influence of psychoactive substances
Chapter 9. Safety Risk Management	
9.1 – 9.6	Rewrite the content.
9.7	Add a section on Specific Safety Risk Management
9.7.1	Add a section on Requirements on Risk Management of the Transport of Items in the Cargo Compartment
Chapter 10: Safety Performance Monitoring and Measurement	
10.8	Rewrite the content of the Flight Data Analysis Program.
10.9	Rewrite the content of the Line Operations Safety Audit (LOSA) Program
Chapter 11. Safety Investigation	
11.1 -11.10	Restructure the entire chapter and incorporate the internal safety

Section/ Item	List of significant changes
	investigation management process using the AQD application.
Chapter 15. Management of Change	
15.3	Update reference documents
15.6	Add requirement for responsible departments/units to use AQD for implementing MOC.
15.7	Update content on responsibilities.
15.8	Add provision on authorization levels for conducting MOC in AQD
15.9	Add MOC Process Using AQD and the corresponding Flow Chart
15.10	Add MOC Reports
Chapter 17. Fatigue risk management system	
17.6	Delete line "b) Appendix 17.2 Science for FRMS"
Appendix	
Appendix 8.2.1	Update the list of serious incidents (Level B) in accordance with Circular No. 27/2024/TT-BGTVT dated July 2, 2024
Appendix 11.3	Remove the outdated Safety Investigation Procedure that is no longer applicable
Appendix 17.2	Remove the appendix "Science for FRMS" that is no longer applicable

LIST OF DISTRIBUTION

No.	Users	Note
1.	Civil Aviation Authority of Vietnam	Soft Version
2.	Chairman of management board	Skyoffice
3.	President & CEO	Skyoffice
4.	Executive Vice Presidents	Skyoffice
5.	Operation Control Center	Skyoffice
6.	Safety - Quality Department	Master copy
7.	Technical Department	Skyoffice
8.	Supply & Material management Department	Skyoffice
9.	Passenger Services Department	Skyoffice
10.	Corporate Planning and Development Department	Skyoffice
11.	Sales & Marketing Department	Skyoffice
12.	Cargo Marketing Department	Skyoffice
13.	Human Resource Department	Skyoffice
14.	Corporate Affairs	Skyoffice
15.	Legal Department	Skyoffice
16.	Communication Department	Skyoffice
17.	Digital Transformation and Technology Dept,	Skyoffice
18.	Flight Crew 919 Division	Skyoffice
19.	Cabin Crew Division	Skyoffice
20.	Vietnam Airlines JSC Branch – Flight Training Center	Skyoffice
21.	Aviation Security Department	Skyoffice
22.	Financial Department	Skyoffice
23.	Vietnam Airlines – JSC Vietnam regional Branch	Skyoffice
24.	Vietnam Airlines – JSC Vietnam Air Service Company (VASCO)	Skyoffice
25.	Vietnam Airports Ground Services Co (VIAGS)	Skyoffice
26.	Airport Service & Operation Center (ASOC)	Skyoffice
27.	Vietnam Airlines Engineering Co. (VAECO)	Skyoffice
28.	SKYPEC	Skyoffice
29.	Aviation Information and Telecommunications Solution	Skyoffice

No.	Users	Note
	JSC (AITS)	
30.	Noi Bai Catering Joint Stock Company	Skyoffice
31.	Vietnam Airlines Caterer Ltd.	Skyoffice
32.	Vietnam Airlines – JSC branches at foreign airports	Skyoffice
33.	Pacific Airlines	Skyoffice

TABLE OF CONTENT

CHAPTER 1
GENERAL INTRODUCTION

1.1 Purpose of manual issue

a) Safety management system manual is the highest level safety manual of Vietnam Airlines. This manual describes Vietnam Airlines safety policies, methods and procedures for SMS implementation and operation within Vietnam Airlines.

b) Together with the safety quality policy and the quality manual, SMSM establishes commitments, responsibilities and company level procedures of the two management systems: Safety management system and quality system.

c) This manual with other manuals, department level procedures and operational procedures and Vietnam Airlines acceptable standards build up a comprehensive documentation system which is the key of an effective safety management system.

d) Documentation system of Vietnam Airlines in general and this manual in particular is reviewed annually and continuously improved to adapt the most current CAAV requirements and other related requirements.

e) SMSM of Vietnam Airlines and its subsequent revisions are subject to CAAV approval.

1.2 Scope and applicability

Safety management system manual is applied consistently to all departments, divisions and personnel within Vietnam Airlines as well as related departments, divisions and personnel when performing duty within the responsibilities of safety management of Vietnam Airlines.

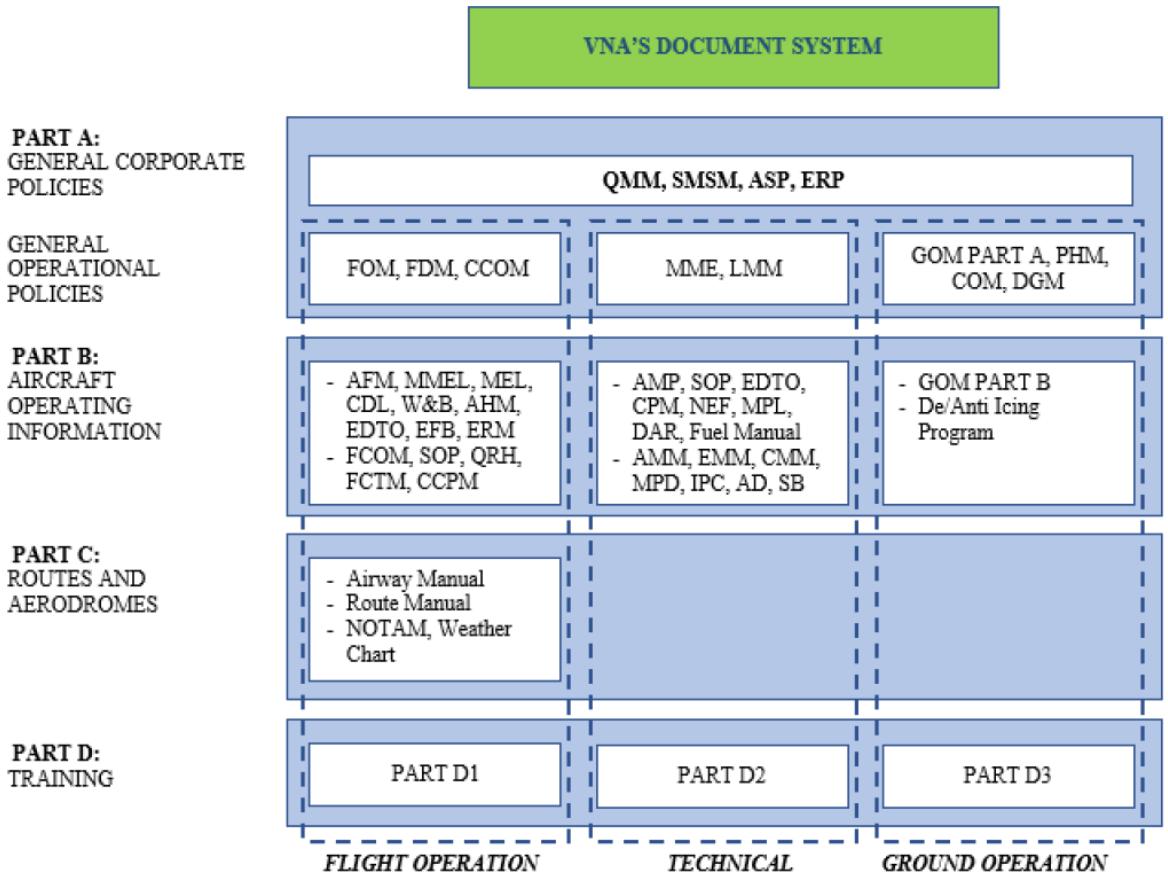
1.3 Reference documents

a) ICAO Annex 19 – Safety Management; Annex 13 – Aircraft Accident and Incident Investigation; Annex 06 – Operation of Aircraft.
b) ICAO Doc 9859 Safety Management Manual;
c) State Safety Program;
d) Vietnam Aviation Regulations, AC-01-003 on SMS, AC-12-004 on Flight safety document system;
e) Decree 75/2007/ND-CP dated 09/5/2007 on Civil aircraft accident and incident investigation;
f) IOSA Standard Manual;
g) Other related regulations.

1.4 Flight safety document system – VAR 12.075(e)(1)

a) Vietnam Airlines has established a document system for the use and guidance in operations and maintenance, that conforms to the concept of a Flight Safety Documents System described in VARs and as a part of Safety Management System.

b) Flight Safety Document System is defined as a set of inter-related documentation (Operations policy manual, Operation manuals, Routes & aerodromes, Training Manuals) established by Vietnam Airlines. The hierarchy of flight safety document system is shown below:



Note: Refer QMM 2.3 for details of Flight safety document system

1.5 Revision, update and distribution of document

1.5.1 General

a) In compliance with the company documentation system control policy stated in QMM, all changes due to external requirements or internal changes/requirements that affect SMS and SMSM shall be reviewed and evaluated by Vietnam Airlines. Revisions and update of SMSM shall be done properly and in timely manner.

b) Revision pages will be annotated to show the effective date, revision number and the portion of the text which has been revised or new text inserted, as indicated by vertical marginal lines on the left hand side of the page adjacent to the changes. Each revision will be accompanied by a revised list of effective pages, with their date of effective. A list of normal revision will be maintained at the front of each manual.

1.5.2 Approval of CAAV to revision and update

All subsequent revisions and updates to this manual must be approved by CAAV before implementation. In special cases, to maintain safety or for minor changes to the manual, CEO or his/her authorized person can approve revisions to the manual and assure that:

a) The revision(s) is/are not in contradiction to the current requirements of CAAV on SMS, and

b) The revision must be submitted formally to CAAV

c) The revisions must be identified.

1.5.3 Temporary Revision

Temporary revisions that may be urgently required in the interest of safety will be promulgated as bulletins and issued on yellow paper.

Those of a temporary nature will be cancelled as soon as they are no longer relevant. Those of long-term application will be incorporated into the manual when it is next amended, or within six months of their effective date, whichever is the sooner.

1.5.4 Distribution

a) This manual (soft version) any other publication must be provided to users by SQD following the distribution list via Archives/Email.

b) Directors and heads of organizations within Vietnam Airlines are responsible for promulgation and giving supports so that all staff can access

and read the manual as required.

c) This manual or the related part of its must be provided to Vietnam Airlines subcontracted service providers if necessary, by heads of departments, organizations of Vietnam Airlines in order to meet SMS requirements.

d) Any recommendations related to this manual should be submitted to SQD at the following address:

Safety - Quality Department, Vietnam Airlines JSC
200 Nguyen Son Street, Long Bien District, Hanoi, Vietnam.
Fax: +84 24 38731665 Tel: +84 24 38272605
Email: sms.sqd@vietnamairlines.com

1.6 Definition

1.6.1 Accident

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

a) A person is fatally or seriously injured as a result of:

- being in the aircraft, or
- direct contact with any part of the aircraft, including parts which have become detached from the aircraft, or
- direct exposure to jet blast,

except when the injuries are from natural causes, self-inflicted or inflicted by other persons, or when the injuries are to stowaways hiding outside the areas normally available to the passengers and crew; or

b) The aircraft sustains damage or structural failure which:

- adversely affects the structural strength, performance or flight characteristics of the aircraft,
- and would normally require major repair or replacement of the affected component,

except for engine failure or damage, when the damage is limited to a single engine (including its cowlings or accessories), to propellers, wing tips, antennas, probes, vanes, tires, brakes, wheels, fairings, panels, landing gear doors, windscreens, the aircraft skin (such as small dents or puncture holes), or for minor damages to main rotor blades, tail rotor blades, landing gear, and those resulting from hail or bird strike (including holes in the radome); or

c) The aircraft is missing or is completely inaccessible – VAR1.079 Appendix 1 (379)

1.6.2 Acceptable level of safety (ALS)

Minimum safety performance level(s), of civil aviation of a Country defined in State Safety Program or SMS of service provider, stated by safety target and safety performance indicators.

1.6.3 Accountable Manager

A single, identifiable person having final responsibility for the effective and efficient performance of the organization's SMS.

1.6.4 Fatigue

A physiological state of reduced mental or physical performance capability resulting from sleep loss or extended wakefulness, circadian phase, or workload (mental and/or physical activity) that can impair a crew member's alertness and ability to safely operate an aircraft or perform safety related duties.

1.6.5 Fatigue Risk Management System

A data-driven means of continuously monitoring and managing fatigue-related safety risks, based upon scientific principles and knowledge as well as operational experience that aims to ensure relevant personnel are performing at adequate levels of alertness.

1.6.6 Flight Data Analysis

A process to analyze recorded flight data in order to enhance safety level of Flight operations.

1.6.7 Hazard

Condition or an object with the potential to cause injuries to personnel, damage to equipment or structures, loss of material, or reduction of ability to perform a prescribed function.

1.6.8 Incident

An occurrence, other than an accident, associated with the operation of an aircraft which affects or could affect the safety of operation - VAR1.079 Appendix 1 (353)

1.6.9 Investigation

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

1.6.10 Safety

The state in which risks associated with aviation activities, related to, or in direct support of the operation of aircraft, are reduced and controlled to an acceptable level.

1.6.11 Safety data

A defined set of facts or set of safety values collected from various aviation-related sources, which is used to maintain or improve safety.

1.6.12 Safety information

Safety data processed, organized or analyzed in a given context so as to make it useful for safety management purposes.

1.6.13 Safety management system (SMS)
A systematic approach to managing safety, including the necessary organizational structures, accountability, responsibilities, policies and procedures.

1.6.14 Safety performance indicator
A data-based parameter used for monitoring and assessing safety performance.

1.6.15 Safety performance
State or a service provider's safety achievement as defined by its safety performance targets and safety performance indicators.

1.6.6 Safety recommendation
A proposal of an accident investigation authority based on information derived from an investigation, made with the intention of preventing accidents or incidents and which in no case has the purpose of creating a presumption of blame or liability for an accident or incident. In addition to safety recommendations arising from accident and incident investigations, safety recommendations may result from diverse sources, including safety studies.

1.6.17 Safety Risk
The predicted probability and severity of the consequences or outcomes of a hazard - VAR1.079 Appendix 1 (335)

1.6.18 Safety Target
Reached targets of safety performance indicators in specific period of time.

1.6.19 Serious Incident
An incident involving circumstances indicating that there was a high probability of an accident and associated with the operation of an aircraft which, in the case of a manned aircraft, takes place between the time any person boards the aircraft with the intention of flight until such time as all such persons have disembarked, or in the case of an unmanned aircraft, takes place between the time the aircraft is ready to move with the purpose of flight until such time as it comes to rest at the end of the flight and the primary propulsion system is shut down - VAR1.079 Appendix 1 (352)

1.6.20 Vietnam Airlines JSC

Hereinafter referred to as Vietnam Airlines, is the parent company in a combination of parent companies - subsidiaries of Vietnam Airlines.

1.7 Abbreviation

1.	AC	Advisory Circular
2.	ADREP	Accident Data Reporting System
3.	AFM	Aircraft Flight Manual
4.	AITS	Aviation Information and Telecommunications Solution JSC
5.	ALARP	As Low As Reasonably Practicable
6.	ALS	Acceptable Level of Safety
7.	AMO	Aviation Maintenance Organization
8.	AMS	Aircraft Maintenance Schedule
9.	AOC	Air Operator Certificate
10.	AP	Autopilot
11.	AQD	The integrated safety – quality management system of Vietnam Airlines JSC
12.	ASOC	Airport Service & Operation Center
13.	ATC	Air Traffic Control
14.	AVSEC	Aviation Security Department
15.	CAAV	Civil Aviation Authority of Vietnam
16.	CCOM	Cabin Crew Operation Manual
17.	COM	Cargo Operation Manual
18.	CMD	Cargo Marketing Department
19.	DFDR	Digital Flight Data Recorder
20.	DGM	Dangerous Goods Manual
21.	EASA	European Aviation Safety Agency
22.	EDTO	Extended Diversion Time Operations

23.	EGT	Exhausted Gas Temperature
24.	ERP	Emergency Response Plan
25.	FAA	Federal Aviation Administration
26.	FDM	Flight Dispatch Manual
27.	FRM	Fatigue Risk Management
28.	FRMS	Fatigue Risk Management System
29.	FOM	Flight Operations Manual
30.	FSAG	Fatigue Safety Action Group
31.	FTC	Flight Training Center
32.	FTL	Flight Time Limitation
33.	GOM	Ground Operation Manual
34.	GPWS	Ground Proximity Warning System
35.	HIRA	Hazard Identification and Risk Assessment
36.	HR	Human Resource Department
37.	IATA	International Air Transport Association
38.	ICAO	International Civil Aviation Organization
39.	ISM	IOSA Standard Manual
40.	LMM	Line Maintenance Manual
41.	LOSA	Line Operation Safety Audit
42.	MME	Maintenance Management Exposition
43.	OCC	Operation Control Center
44.	PA	Pacific Airlines
45.	PHM	Passenger Handling Manual

46.	PDA	Parts Departing from Aircraft
47.	PSD	Passenger Services Department
48.	QAR	Quick Access Recorder
49.	QMM	Quality Management Manual
50.	QMS	Quality Management System
51.	SAG	Safety Action Group
52.	SKYPEC	Vietnam Air Petrol Company Limited
53.	SME	Subject Matter Expert
54.	SMS	Safety Management System
55.	SMSM	Safety Management System Manual
56.	SOP	Standard Operating Procedures
57.	SQD	Safety – Quality Department
58.	SSP	State Safety Programme
59.	SRB	Safety Review Board
60.	TCAS	Traffic Collision Avoidance System
61.	TOR	Terms of Reference
62.	VAECO	Vietnam Airlines Engineering Company
63.	VAR	Vietnam Aviation Regulations
64.	VIAGS	Vietnam Airport Ground Services Company
65.	VNA	Vietnam Airlines JSC

CHAPTER 2
SMS REGULATORY REQUIREMENTS

2. SMS Regulatory requirements

Reference documents:

a) ICAO Annex 19 – Safety Management; Annex 13 – Aircraft Accident and Incident Investigation;

b) ICAO Doc 9859 Safety Management Manual;

c) State Safety Program (SSP);

d) Vietnam Aviation Regulations, AC-01-003;

e) Decree 75/2007/ND-CP dated 09/5/2007 on Civil aircraft accident and incident investigation;

f) IOSA Standard Manual.

2.1 Regulations of ICAO

2.1.1 Introduction to ICAO Annex 19

ICAO Annex 19 (first adopted in 2013) includes standards and practical recommendations (SARP) regarding the responsibilities and safety management processes of the country, which was firstly accepted by the ICAO Council. on 25/02/2013, pursuant to Article 37 of the Chicago Convention and enacted as the Annex 19. The SARP is based on the provisions of safety management in Annex 1; Parts I, II and III of Annex 6. 8; 11; 13; Chapter I of Annex 14 and the recommendations made at the first Special Session meeting of Safety Management (13-17 February 2012 in Montreal).

Version 02 of Annex 19 was promulgated in 2016, replacing the first version in 2013.

2.1.2 Introduction to ICAO Doc 9859

This document of ICAO describes concepts, principles and new requirements to aviation management at state level and at level of aviation product/service provider (that includes performance requirements).

Doc 9859 provides guidelines on the development and implementation of a SSP in accordance with Annex 1, 6, 8, 11, 13 and 14 of Chicago Convention. It also provides guidance material for the establishment of SMS requirements by States as well as for SMS development and implementation by affected product and service providers.

2.1.3 State safety program - SSP

a) ICAO requires that, every member state must develop a state safety program (SSP). This is "an integrated set of regulations and activities aimed at improving safety" and must have 04 following components:
   1) State safety policy and objectives;
   2) State safety risk management;
   3) State safety assurance; and
   4) State safety promotion.

b) From the point of view of safety interventions and mitigation strategies, state safety risk management and state safety assurance are defined as the key processes.

c) ICAO also requires States to establish an Acceptable Level of Safety (ALoS) and monitor activities of related organizations, individuals according to this ALoS. In reality, ICAO gives guidelines to States to move from "compliance-based safety approach" to "performance-based safety approach".

2.1.4 Safety management system of aviation service providers

a) ICAO through Annexes to Chicago convention established that states must require aviation service providers that exposed to safety risks during provision of their services to implement a Safety Management System (SMS). The mentioned aviation service providers include: Approved training organizations (that are exposed to safety risks during the provision of training services); Air operators; Maintenance organizations; Aircraft design, manufacture organizations; Air traffic control service providers; and certified aerodromes.

b) A good SMS is an effective safety management tool of an organization. SMS of the above mentions organizations of a state are important parts of the State safety program of that state.

c) Safety management system of an aviation service provider must be approved by the state and must also have at least 04 following components:
   1) State safety policy and objectives;
   2) State safety risk management;
   3) State safety assurance; and
   4) State safety promotion.

2.2 Safety requirements of CAAV to an air operator

Vietnam Airlines has a safety management system approved by CAAV and complies with all safety requirements and requirements on SMS implementation of CAAV – VAR 12.075(a).

2.2.1 Requirement on SMS

2.2.1.1 Concerning SMS, CAAV issued AC 1-3 in 2008 and the guidance to its implementation was issued on 20 April 2009 under document No 1342/CHK-TCATB.

2.2.1.2 In accordance with requirements of AC 1-3, from 01 March 2009, all Air Operators and AMO approved by CAAV must establish and implement SMS. On 27 January 2011, MOT issued Vietnam Aviation Regulations (VAR) which is effective from 27 January 2012 under Document No.01/2011/TT-BGTVT as well as revised revisions of VAR later and CAAV's Guidance AC-00-003. VAR and AC require that an SMS shall include 04 components and 12 elements as follows:

a) Safety policy and objectives

1) Management commitment and responsibility
2) Safety accountabilities
3) Appointment of key safety personnel
4) Coordination of emergency response planning
5) SMS documentation

b) Safety risk management

6) Hazard identification
7) Safety risk assessment and mitigation

c) Safety assurance

8) Safety performance monitoring and measurement
9) The management of change
10) Continuous improvement of the SMS

d) Safety promotion

11) Training and education
12) Safety communication.

2.2.1.3 CAAV requires that a safety management system must clearly define safety responsibilities, accountabilities and authorities of all positions within the organization especially direct safety responsibilities of the high level management leaders of the organization.

2.2.1.4 Guidance AC-01-003 also specifies that AOC Holders are free to build their SMS to the complexity of their operations. Organizations (include

air operators) have a wide range of procedural options for compliance, and are encouraged to identify the best method of compliance to meet their individual circumstances.

2.2.1.5 Like ICAO, CAAV encourages the development of a right safety culture in each aviation service provider as safety assurance is everybody's responsibility.

2.2.2 Other safety requirements of Vietnam to Air Operator.

In addition to requirements on SMS specified in AC-01-003, for air operators with approved operational scopes like Vietnam Airlines, safety requirements specified in Document No.75/2007/NĐ-CP date 09/5/2007 on aviation safety must also be complied with.

2.3 Other safety standards, requirements that Vietnam Airlines commits to comply

2.3.1 In addition to complying with national safety requirements established by the Vietnamese authorities, Vietnam Airlines has developed its Safety Management System (SMS) in accordance with internationally recognized standards. This reflects the airline's commitment to meeting the safety expectations of international organizations and associations to which it belongs, including:

a) IOSA standards of IATA;

b) Safety standards and commitments of SkyTeam.

2.3.2 Specific Regulation and Requirements.

2.3.2.1 Regulation on the Use of Psychoactive Substances.

2.3.2.1.1 Reference Documents.

a) Circular No. 65/2024/TT-BGTVT dated December 31, 2024.

b) Circular No. 09/2023/TT-BGTVT dated June 9, 2023.

c) VAR Part 1 and Part 10.

d) IOSA Standards Manual.

e) IATA Reference Manual.

2.3.2.1.2 Definition and Explanation.

a) Psychoactive Substances – IATA Reference Manual.
Substances that can produce mood changes or distorted perceptions in humans, to include, but not limited to, alcohol, opioids, cannabinoids, sedatives and hypnotics, cocaine, other psychostimulants, hallucinogens and volatile solvents; coffee and tobacco are excluded.

b) List of Psychoactive Substances are specified in Section a), Item 1, Appendix I of Circular No. 65/2024/TT-BGTVT.

c) Use of psychoactive substances - Section b), Item 1, Appendix I of Circular No. 65/2024/TT-BGTVT.
Refers to the consumption of alcohol, beer, and substances or pharmaceutical agents specified in Section a), Appendix I of Circular No. 65/2024/TT-BGTVT.

2.3.2.1.3 Vietnam Airlines Regulations on the Use of Psychoactive Substances - Section b), Item 4, Appendix I of Circular No. 65/2024/TT-BGTVT & ORG1.5.5

a) Employees of Vietnam Airlines and contracted service providers who perform flight operations, aircraft maintenance, ground operations & cargo operations must comply with the following regulations:

(i) Employees must not perform duties while under the influence of psychoactive substances.

(ii) The use of substances while on duty is strictly prohibited.

(iii) Any employee found using such substances while performing their duties will face disciplinary action or termination of employment, in accordance with the regulations of the local competent authorities.

(iv) Employees must strictly comply with the regulations of the competent local authorities regarding the use of psychoactive substances.

b) Relevant departments and units of Vietnam Airlines shall be responsible for establishing and implementing procedures, as well as periodic and ad-hoc inspection programs, to monitor and control violations related to the use of psychoactive substances by the aforementioned personnel. These efforts shall ensure the timely detection and appropriate handling of individuals who violate regulations concerning the use of psychoactive substances while performing their duties.

c) Reporting of Psychoactive Substance Use: In the event of detecting the use of psychoactive substances, Vietnam Airlines shall report to the CAAV within 24 hours of detection. Detailed provisions are outlined in Section 8.3.2.3

CHAPTER 3
SCOPE AND INTEGRATION OF SMS

3. Scope and Integration of the Safety Management System

Reference documents:

a) ICAO Doc 9859;
b) AC-01-003 section 7;
c) IOSA Standard Manual.

3.1 Elements, scope of SMS

Vietnam Airlines - national flag carrier – is a commercial airline that operating domestic and international routes under AOC No 1997-01/CAAV of the Civil Aviation Authority of Vietnam.

The safety management system of VNA includes comprehensive safety management approach methods, Hazard identification processes in all operation areas such as: safety/operational/technical functions.

3.1.1 Elements of SMS

SMS elements of Vietnam Airlines are designed in compliance with all requirements of AC-01-003 and include:

a) Safety policy and commitments of top management;
b) Clear/specific assignment of safety responsibility of key management positions within the company;
c) Assignment of key safety manager, leaders and staff;
d) An emergency and crisis response plan;
e) Safety reporting and safety data collection system with clear and comprehensive internal requirements, procedures on reporting and report processing are designed and implemented in order to collect all safety information and data for core SMS processes;
f) Hazard identification processes and procedures;
g) Safety risk assessment and mitigation processes and procedures;
h) Safety performance indicators measurement, monitoring processes and procedures;
i) Change management procedure/process under internal and external requirements;

j) Safety audit program (which is integrated to Vietnam Airlines' quality audit program) to periodically audit and monitor SMS and system continuous improvement;

k) A set of standard operation procedures (SOPs);

l) A Set of comprehensive safety training requirements and safety training program, syllabuses for all staffs;

m) A system of safety documentation, safety records and safety data with specific rules of retention, protection and access; and

n) Application of a set of safety promotion methods: De-briefing of occurrent/incidents/acidents meetings and safety bulletins; safety training and recurrent training...

3.1.2 Scope of SMS

To ensure safety in all passenger services processes, Vietnam Airlines' SMS focuses operation areas as below:

a) Flight operation.

b) Aircraft maintenance.

c) Ground operation and passenger-services (include both ground and flight services).

d) Training.

detail safety requirements in all operation areas are specified in Vietnam Airlines' manuals: FOM, MME, COM, GOM, PHM, CCOM, Training manuals… for pilots, cabin crews, weight and balance staff, and dispatchers.

Notes:

a) If Vietnam Airlines has service providers in all areas that mentioned above Vietnam Airlines shall set up related safety requirements and standards in contract/agreement.

b) Vietnam Airlines accepts service providers' SMS provide that it meets the requirements of CAAV, FAA, EASA, ICAO, IATA.

3.1.2.1 Scope of SMS in flight operation

All flight operation activities of Vietnam Airlines including personnel, procedures, standards, equipment, aircraft of Vietnam Airlines is within the SMS's scope.

For geographic coverage, the SMS affects to all Vietnam Airlines' flight lines that includes all airports where Vietnam Airlines operates passenger and cargo handling.

Activities under control include:

a) Aircraft weight and balance;

b) Flight dispatch;

c) Flight crew activities (both in-flight and on ground);

d) Cabin crew activities (both in-flight and on ground);

e) Other activities to assure safe operation;

f) Cabin safety.

3.1.2.2 Scope of SMS in aircraft maintenance

The SMS governs maintenance activities which are directly performed by Vietnam Airlines.

Maintenance activities that Vietnam Airlines subcontracted to AMOs shall be subjects to SMS of such AMOs.

However, Vietnam Airlines shall require the subcontractors to provide safety information related to Vietnam Airlines' properties specified in the maintenance contracts. In addition, in particular cases, Vietnam Airlines may request the AMOs to provide results of internal safety audit(s), safety investigation(s) or evidence concerned.

Relation with VAECO: As VAECO which is the main subcontracted AMO of Vietnam Airlines have developed a SMS approved by CAAV, Vietnam Airlines SMS has a close connection with VAECO SMS in order to get as much as possible safety information concerning maintenance of Vietnam Airlines fleet.

3.1.2.3 Scope of SMS in ground operation and passenger service

The SMS of Vietnam Airlines governs ground operation and passenger service activities of Vietnam Airlines.

All service providers shall not be subjects of Vietnam Airlines' SMS.

However, Vietnam Airlines shall require the subcontractors to provide safety information related to its properties or passenger safety that are specified in the service contracts. In addition, in particular cases, Vietnam Airlines may request the subcontractors provide the results of safety investigation or related evidence.

Relation with VIAGS, SKYPEC: VIAGS and SKYPEC have developed a SMS approved by CAAV, Vietnam Airlines SMS has a close connection with VIAGS and SKYPEC SMS in order to get as much as possible safety information concerning maintenance of Vietnam Airlines fleet.

3.1.2.4 Scope of SMS in Training

The SMS of Vietnam Airlines governs training activities of Vietnam Airlines and in connection with SMS of Flight Training Center.

3.2 SMS and QMS Integration

Vietnam Airlines develops a Quality Management System (QMS) in compliance with CAAV requirements and its internal requirements on quality continuous improvement. The QMS is operated in parallel and ~~in~~ integrate with the Safety Management System (SMS). Thus, periodical safety audits are performed together with quality audits.

The so called "Safety – Quality audit program" of Vietnam Airlines include:

a) Internal safety-quality audits, and

b) External Safety-quality audit/Second party audit.

CHAPTER 4
SAFETY – QUALITY POLICY

4. Safety - Quality Policy

Reference documents

a) AC-01-003 4.1.1;
b) ICAO Doc 9859;
c) IOSA Standard Manual.

4.1 Vietnam Airlines Safety - Quality Policy

Safety and Quality are core values of Vietnam Airlines. We believe in delivering these values for our customers and stakeholders and maintaining a safe environment for our employees. The management and employees at Vietnam Airlines understand that customer trust is fundamental to the existence and development of the organization.

We are committed to:

a) Promoting safety culture towards a generative level, focusing on a "Just Culture" in which all leaders and employees must be accountable for their actions and, in return, are provided assurance that they will be treated in a fair manner following an incident or safety occurrence through the application of Vietnam Airlines' Behavior Definition and Implementation Guide of Just Culture; enhancing a continuous Learning Culture within Vietnam Airlines;

b) Comprehensively applying digital transformation in safety and quality; developing and applying a proactive SMS towards a predictive SMS which is based on statistical data analysis, and supports the open sharing of all safety-related information within the organization, encourages employees to proactively report occurrences, hazards, errors and safety related matters;

c) Proactively managing changes, identifying hazards and safety risk management in operations, maintenance and training activities to eliminate and mitigate associated risks;

d) Ensuring that each member of Vietnam Airlines shall abide by the safety and quality requirements and regulations to deliver on our promise and ensure continuous improvement of safety for our customers and employees;

e) Strictly and effectively applying safety and quality management systems as described in the "Safety Management Manual" and "Quality Manual", striving for the highest degree of safety standards in compliance with all aviation authority requirements and regulations; integrating safety into business strategies, processes and performance measures;

f) Providing necessary resources and conditions to implement the policies and achieve the objectives for safety and quality; continuously improving the management system, to create a reliable working environment with the highest level of organizational responsibility to meet customers' demand and expectation.

Safety and quality are the foundation of all activities of Vietnam Airlines.

4.2 Publishing and periodic review Safety - Quality Policy

a) President of Vietnam Airlines ensures that the Safety - Quality Policy is published and disseminated to each agency or unit and all employees of the company.

b) Safety - Quality Policy of Vietnam Airlines is periodically reviewed by the Leaders with frequency of at least once every 24 months.

c) The approved Safety - Quality Policy of Vietnam Airlines is shown in Appendix 4.1 of this manual.

4.3 Commitment to develop "Safety Culture - Just Culture"

a) Safety is top priority in the activities of providing aviation services of Vietnam Airlines. All officials and employees of the company are responsible for safety.

b) Commitment to develop "Safety Culture - Just Culture" has been reflected in the Safety – Quality Policy of the company. Staff at all level of Vietnam Airlines clearly understood and aware of safety responsibilities. We'll strive together to develop a "safety culture" with Vietnam Airlines identity.

Note: Safety culture is described in detail in Chapter 7 of this manual.

4.4 Measures of Vietnam Airlines to ensure the safety

To ensure safety as Safety - Quality Policy announced, Vietnam Airlines has methods to control all its activities. The following 04 factors shall be considered and monitored for each Vietnam Airlines operational process:

4.4.1 **Hardware**: including machinery and equipment

Vietnam Airlines has used young fleet of aircraft that always in compliance with airworthiness requirements from Aviation Authorities.

4.4.2 **Software**: The process

Vietnam Airlines has developed a system of SOPs accompanied with experience that meet the requirements of CAAV with the goal: safety - quality - efficiency.

4.4.3 **Environment:** Working Environment

Vietnam Airlines is aware of impacts of the environment to the company activities and we always try our best to minimize the impact of the environment and working conditions to the safety of Vietnam Airlines.

4.4.4 **Live-ware:** People involved in the operation.

a) Employees participating in the operation activities of the company are fully trained on the job, as well as on safety.

b) Vietnam Airlines understand that passengers are also an important factor involved in the common flight safety. Therefore, passengers onboard shall be provided with necessary safety information to understand and to cooperate with cabin crews to minimizing hazards in the cabin, the cabin environment and to reduce the effects of an accident.

c) Cabin safety information is provided to passengers through public media, in-flight magazines, instructions of cabin crews and safety cards on airplanes.

CHAPTER 5
SAFETY OBJECTIVES AND GOALS

5. Safety Objectives and Goals

Reference documents

a) AC-01-003 4.1.2;
b) ICAO Doc 9859;
c) IOSA Standard Manual.

5.1 Safety Objectives

In conjunction with the approved Safety - Quality Policy, Vietnam Airlines set the safety orientation and goals for all activities. These reflect all Vietnam Airlines' safety-related aspects, senior management commitments as well as safety results that Vietnam Airlines expect.

The safety objectives of Vietnam Airlines are to:

a) Ensure safety operation of all flights, no serious incidents and accidents, minimize incidents that is attributable to organizational factors;
b) Develop a completed safety management system includes fully functions: Reactive, Proactive, Predictive;
c) Develop a safety culture that defining Vietnam Airlines' identity;
d) Meet the highest safety requirements of the Vietnamese state safety programme (SSP), Aviation Authorities and Alliance.

5.2 Safety Goals

In accordance with the safety objectives as above, Vietnam Airlines identify basic safety goals in the period ahead as follows:

a) Ensure safety operation of all flights without serious incidents and accidents;

b) Develop safety management system following approved master plans;

c) Successfully build Non-Punitive Reporting Policy - “Just culture”.

5.3 The process of safety objectives and safety goals determination

a) Base on the updated safety objectives of SSP, results of monitoring and measuring Vietnam Airlines' safety management system, Vietnam Airlines' SRB will review and generate safety objectives for the next phase. The safety goals and objectives shall then be approved by President of Vietnam Airlines.

b) Every year, the SRB based on current results of safety level monitored by the safety management system (as described in chapter 10 of this manual) will review and issue safety goals of next year. The new safety goals SRB shall then be submitted to Vietnam Airlines' President and CEO for approval.

c) The approved safety objectives and goals will be publicized and distributed widely within the company and to the society.

CHAPTER 6

SAFETY ACCOUNTABILITIES AND KEY SAFETY PERSONNEL

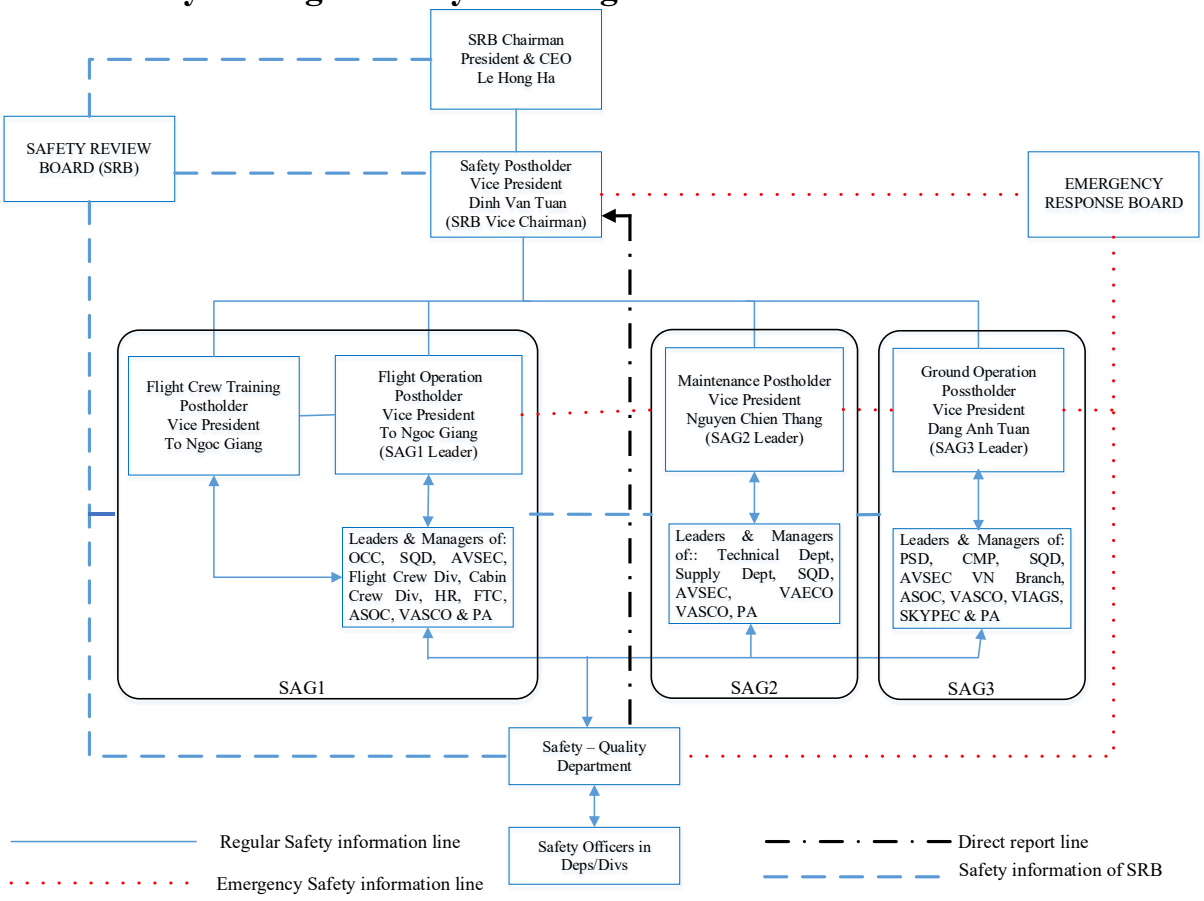
6. Safety Accountabilities and Key Safety Personnel

Reference documents:

a) ICAO Doc 9859;
b) VAR 12.060 (b) (5), 12.075 (b);
c) AC 01-003 4.1.3-4.1.6;
d) JCAB: Technical Standard KOKU-KAN-SANJI-613 and Regulations KOKU-KAN-SANJI-614;
e) IOSA Standard Manual.

Vietnam Airlines' safety management system defines lines of safety accountability throughout the operator's organization, including a direct accountability for safety on the part of senior management – VAR12.075(b)

6.1 Safety Management System Organizational Chart



To ensure consistency, other documents of the Flight Safety Document System must use the words and descriptions in this Chapter to describe the Vietnam Airlines' Safety Management System in the document.

6.2 Authorities, responsibilities and accountabilities on Safety

6.2.1 President & CEO

a) Has full authority over allocation of necessary human resources and financial issues, for the management and implementation of Safety with the highest standards in accordance with Vietnamese regulations;

b) Reviews and approves company's safety policy, safety objectives, goals; approves safety performance indicators.

c) Ensures all staff's awareness of implementing approved safety policy, safety objectives, goals and safety performance indicators;

d) Has final responsibility for all safety issues;

e) Be the Chairman of Safety Review Board.

6.2.2 Executive Vice President - Safety Postholder.

a) Be the responsible for the implementation and maintenance of an effective SMS and to manages.

b) Give directions to develop safety policy and standards, regulations and procedures to meet company policy, requirements of CAAV mentioned in VARs, aviation authorities, ICAO, IATA.

c) Monitor the implementation of safety policy, standards, regulations and procedures, ensure that safety management processes are effective and adequate.

d) Advise the President & CEO and assist other Vice Presidents on matters regarding safety management.

e) Monitor the effectiveness of mitigation actions.

f) Ensure safety policies and objectives are communicated, understood and implemented by employees.

g) Ensure to achieve the stated safety objectives and goals.

h) Develop successfully safety culture within Vietnam Airlines in order to have a safe, effective and reliable working environment in the company.

i) Perform other duties assigned by President & CEO.

6.2.3 Postholder of Flight Operation, Maintenance and Ground Operation - Executive Vice Presidents

a) Ensure that his staff always understand thoroughly and are aware of safety policy, safety objectives and safety performance indicators.

b) Develop the safety culture within his field in accordance with company safety culture identity.

c) Ensure that his staff receive safety training that is appropriate for their positions and meets safety requirements of company.

d) Ensure that his staff understand their safety responsibilities, Vietnam Airlines' safety reporting system, safety management processes appropriately especially processes that they are involved directly.

e) Ensure that corrective/preventive actions are taken effectively and in a timely manner.

f) Develop safety plans and safety projects; safety risk mitigation program and implements the approved safety plans, projects; monitors and oversees its performance.

g) Be a SAG's team leader.

h) Directing the internal safety investigation in the area of responsibility.

6.2.4 Flight Crew training Postholder - Executive Vice President.

a) Be mainly responsible to President and CEO on supervising crew training of Vietnam Airlines in compliance with requirements of CAAV mentioned in VAR, other aviation authorities, ICAO, IATA and VNA policy;

b) Direct to establish training policy and program for flight crew, cabin crew and flight dispatcher in compliance with related aviation authorities, aviation organizations and Vietnam Airlines's requirements;

c) Examine, supervise the compliance with training standards, requirements and training quality for Vietnam Airlines' flight crew, cabin crew, flight dispatchers and flight instructor/examiner ensuring that they could perform their assigned duties in a safe and effective manner;

d) Be responsible for controlling, examining and maintaining the quality of Aviation Training Organizations, training service providers including training facilities, training devices, course materials, instructors, training syllabus, etc. used for Vietnam Airlines' flight crew, cabin crew and flight dispatcher training;

e) Be responsible for corrective/preventive actions against findings during training audit/inspection;

f) Perform other duties assigned by President and CEO.

6.2.5 Safety – Quality Department

a) Functions:

SQD fulfills four main safety functions:

1) Advises President & CEO/Safety Postholder on safety management matters;
2) Assists Heads of divisions/departments with safety management matters;
3) Monitors safety performance of divisions/departments;
4) Manages and oversees company's safety reporting system, HIRA program.

b) Duties:

1) Proposes and recommends on safety policy, objectives and safety performance indicators; provides performance reports to Board of management for making decisions;
2) Gathers safety information from inside and outside sources of company; develops and manages safety database, safety library effectively;
3) Aggregates analysis on identified hazards, reassess safety risk of consequence of the hazards; issue safety recommendations if any to relevant divisions/departments;
4) Measures safety performance indicators and distributes the results to Board of management, SRB and related divisions/departments;
5) Assesses effectiveness of safety management processes; reports the results to Board of management for review; and monitors corrective/preventive actions;
6) Presides and/or participate safety investigation for safety occurrences;
7) Proposes and participates in developing safety training program, plan for each working position; provides safety specialists in order to train on safety for Vietnam Airlines and Vietnam Airlines' subcontractors when requested.
8) Presides the contents and issues Vietnam Airlines safety bulletins.

9) Safety – Quality Dept Director is responsible for supervising the implementation of regulations on preventing objects from falling from aircraft (Parts Departing from Aircraft - PDA). Heads of Departments/Divisions are responsible for fully overcoming recommendations during PDA implementation.

6.2.6 Safety Officers at Departments and Divisions

a) Appointed by the Leader, on behalf of Dept/Div about Safety.

b) Being the clues to maintain continuous connection with VNA SMS through the safety communication with VNA Safety – Quality Department.

c) Being responsible or carry out safety process at Dept/Div; monitor the safety performance at Dept/Div; directly report to Dept/Div Leader and VNA Safety – Quality Department.

6.2.7 Divisions/departments in the area of Flight Operation, Technical - Maintenance and Ground Operation

a) Responsibilities of heads of divisions/departments:

1) Ensure that the staff thoroughly understand and are aware of safety policy, safety objectives and safety performance indicators.
2) Ensure that the staff understand clearly and adequately their work and safety responsibilities, accountabilities; and they also have been trained on safety appropriate for assigned work.
3) Lead the development of safety culture within division/department in accordance with Vietnam Airlines safety culture.
4) Ensure effective implementation of safety risk management and risk mitigation within the Dept/Div; periodically report the results to the Postholder and Safety – Quality Department.
5) Implement the corrective/preventive actions, mitigation actions in timely manner and effectively.
6) Preside and/or participate SAG relating to his/her field upon assignment.
7) Preside and/or participate internal safety investigation when requested.

b) Vietnam Airlines staff

1) Thoroughly understand safety policy, safety objectives, safety performance indicators of Vietnam Airlines and those of their own division/department (if any); advise their managers on safety matters in order to improve the safety policy, safety objectives, safety performance indicators;

2) Thoroughly understand their own safety authority, responsibility and accountability associated with assigned functions and tasks;
3) Participate in the development of the safety culture within their division/department and Vietnam Airlines;
4) Actively identify safety matters, hazards in their work…; make safety report, hazard identification report and provide safety information to their managers and/or SQD;
5) Participate in safety training courses as required.

6.2.8 Persons authorized to sign agreement(s) with service providers for Vietnam Airlines

Ensure that Vietnam Airlines safety policy, safety goals and safety performance indicators related to scope of agreement must be considered and reflected in the agreement. Safety objectives, safety performance indicators can be considered as conditions of Service level of agreement (SLA) if necessary.

Note: *Vietnam Airlines can provide safety training for the subcontractor's staff on safety procedures before the commencement of an agreement.*

6.3 Safety Review Board

Safety Review Board (SRB) is the highest-level committee for safety monitoring. The SRB deals with macro level issues in relation to safety policies, resource allocation and safety performance monitoring.

SRB meeting is held every Quater with SRB VNA Group. However, in urgent cases or if necessary, SRB chairman convenes unsual meeting to review important safety matters.

6.3.1 Composition of SRB

a) Chairman: President & CEO

b) Acting Vice chairman: Safety Postholder

c) Secretary: Manager or higher management level of SQD

d) SRB's members:

1) Executive Vice Presidents
2) Directors of OCC, SQD, Technical Dept, Passenger Service Dept, Cargo Marketing Dept, Digital Transformation and Technology Dept, Corporate Communications and Branding Dept, Aviation Security Dept, ASOC, Flight Crew Division, Cabin Crew Division, VASCO, VIAGS, VAECO, SKYPEC and Pacific Airlines.

6.3.2 Responsibilities

a) Monitors the effectiveness of approved SMS implementation plan;

b) Monitors and ensures that corrective/preventive action is taken as planned;

c) Monitors safety performance in accordance with Vietnam Airlines safety policy and objectives;

d) Monitors the effectiveness of safety management processes; ensures safety management is considered and treated as fairly as another core business processes;

e) Monitors the effectiveness of the safety monitoring of subcontractor;

f) Ensures that appropriate resources are allocated to achieve stated safety objectives and safety performance indicators;

g) Gives strategic direction to the SAGs.

6.4 Safety Action Groups

Safety Action Groups (SAGs) are established according to fields to implement safety activities synchronously in accordance with safety objectives and safety management strategies of Vietnam Airlines.

6.4.1 Compositions of SAGs

a) Flight Operations Safety Action Group **(SAG 1)**

1) Team Leader: Executive Vice President in charge of Flight Operations
2) Members: Postholder for Flight Crew Training; Leaders and Managers responsible for safety from the following divisions/departments: OCC, SQD, Human Resources, Aviation Security, Flight Crew Division, Cabin Crew Division, Flight Training Center, ASOC, VASCO and Pacific Airlines.

b) Technical Safety Action Group (**SAG 2**)

1) Team Leader: Executive Vice President in charge of Technical
2) Members: Leaders and Managers responsible for safety from the following divisions/departments: Technical, Supply Managementt, SQD, Aviation Security, VAECO , VASCO and Pacific Airlines.

c) Ground Operations & Cargo Safety Action Group (**SAG 3**)

1) Team Leader: Executive Vice President in charge of Ground Operation and Services;
2) Members: Leaders and Managers responsible for safety from the following divisions/departments: Passengers Service, Cargo Marketing, SQD, Aviation Security, Vietnam Branch, ASOC, VIAGS, SKYPEC, VASCO & Pacific Airlines.

6.4.2 Duties

a) Oversees operational safety performance within the functional areas and ensures that HIRA programs are carried out appropriately with staff involvement as necessary;

b) Coordinates the resolution of mitigation strategies for the consequences of identified hazards and ensures appropriate arrangements for safety data gathering and employee feedback;

c) Assesses safety impact of operational changes;

d) Coordinates the implementation of corrective/preventive action plans and arranges meetings or briefings as necessary to ensure that all employees participate fully in safety management;

e) Ensures that corrective/preventive actions are taken in a timely manner;

f) Reviews the effectiveness of previous safety recommendations;

g) Oversees safety promotion and ensures that appropriate safety, emergency and technical training for staff is carried out that meets or exceeds minimum regulatory requirements;

h) SAGs meeting is held monthly and all SAG's activities are reported to SRB.

6.5 Emergency Response Board – ERB

a. The ERB has the function of helping the President & CEO to direct and organize the coordination in responding to emergency situations in the operation activities of the Vietnam Airlines; directly command the Departments/Divisions to carry out emergency response in accordance with the Vietnam Airlines' regulations.

b. The ERB as the function of advising and assisting the Board of Directors and the President & CEO in formulating regulations, policies and standards in response to situations of serious aircraft accidents and incidents with casualties of Vietnam Airlines.

c. The ERB operates under the direct direction of the Emergency Response Steering Committee of Vietnam Airlines.

d. ERB operates according to the provisions of the Vietnam Airlines' Emergency Response Manual.

CHAPTER 7
SAFETY CULTURE – JUST CUTURE

7. Safety Culture

Reference document:

a) ICAO Doc 9859;

b) IOSA Standard Manual.

7.1 Safety culture of Vietnam Airlines

7.1.1 Description

Safety Culture in an organisation can be described as the way in which it conducts its business and particularly the way it manages safety.

A safety culture encompasses the commonly held perceptions and beliefs of an organization's members pertaining to the public's safety and can be a determinant of the behaviour of the members.

A healthy safety culture relies on a high degree of trust and respect between personnel and management and must therefore be created and supported at the senior management level. Every individual is responsible for the organization's safety.

A safety culture cannot be effective unless it is embedded within an organization's own culture.

A healthy safety culture is described as follows:

- Continuous improvement in safety performance;
- Actively seeking safety information;
- Effective implementation of hazard identification and risk management;
- A healthy safety culture actively seeks improvements, vigilantly remains aware of hazards and utilizes systems and tools for continuous monitoring, analysis and investigation.

7.1.2 Safety culture consists of five elements:

a) Informed culture: In an informed culture, the organization collects and analyses relevant data, and actively disseminates safety information to staff.

b) Reporting culture: A reporting culture means a culture enviroment where people have confidence to report safety concerns without fear of blame. Employees must know that confidentiality will be maintained and that the information they submit will be acted upon.

The effectiveness of the reporting system depends on the continuous source of information provided by employees in the organization

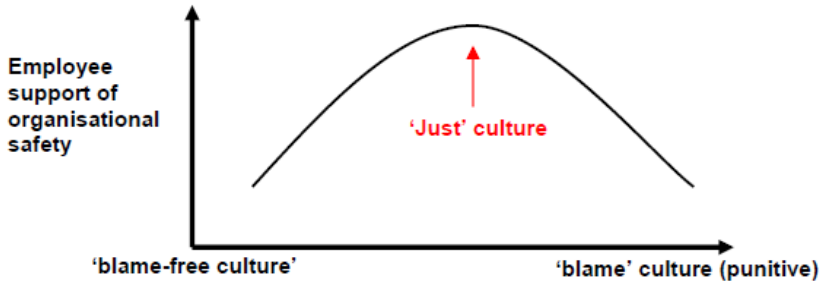
Reporting culture is one of the criteria for assessing the effectiveness of a safety management system.

c) Learning culture: A learning culture means that an organization is able to learn from its mistakes and make changes. Staff is updated on safety issues and incidents outcomes so that everyone learns the lessons.

d) Just culture:

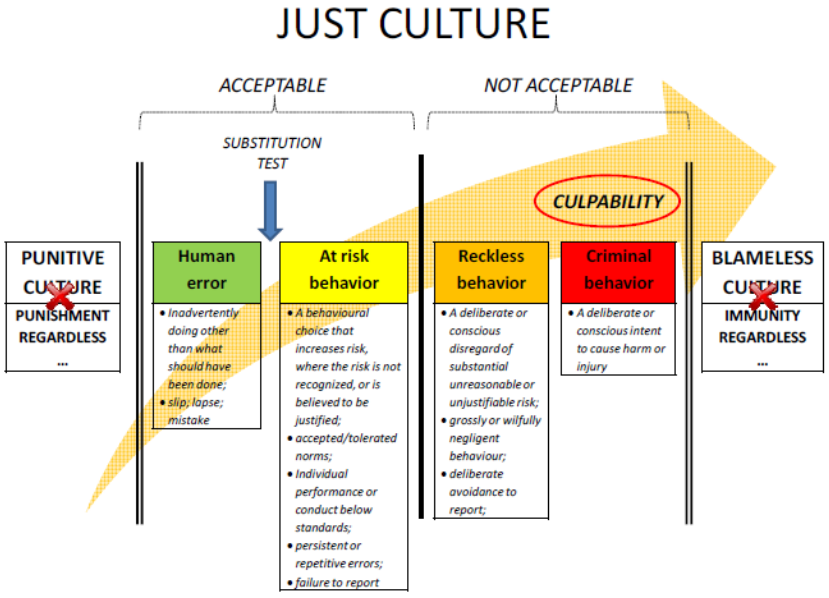
A just culture is a culture in which employees must be accountable for the actions and, in return, are provided assurance that they will be treated in a fair manner following an incident or accident".

1) Just Culture graph:



The 'Just Culture line' is indicated as the balance between 'blame-free culture' and punitive culture

- In a punitive culture:
  + Employee will not report safety-related information for fear of retribution;
  + Lessons cannot be learnt and system improvement cannot be made.
- In a blame-free culture:
  + No accountability, employee lack responsibility for their behavior



2) Acceptable & Unacceptable behavior

Behavior	Definition	Determination	Management Action
Human Error	Inadvertent actions encompassing errors of commission and omission where reasonable care can be demonstrated	Acceptable	Accept – seek system improvement and share lessons learnt
At-Risk Behavior	Actions taken which increase risk where the risk is not recognized or mistakenly believed to be justified; situational optimization; 'drift' from rules and procedures	Acceptable	Re-education/further training for employee on need to engage in safe behavioral choices; test system – is this normative behavior within organization?
Reckless Behavior	Actions representing deliberate and unjustifiable risk; gross negligence	Unacceptable	Disciplinary Procedures
Malicious Intent	Intentional, wilful violations to cause harm; dishonesty	Unacceptable	Disciplinary Procedures

3) Benefits of having Just Culture

- Increased reporting by employees;
- Opportunities for proactive feedback from frontline staff;
- Clearer understanding of management expectations;
- Improved performance;
- Insight into 'normalized' behaviors.

e) A flexible culture: is the ability to adapt to the change requirements and respond appropriately and timely to hazards.

7.1.3 Elements affecting the safety culture

a) **Organizational culture**

Refers to the characteristics and safety perceptions among members interacting within a particular entity. Organizational value systems include prioritization or balancing policies covering areas such as productivity versus quality, safety versus efficiency, financial versus technical, professional versus academic, and enforcement versus corrective action.

b) **Professional culture** differentiates the characteristics of particular professional group. Through personnel selection, education, training, on-the-job experience and peer pressure, etc., professionals tend to adopt the value system and develop behaviour patterns consistent with their peers or predecessors. An effective professional culture reflects the ability of professional groups to differentiate between safety performance issues and contractual or industrial issues. A healthy professional culture may be characterized as the ability for all professional groups within the organization to collaboratively address safety performance issues.

c) **National culture** differentiates the characteristics of particular nations, including the role of the individual within society, the manner in which authority is distributed, and national priorities with respect to resources, accountabilities, morality, objectives and different legal systems. From a safety management perspective, national culture plays a large part in determining the nature and scope of regulatory enforcement policies.

7.1.4 Promotion and assessment of a safety culture

The effectiveness of a safety culture can indeed be measured and monitored through the use of tangible metrics. In a mature safety culture environment, it can be anticipated that organizations may be in a position to introduce a mechanism to conduct an internal organization safety culture (OSC) assessment and promotional schemes *(An illustration of a possible sector-specific OSC/ORP assessment checklist is provided in Appendix 7.1.4).*

7.1.5 Develop Vietnam Airlines's safety culture

Safety Culture of Vietnam Airlines can be seen as:

a) All employees at all levels of Vietnam Airlines have responsibility to act in accordance with their functions and positions on safety issues, Vietnam Airlines encourages the participation of organizations and individuals in the safety management processes;

b) Employees at all levels of Vietnam Airlines has responsibilities to understand and actively participate in company's safety management process.

1) Accountable manager and nominated post holders of Vietnam Airlines take a leading role in developing an active safety culture within Vietnam Airlines organization. Commitments of Leaders are standard basis of Vietnam Airlines's safety culture.

2) Vietnam Airlines leaders are responsible for creating a reliable working environment where individuals can trust to report safety issues. Encourage two-way public information between management and staff. Effectively implement non-punitive reporting policy. Ensure all employees will be trained on safety culture. Performing the assessment of safety culture. Ensure the voluntary reporting system operates in accordance with the non-punitive reporting policy.

3) All members of Vietnam Airlines are responsible for thorough understanding of safety culture of the company. Each member is aware of the individual role in the safety assurance, participates into the company's safety management process and actively provide safety reports.

7.1.6 Develop Vietnam Airlines' Just Culture.

a) For Aviation Regulators

1) In close cooperation with the aviation stakeholders, develop and implement regulations that foster an open reporting system in line with the principles of just culture.
2) Clearly define the definitions of acceptable and unacceptable behavior within the legal framework and promote awareness.
3) Provide legal framework that prevent unjust, unwarranted, or inappropriate disciplinary proceedings for incidents and accidents which were not caused as a result of reckless behavior or gross negligence.
4) Facilitate the interfacing of just culture with the investigation process and the judiciary system.
5) In close coordination with ICAO develop regional safety programs to ensure a regionally consistent implementation of just culture regulations.

b) President & CEO

1) Provide company Safety vision, Just Culture policy and demonstrate a commitment to safe, reliable delivery of high quality care and establish a sense of urgency around reducing risks to staff and customers.
2) Ensure that Just Culture and safety initiatives are provided with the resources and priority necessary for successful implementation.
3) Involve and coordinate leader participation: E.g.: human resources, risk/quality management, operational functions and address the barriers and conflicts that inevitably arise.

c) VP – Safety Director & Safety - Quality Department

1) Develop, promulgate a Just Culture implementation plan for the organisation.
2) Educate, provide Just Culture training to leadership teams and management staff.
3) Develop 'Train the trainers' programs to allow key management personnel and Just Culture 'champions' the ability to provide training for other employees.
4) Conduct safety culture survey and perform GAP analysis.

5) Establish clear behavioural and performance expectations, aligning reward, risk management and disciplinary systems to support company safety policies.
6) Incorporate risk analysis into the organisation's business strategy, establishing organisational and system-wide risk reduction goals and system changes where necessary.
7) Ensure sustainable improvement by creating a strong culture that learns from errors.
8) Provide user-friendly reporting tools to employees and feedback.

d) Departments/Divisions Directors

1) Be conversant with the just culture philosophy and maintain a thorough working knowledge of how to apply just culture following an incident, accident or other safety-related event.
2) Promote just culture to employees.
3) Establish and maintain effective communication channels with the safety department − Investigating the source of errors and at-risk behaviors − Turning events into an understanding of risk.
4) Deploy the Behavior definition and implementation guide defined in Item 7.4 to all Departments/Divisions
5) Facilitate and enforce safety actions

e) Vietnam Airlines' Employees

1) Have a responsibility to proactively identify and report any threats and/or hazards which are affecting, or have the potential to affect, the organization.
2) Reporting errors and hazards.
3) Must understand the differences between acceptable and unacceptable behavior.
4) Have a responsibility to follow procedures and make safe choices that are aligned with organizational values.
5) Communicate any SMS process shortcomings to the applicable operating Division and/or Department Managers and help to promote company's safety policy.

7.2 Non-Punitive Reporting Policy (Just Culture)

7.2.1 Purpose

a) Protect safety information sources;

b) Encourage staff (including staff of Vietnam Airlines'service providers) in reporting all safety concerns to the management.

7.2.2 Contents of Non-Punitive Reporting Policy

a) Vietnam Airlines develops a Safe Culture environment in which employees and customers are encouraged to report safety information to leaders without fear of blame.

b) All employees are aware that Vietnam Airlines will not discipline any individuals who actively provide useful safety information relating to safety. However, this policy does not apply to deliberate actions and unacceptable or severe consequences

c) Vietnam Airlines commit to responding to reports from individuals providing information that is conducive to the company's safety. The identity of the reporter will be protected and the reported information will be considered and handled appropriately.

7.3. Vietnam Airlines' policy on handling unsafe behaviors

7.3.1 Types of unsafe behaviors

a) Error: is defined as an action or inaction by an operational person that leads to deviations from organizational or the operational person's intentions or expectations.

b) Negligent conduct: A behavior that is under the requirements of the task as a result of the improper application of skills and knowledge to work that has caused damage to the person or property. Persons who act negligently will be liable for any damages caused.

c) Reckless conduct: Described when a person has made a conscious effort to risk that the conduct is likely to result in undesirable damage. Neglect is a deliberate deliberate act.

d) Intentional violation: is defined as **"**a deliberate act of wilful misconduct or omission resulting in a deviation from established regulations, procedures, norms or practices.

7.3.2 Defining the boundery of unacceptable behavior: To define the boundaries between the levels of violation to take appropriate measures.

Below is an illustration of the boundary between violations. For violations due to errors (not intentionally caused) will be handled according to the company regulations and policies. Intentional and gross negligence will be dealt with in accordance with the law.

Picture 7.3.2 Defining the boundery of unacceptable behavior

7.3.3 Determining culpability on individual cases:

In order to decide whether a particular behaviour is culpable enough to require disciplinary action, a policy is required to decide fairly on a case by-case. Types of disciplinary policy are described below:

a) **Disciplinary decision making based on the consequences** - focus on the outcome (severity) of the incident: The more serious consequences are, the more likely the person is to be reprimanded. However, discipline can only control intentional behaviors to minimize subjective errors but can not control unintentional errors

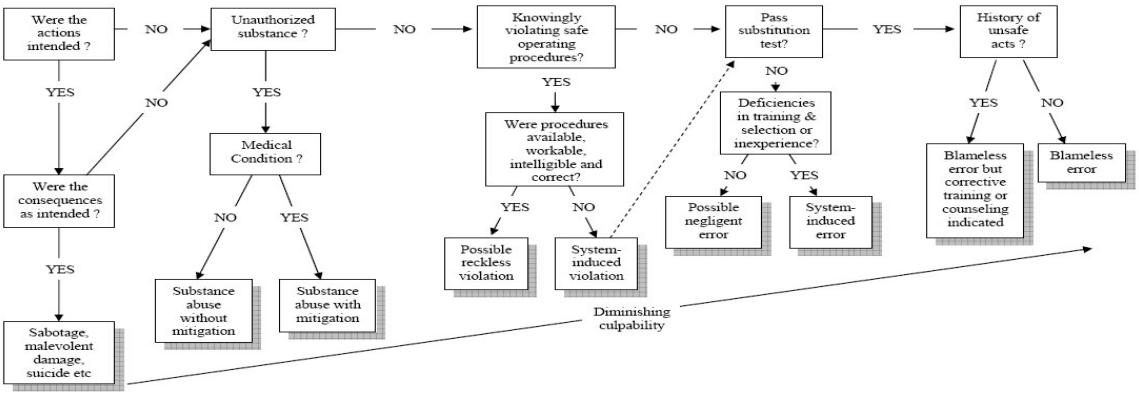
b) **Discipline decision making base on company's regulations:** For potentially dangerous occupations, there are safety regulations in the course of performing the tasks. When these regulations are violated, disciplinary decision will be considered according to company rules.

c) **Risk-based disciplinary decision making:** This method considers the intent of an employee with regard to an undesirable outcome

d) **Reason's Culpability Decision Tree -** displays a decision tree for helping to decide on the culpability of an unsafe act. The assumption is that the actions under supervising have contributed to an accident or to a serious incident. There are likely to be a number of different unsafe acts that contributed to the accident or incident. Determining violation includes five stages:

1) **Intended act**: The first questions in the decision tree relating to intentional action, and if the intended consequences are likely to be offenses and will be handled in accordance with the law.
2) **Under the influence of alcohol or drugs:** Known to impair performance at the time that the error was committed. Performing task under affected by stimulants are all handled as prescribed
3) **Violating the operating procedures**: This case should review adequacy, effectiveness and availability of regulations and procedures. If the answer is "yes", that is possible reckless violation. If the answer is "no", that is system induced violation.
4) **Substitution test**: Review the same violation that happened before to another individual have made the same error under similar circumstances. If not, considering deficiencies in training or inexperience, if the violator has been trained and has work experience, the wrongdoing will be identified due to error. If the error is due to lack of training or work experience, system induced error is considered.
5) **Repetitive errors**: Review the history of unsafe act against an individual. If the error is repeated, the individual is innocent but re-

training is necessary. If the error has not occurred to the individual, the offense is innocent.



Picture 7.3.3 Reason's Culpability Decision Tree

e) Reason's Foresight test: The type of question that is asked in this test is:

1) [a1]Performing work under the influence of a drug or substance known to impair performance.
2) Distracted while performing work
3) Fatigue due to work pressure.
4) Use of equipment under safety standards or no longer appropriate

If the answer is 'yes' to this question in any of the following situations, the person may be culpable. However, in any of these situations, there may be other reasons for the behaviour, and thus it would be necessary to apply the substitution test.

7.4. Behavior definition & implementation guide:

7.4.1. Behavioral definitions and implementation guide (Definition) issued by the President & CEO is attached to the Decision No. 205 / QD-TCTHK-ATCL dated February 25, 2019

a) Purpose:

1) Provide a clear definition of acceptable and unacceptable behavior.
2) Establish legal framework to prevent unfair sanctions for accidents, incidents that are not caused by intentional or irresponsible behavior.
3) Facilitate the development of Informed Culture, Report Culture, Learning Culture and Flexible Culture.

b) Scope of application: applied in all activities of Vietnam Airlines.

c) Subjects of application: all Employees, Departments/Divisions of Vietnam Airlines.

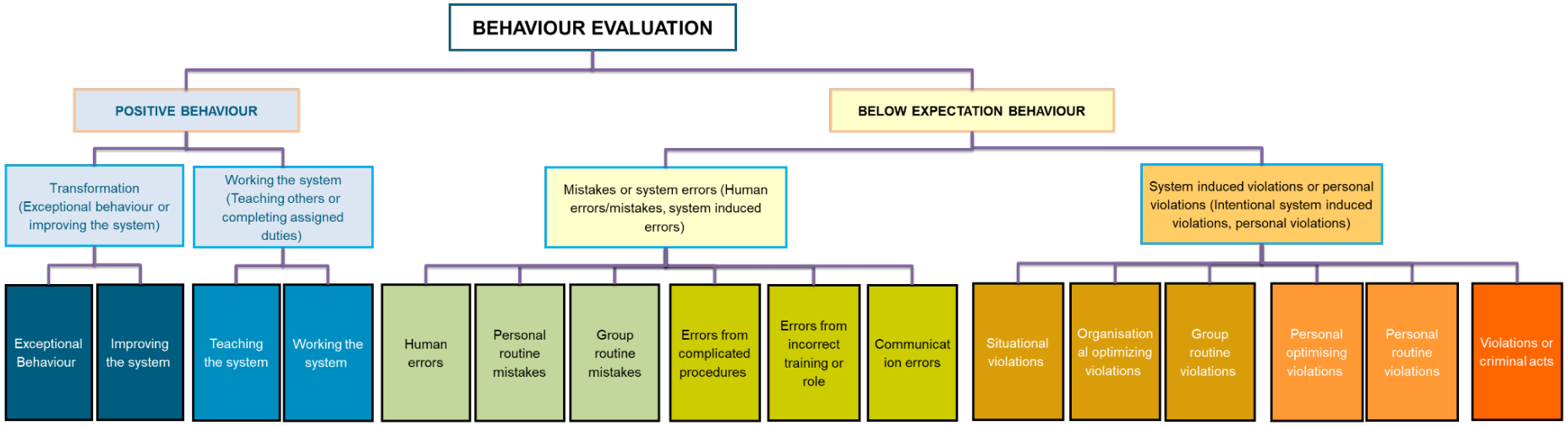
d) Responsibilities:

1) SQD:
   - Updates the policies of the Definition into SMSM;
   - Periodically review and update the Definition set in accordance with the current Safety Management activities of Vietnam Airlines;
   - Monthly report to SRB about the results of behavior evaluation at Departments/Divisions;
   - Implementing the monitoring and supervision the deploying for application of the Definitions at Departments/Divisions.
2) Departments/Divisions:
   - Develop, update and implement internal regulations on behavior and behavior evaluation to all Employees;
   - Monthly report on implementation results to SRB Secretary (SQD); Request to revise the Definition.

e) Appendixes:

1) Appendix 7.4.1 Below expectation behaviour – Unintentional mistakes and system errors
2) Appendix 7.4.2 Below expectation behaviour – Intentional violations and reckless behaviour

7.4.2 Behaviour Evaluation.



CHAPTER 8
SAFETY DATA AND REPORTING

8. Safety data and reporting

Reference documents:

a) VAR12.075 (c) (1); Appendix 1 to 12.075; VAR part 19;

b) ICAO Doc 9859;

c) JCAB: Technical Standard KOKU-KAN-SANJI-613 and Regulations KOKU-KAN-SANJI-614;

d) IOSA Standard Manual.

8.1 Safety data and safety reporting system of SMS – Vietnam Airlines

a) Safety data and safety reporting system of Vietnam Airlines is designed to include different report types to ensure:

1) Collection of all safety data and information necessary for the most effective operation of SMS;
2) Provision of all necessary safety reports – results of core SMS processes – to all management levels of Vietnam Airlines; the SRB, CAAV and authorities relevant.

Figure 8.1 describes safety reporting and data of Vietnam Airlines SMS.

Figure 8.2 describes classification of input reports of Vietnam Airlines SMS.

Figure 8.3 describes classification of output reports of Vietnam Airlines SMS.

b) All safety reports are made and encouraged to be made on AQD forms and can be filled in either Vietnamese or English languages.

c) Vietnam Airlines uses the electronic safety reporting system (AQD), all staffs of Vietnam Airlines can access the address: https://sms.vietnamairlines.com or download "Mobile eReport (SMS)" and install Mobile eReports (SMS) application on mobile devices (iOS/Android smart phone, tablet) to make a safety report, Use VNA's email username and password.

d) In addition, eReport Forms are designed to facilitate the reporter on AQD system and listed in Annex 8.1 of this document.

e) The sender of the report through the AQD System will receive an automated response when the report is processed. - VAR12.075 (c) (1).

f) Flight data is the valuable safety data that are used to identify and predict potential hazards in flight operation. This safety information is obtained directly from aircraft QAR by VAECO engineers and is transmitted to Vietnam Airlines' server.

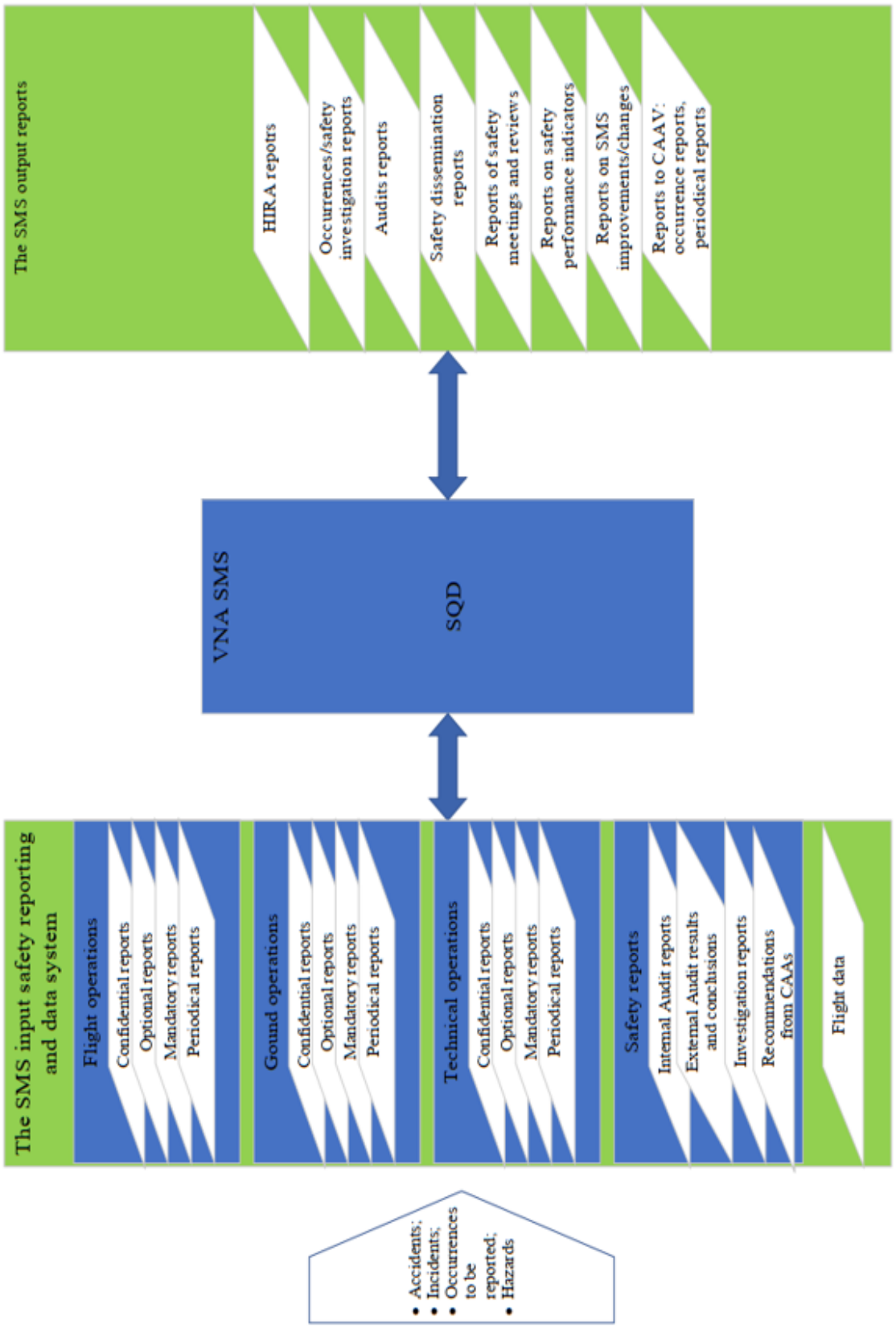


Figure 8.1: Safety reporting and data of VNA SMS

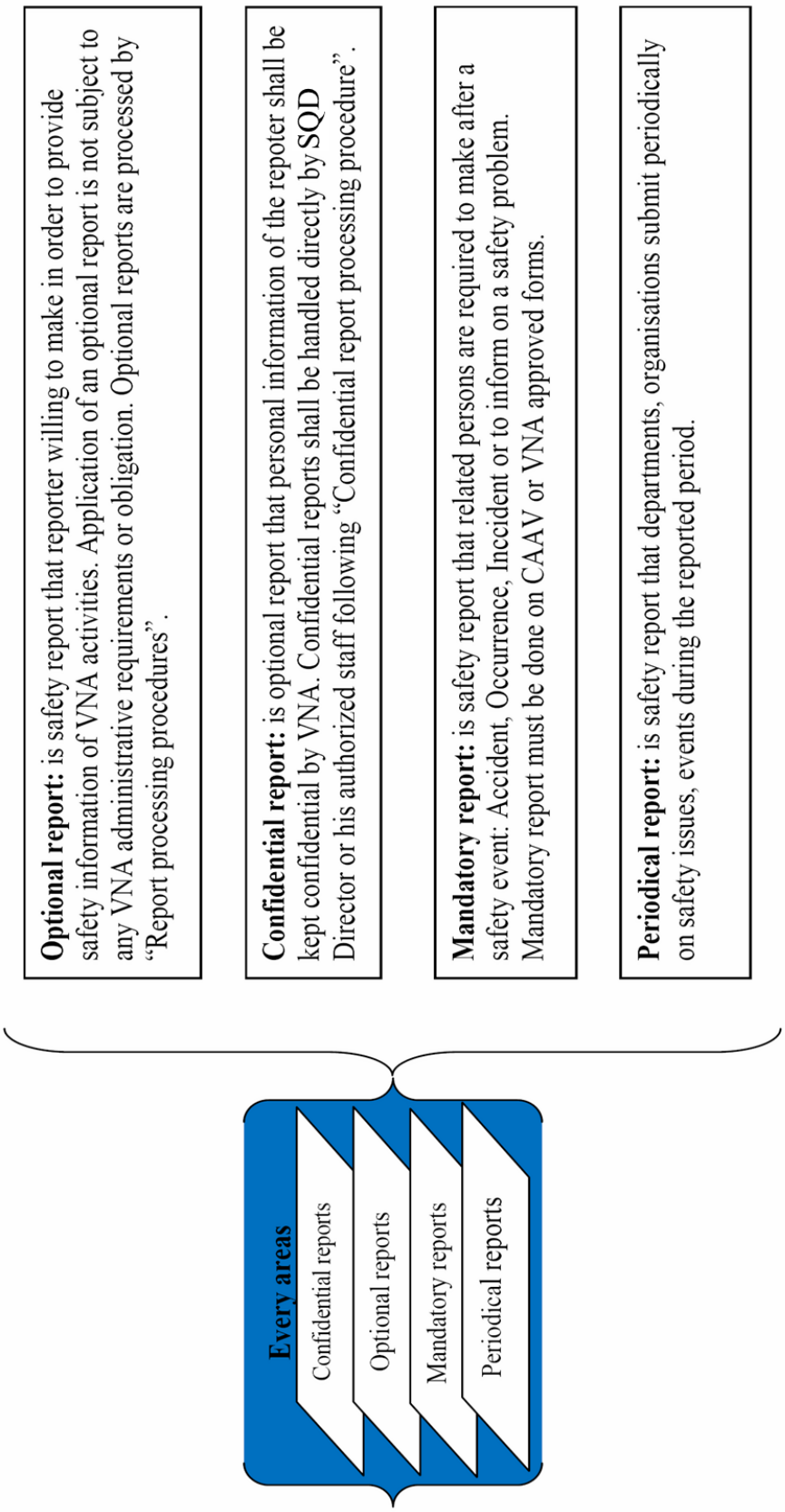


Figure 8.2: Classification of input reports of VNA SMS.

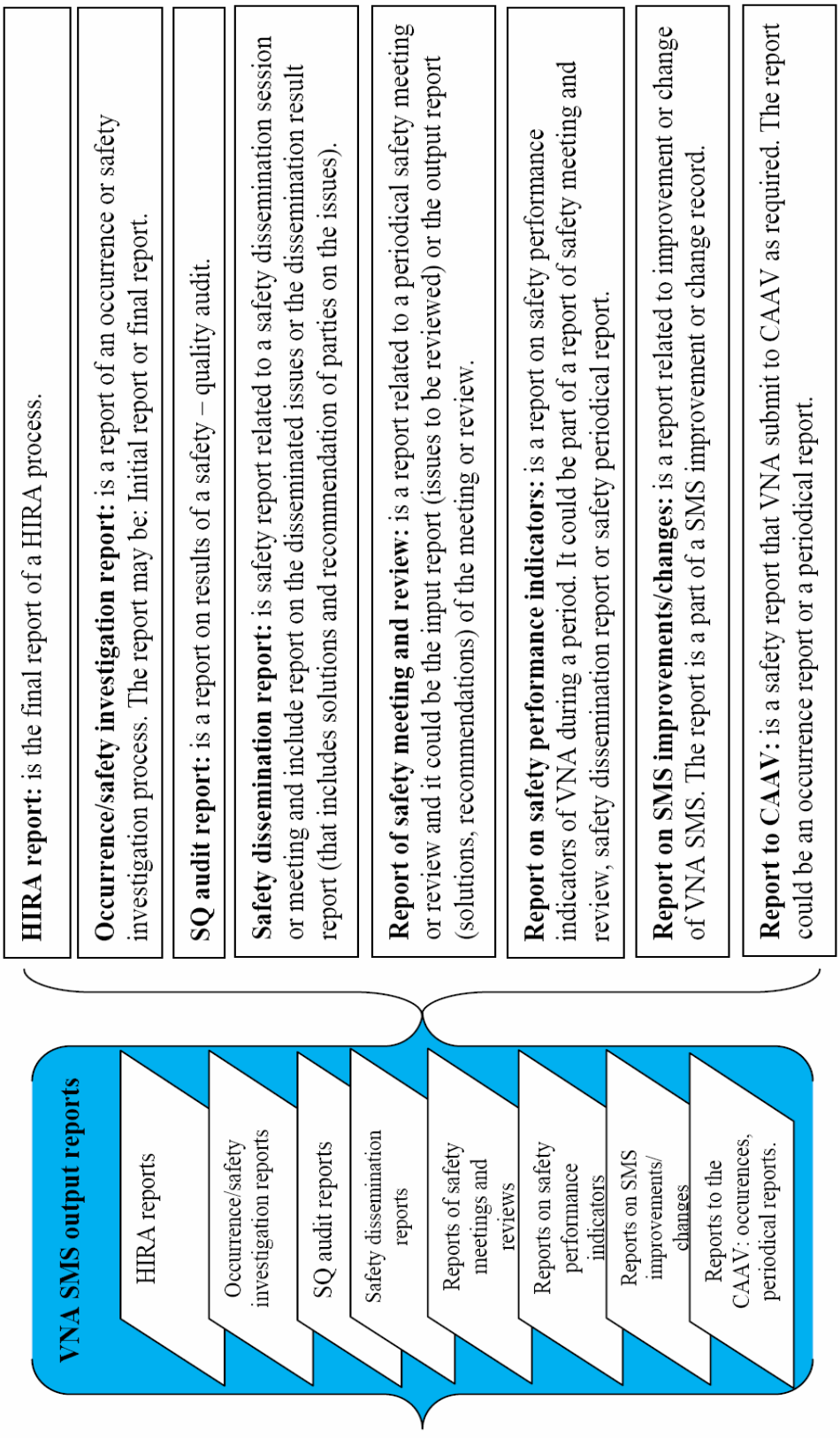


Figure 8.3: Classification of output reports of VNA SMS

8.2 Input reports for SMS

8.2.1 Safety reports – VAR 12.075(c)(1)

a) Mandatory reports

b) Optional reports

c) Confidential reports

d) Periodic reports

For Mandatory reports, optional reports, confidential reports, reporters can login the AQD system, use the eReport module, select the appropriate report form to make the report. eReports will be automatically send to the SQD when reporters click 'Submit".

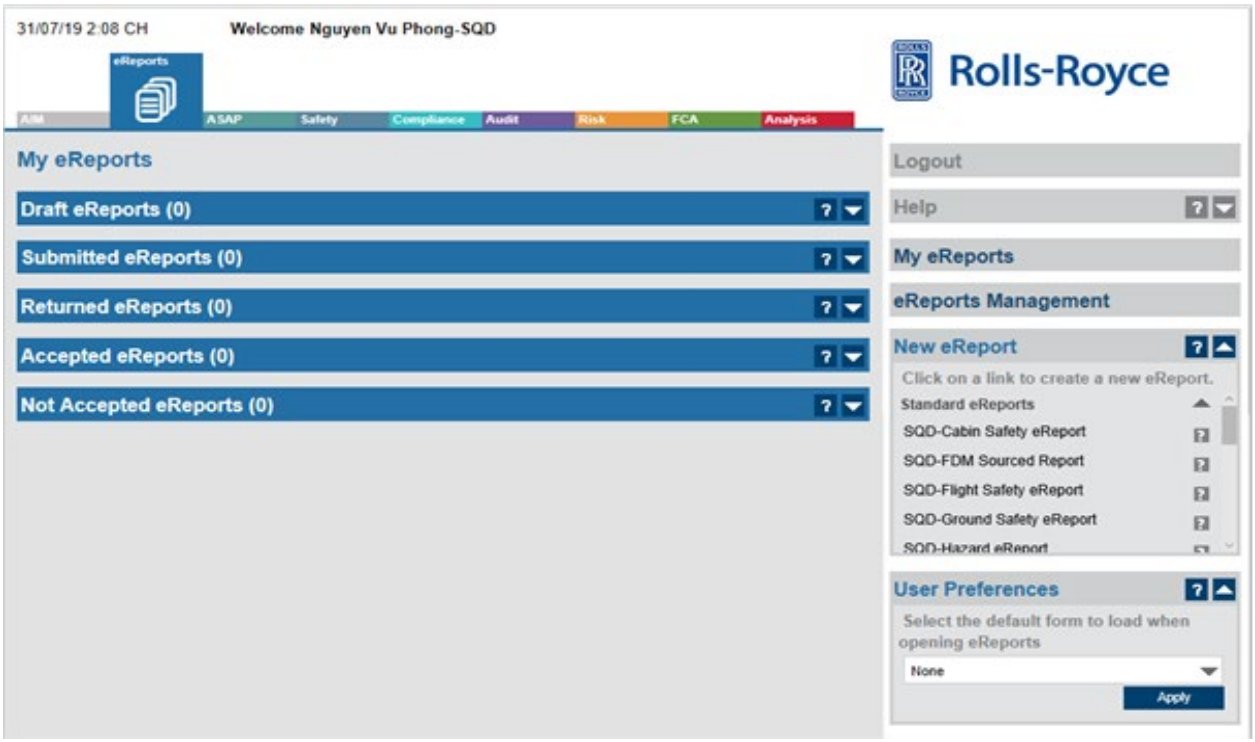


Figure 8.2.1 AQD software Interface

8.2.2 Mandatory occurrence reports

This part describes only general requirements for SMS input mandatory reports: Reportable occurrences; reporting official; Report forms and contents; Reporting time and mandatory report recipient.

Details of requirements, reporting procedure for mandatory occurrence reports in different areas of activities of Vietnam Airlines are specified in:

a) Flight Operation Manual – FOM, Chapter 11 and 13.

b) Maintenance Management Exposition – MME, Chapter 3

c) Cargo Operation Manual – COM, Chapter 11 and Chapter 7 Dangerous Goods Regulations Manual

d) Ground Operation Manual – GOM, Chapter 3 (For occurrences related to ground operation)

e) Item 2.24 Cabin Crew Operations Manual – CCOM,

f) Flight Dispatch Manual – FDM, Chapter 7

8.2.2.1 Reportable occurrences

A mandatory report must be raised and submitted upon an Accident, Incident or Occurrence that happens in operation, maintenance or service providing processes of Vietnam Airlines. These mandatory reporting safety events are specified in CAAV Mandatory Occurrence Reporting Scheme.

In addition to accidents, occurrences subjected to mandatory reports are listed in Appendix 8.2 of this manual.

8.2.2.2 Classification of Mandatory occurrence

Aircraft Accidents, incidents and events are divided into 05 levels:

a) Level A: Aircraft accident

b) Level B: Serious incident

c) Level C: High risk incident

d) Level D: Low risk incident

e) Level E: Occurrence

Details are in Appendix 8.2.3 of this manual. Classification is specified in Occurrence report (CAAV form 14A/B) section “Reporting organization”

8.2.2.3 Reporting official

a) Reporters are:

1) All staff of Vietnam Airlines involved in/witness/aware of accidents, incidents and occurrences in operational activities of Vietnam Airlines.
2) Departments/divisions involved in accidents, incidents and occurrences in operational activities of Vietnam Airlines.
3) Representatives of contractors.

b) All accidents, incidents and incidents must be initially reported by relevant Individual/Organization, immediately but no later than 01 hour after the Accident occurs and no later than 24 hours after the Incident/Occurrence occurs, to the CEO, EVP On Duty, Safety VP, OCC and Safety - Quality Department by all available means of communication and does not require the Reporter to perform accident, incident classification.
Aircraft's Flight Data must be sent to SQD immediately but not more than 02 hours by VAECO.

c) Preliminary reports of accident, incident and occurrence are made by related departments/divisions and sent to SQD.

d) SQD is responsible for classifying accidents, incidents, and occurrences, and for reporting to the CAAV. Within seven (07) calendar days, incidents and occurrences shall be reviewed by SQD and may have their classifications adjusted based on the results of internal safety investigations or clarifications.

8.2.2.4 Mandatory safety occurrence report when operating in Australia

According to regulation of Australia Transport Safety Bureau (ATSB), all safety occurrences, happen to VNA Aircraft(s) en-route or on ground in Australia, must be reported to ATSB as followings:

a) Reporter for initial report: Flight Crew, Dispatcher, ASOC and OCC.

b) Contact point in Australia:

1) Email: atsbasir@atsb.gov.au

2) Phone: 1800 011034 (in Australia) or +61 2 6230 4408

c) Safety – Quality Department is responsible for further reports to ATSB.

Table 8.2 Vietnam Airlines requirements on reporting official.

Item	Event to be reported	Reporting official	Reports within VNA		Report Processor	Report to CAAV	
			Initial Report	Preliminary Report		Immediate Notification	Initial Report
1	Aircraft accident (Level A)	All VNA staff, VNA Divisions and contractors	Immediately but no later than 01 hour.	No later than 24 hours	SQD	No later than 02 hours	No later than 24 hours
2	Serious incident (Level B)	All VNA staff, VNA Divisions and contractors	No later than 24 hours	No later than 24 hours	SQD	No later than 24 hours	No later than 48 hours
3	High risk incident (Level C)	All VNA staff, VNA Divisions and contractors	No later than 24 hours	No later than 24 hours	SQD	No later than 24 hours	No later than 72 hours
4	Low risk incident (Level D)	All VNA staff, VNA Divisions and contractors	No later than 24 hours	No later than 24 hours	SQD		No later than 72 hours
5	Occurrence (Level E)	All VNA staff, VNA Divisions and contractors	No later than 24 hours	Not later than 48 hours	SQD		No later than 72 hours

Note: Contact point at Safety - Quality Department for reporting:
+ Report via AQD https://sms.vietnamairlines.com (Use VNA email User name & Password to login);
+ Report by Email to sms.sqs@vietnamairlines.com;
+ Report by phone or SMS to SQD Director or Leader on Duty.

8.2.2.5 Report forms and contents

a) For mandatory reports, the following approved forms are used by Vietnam Airlines for SMS input reports:

1) VNA-Air traffic incident report (CAAV form)
2) VNA-CAAV Occurrence report (CAAV form)
3) VNA- Bird strike Report
4) VNA- Bird strike Supplement
5) SQD - Flight Safety Report
6) SQD - Cabin Safety Report
7) SQD - Ground Safety Report
8) SQD - Maintenance Safety Report
9) SQD - Hazard Report
10) SQD - FDM Sourced Report
11) VNA - Air Safety Confidential
12) VNA - Dangerous Goods Occurrence Report
13) VNA - Fatigue Report for Crew Member
14) SQD - Voyage Report
15) SQD - Autoland

b) Requirements for mandatory report contents:

1) Mandatory reports must be submitted in approved forms;
2) All reports must be written clearly, assure the honesty, adequacy and accuracy; and
3) Reports must be as detailed as possible;
4) Detailed guidelines of form's usage in FOM, COM, GOM, MME or related manuals must be referred to.

8.2.2.6 Reporting time and mandatory report recipients

Requirements on reporting time and recipients of mandatory reports are specified in table 8.2 and Item 8.2.2.3 b) of this manual.

8.2.3 Procedure for optional reports

a) All Vietnam Airlines staff and especially staff regularly work or involved directly in operational activities, ground operation activities or aircraft maintenance activities such as: Pilots, cabin crew, ground operation staff, maintenance engineers of Vietnam Airlines are encouraged to self-report violations of regulations; write voluntary reports on incidents/events, potential unsafety occurring during flight operation, maintenance, ground service activities and other concerns (i.e quality, security, operation…).

b) Vietnam Airlines also encourage others organizations and individuals to support Vietnam Airlines with safety information.

c) Optional safety reports can be submitted in free style forms. However, the reporters should specify name, organization and contact details.

d) The report should be made clearly and contain as much information as possible.

e) Captain's report is processed in accordance with procedure specified in FOM.

8.2.4 Confidential report

a) All Vietnam Airlines staff and individuals related can submit confidential safety report concerning safety issues, potential hazards in operation or human performance. The reports shall be processed so that the details shall be protected and kept confidential by Vietnam Airlines.

b) VNA use the AQD system to receive confidential reports. Report after removal of identity will be entered into the AQD system and processed as other safety reports.

8.2.5 Periodic safety report

8.2.5.1 Periodic safety report within VNA

Department/division within Vietnam Airlines which are members of SAGs must submit periodic safety reports on safety issues, safety statistical data to SQD before 4th day every month. However, if there is request of sending report earlier than that time, SQD deploy to department/division. Safety report must have minimum of the following contents:

a) Result of implementing conclusions of SRB/SAG in previous month;

b) Safety issue in month according to work scope of department/division;

c) Identify hazards and assess safety risk in month.

d) Propose safety recommendations.

8.2.5.2 Periodic reports to CAAV

Department/division within Vietnam Airlines also must send Periodic reports to SQD with contents defined by Vietnam Aviation Regulations, Appendix 1 of 12.075; Regulation on Aviation Safety Reports, Chapter III, Appendix XIII and designated by SQD. SQD is responsible to report periodically (monthly, quarterly and annually) to CAAV.

Note: Contents of periodical report to CAAV (report of fleet team management) in accordance with Appendix 1 of VAR 12.075 are specified in Appendix 8.4 of this manual – VAR12.075 Appendix 1

8.2.5.3 Periodical Report to IATA

VNA joins IATA Incident Data eXchange (IDX). Under the IDX program, SQD is responsible to submit incidents and occurrences report from flight operation, cabin operation, engineering and maintenance, ground handling operation in a designed format via IDX portal periodically which complies with IDX requirements.

8.3 Report processing procedures of SMS

8.3.1 Checking and classification of Reports

Once the safety event arises, the information will be reported by the staff on site. Reporter can use a pre-printed paper form or use the AQD's E-Report module to report the event.

All safety reports will be forwarded to the SQD when reporters click "Submit" on AQD. Safety officers at the SQD will review the report and decide whether to update the safety event reported in the database. The case will then be processed according to the appropriate procedures at Safety Flow Chart on AQD is in picture 8.4.

8.3.2 Processing of Reports

8.3.2.1 Reports of aircraft accident/Incident/Occurrence.

a) SQD shall collect all additional information and send an Immediate Notification to CAAV, President & CEO, Vice President on duty and Safety Postholder within 02 hours after accident, incident level B and C. The Immediate Notification includes the following information:

i) Type, nationality, and registration marks of the aircraft;

ii) Name of owner, and operator of the aircraft;

iii) Full Name of the pilot in command;

iv) Date and time of the accident/ incident;

v) Last point of departure and point of intended landing of the aircraft;

vi) Position of the aircraft with reference to some easily defined geographical point;

vii) Number of persons aboard, number killed, and number seriously injured;

viii) Nature of the accident, the weather and the extent of damage to the aircraft, so far as is known; and

ix) A description of any explosives, radioactive materials, or other dangerous articles carried.

Then, Initial Report to CAAV shall be made by Form CAAV 14A/B within 24 hours for the accident (Level A) and not more than 48 hours for Level B and 72 hours for Level C, D after the incident and occurrence.

b) Reports of Events (level E) stated in Appendix 8.2.3 of this Manual: SQD shall send the preliminary report to President & CEO and Safety Postholder and then, to CAAV within 72 hours after the event happened. Report shall be made by Form CAAV 14A/B within 72 hours after the occurrence.

8.3.2.2 Reports of Bird strike events

a) ASOC, Flight Crew, technical staff (VAECO) or station managers and representatives of Vietnam Airlines at the airports when a bird strike incident has been recorded must report immediately to SQD and the airport authority where an incident happened according to Form VNA-Bird strike Report on AQD.

b) Upon receiving the bird strike incident report, SQD shall report to CAAV with VNA-Bird strike Reporting Form and VNA-Supplementary Bird strike Reporting Form (CAAV Form).

8.3.2.3 Reports of using or under the influence of psychoactive substances

In the event that an employee is found to be using or under the influence of psychoactive substances while performing duties, the reporting procedure shall be as follows:

i) Within 12 hours from the time of detection, or upon receipt of the final result of a comprehensive psychoactive substance test (if required), the person who detected the case and/or the responsible unit shall report to the SQD via AQD;

ii) SQD shall report to the CAAV using the CAAV Occurrence Report form within the following 12 hours.

8.3.2.4 Reports of de-briefing of incidents

a) Departments' Reports of De-briefing of incidents will be sent to SQD within 20 days from incidents;

b) Departments/Divisions are responsible for clarifying the safety incidents/ events and sending the results within 07 days to SQD.

c) SQD is responsible to report to CAAV about De-briefing of incidents within 30 days from incidents level C, D and occurrence which contains the following information:

i) Additional information on necessary regarding to accidents and incidents have been reported;

ii) History of accidents and incidents in chronological order;

iii) Analysis, evaluation, findings and conclusions on causes of aviation accidents and incidents;

iv) Safety recommendations and corrective actions.

d) For the requirements of other aviation authorities, VNA will carry out the report on time.

8.3.2.5 Periodical Report to CAAV:

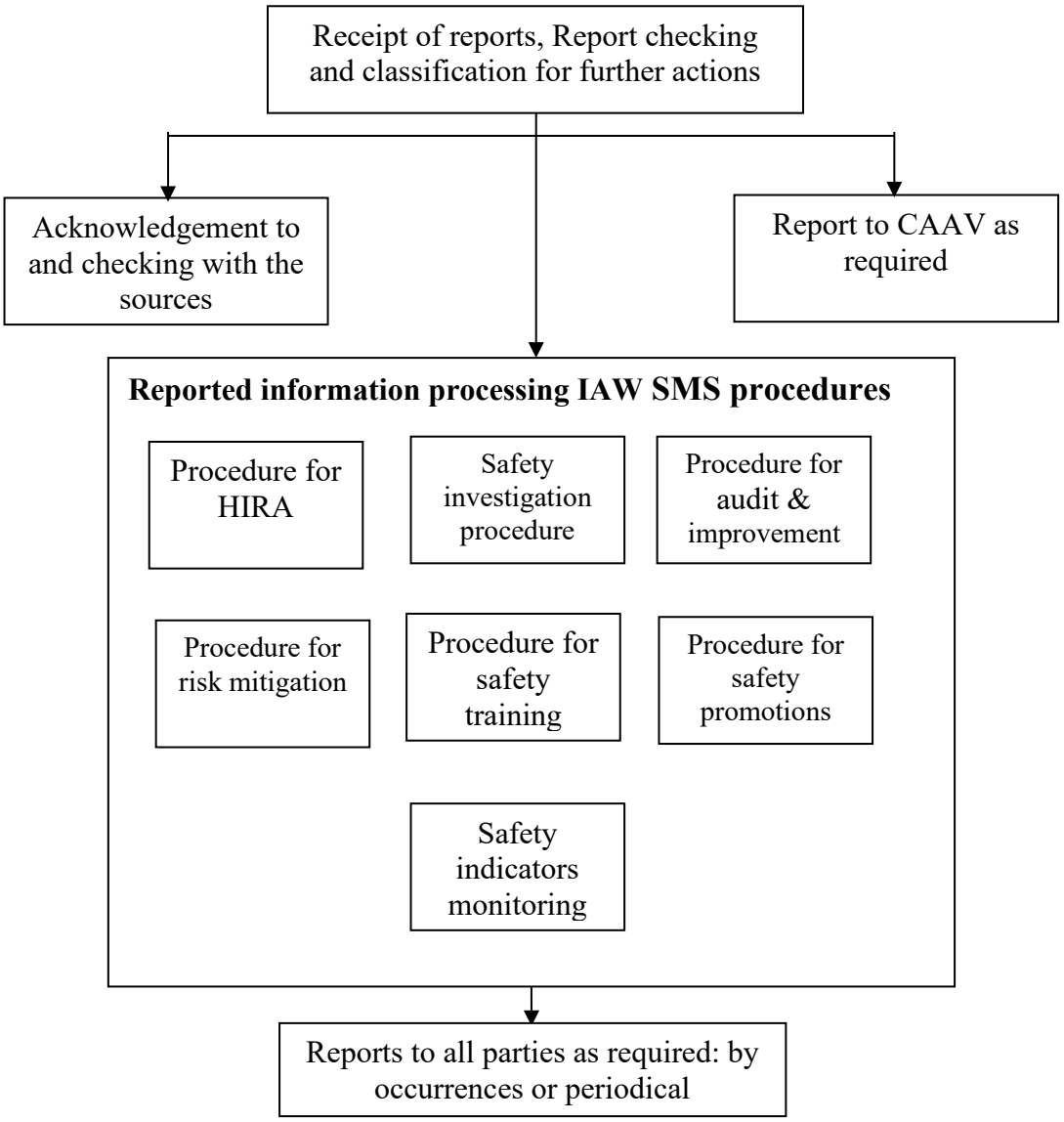
a) Periodical safety report (in accordance with CAAV mandatory reporting scheme)
   i) Monthly report: Before 17th each month;
   ii) Quarterly report: Before 17th of March, June and September;
   iii) Annual report: Before 17th of December;
   iv) Related departments/divisions report assigned contents to SQ Dept. before 17.00 of 15th each month.

b) Periodical report of fleet team management - Appendix 1 to VAR12.075:
   i) Monthly report: Before 05th each month
   ii) Related departments/divisions report assigned contents to SQD before 17.00 of 03th each month.

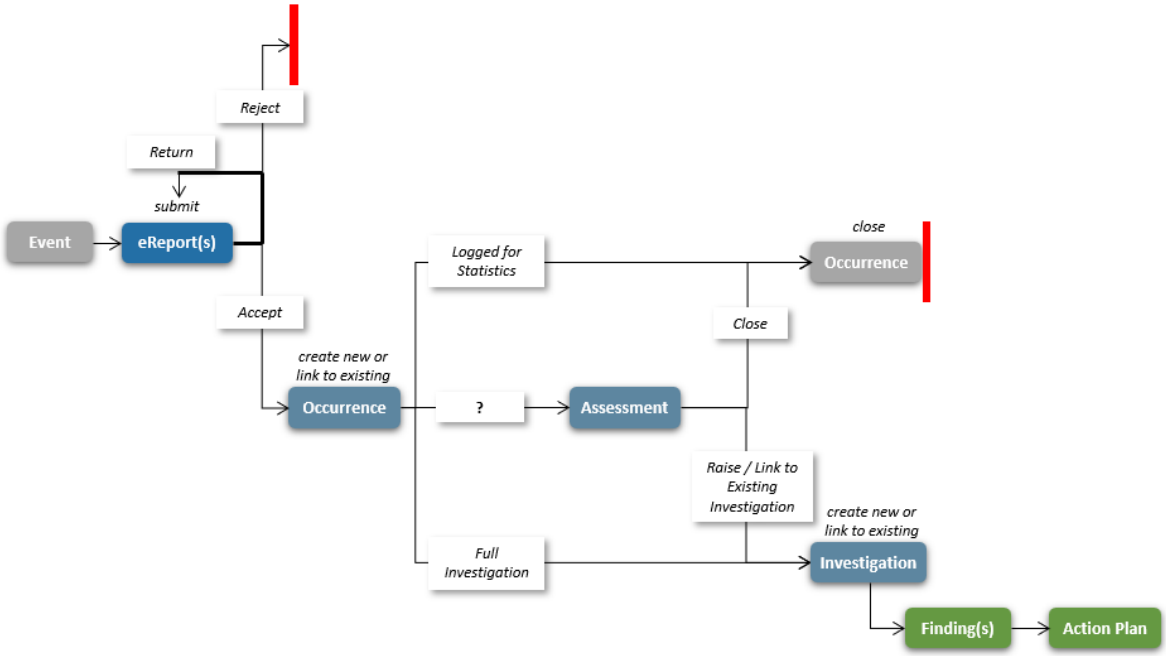
8.3.2.6 Further, information obtained shall be processed by SMS processes accordingly. Outputs of these processes are output reports of SMS described in Figure 8.1 and 8.3.

8.3.2.7 Other output reports of SMS shall be processed follows detailed next level procedure and relevant administrative procedures.

Figure 8.3. Procedures for safety report processing of SMS



Picture 8.4 Safety eReport Process on AQD



CHAPTER 9
SAFETY RISK MANAGEMENT

9. Safety risk management

9.1. Purpose

9.1.1. This chapter presents the safety risk management processes of Vietnam Airlines, ensuring compliance with the Vietnam Aviation Regulations (VAR), and with the standards and recommended practices issued by ICAO and IATA.

9.1.2. The objective of safety risk management is to provide the foundation for a balanced allocation of resources between all assessed safety risks and those safety risks where the control and mitigation are viable.

9.2. Application

9.2.1. The applicability of this chapter is consistent with the applicability defined in Chapter 3 of this manual.

9.2.2. Vietnam Airlines is committed to managing safety by ensuring that hazards and their associated risks in critical activities related to its services are controlled to an acceptable level (Refer to AC-01-003 4.4.1).

9.3. References.

9.3.1. ICAO Annex 19 Safety Management;

9.3.2. ICAO Doc 9859 Safety Management Manual;

9.3.3. VAR 12.075 Safety management system;

9.3.4. AC-01-003 Development of acceptable safety management systems;

9.4. Roles and Responsibilities

9.4.1. The President & CEO has full authority over the allocation of resources and is responsible for ensuring adequate financial support for the management of safety risks. The President & CEO also approves the safety risk tolerability levels for Vietnam Airlines.

9.4.2. SRB is responsible for providing strategic direction and guidance to the Safety Action Groups (SAGs) on the management of specific safety risks. The SRB also monitors the overall effectiveness of Vietnam Airlines' safety risk management processes.

9.4.3. The Vice President, as the designated Safety Post Holder, is responsible for overseeing and ensuring the effective implementation and continuous maintenance of safety risk management activities across Vietnam Airlines.

9.4.4. SAGs are responsible for implementing safety risk management in alignment with the directions of the SRB; evaluating the effectiveness and overseeing safety risk management activities conducted by departments and units; and proposing safety risk tolerability levels to the SRB and the President & CEO for approval.

9.4.5. Heads of departments and units are responsible for ensuring the effective implementation of safety risk management within their respective areas. They shall periodically report the performance outcomes of safety risk management to SAGs and or SRB, through the SAG Secretary and SQD. Furthermore, they are accountable for developing internal procedures aligned with Vietnam Airlines' safety policy and objectives, as well as for maintaining and managing all related safety risk management documentation.

9.4.6. SQD is responsible for supporting SAGs and SRB in overseeing safety risk management activities across departments and units. SQD also provides guidance and assistance to department and unit heads in the effective implementation of safety risk management.

9.4.7. All Vietnam Airlines personnel are responsible for reporting and providing safety-related information, including hazard identification reports, through the Safety Reporting System.

9.5. Definition

(Intentionally open)

9.6. Operation procedures

9.6.1. Overview of safety risk management methodologies:

There are three basic processes of safety risk management as following:

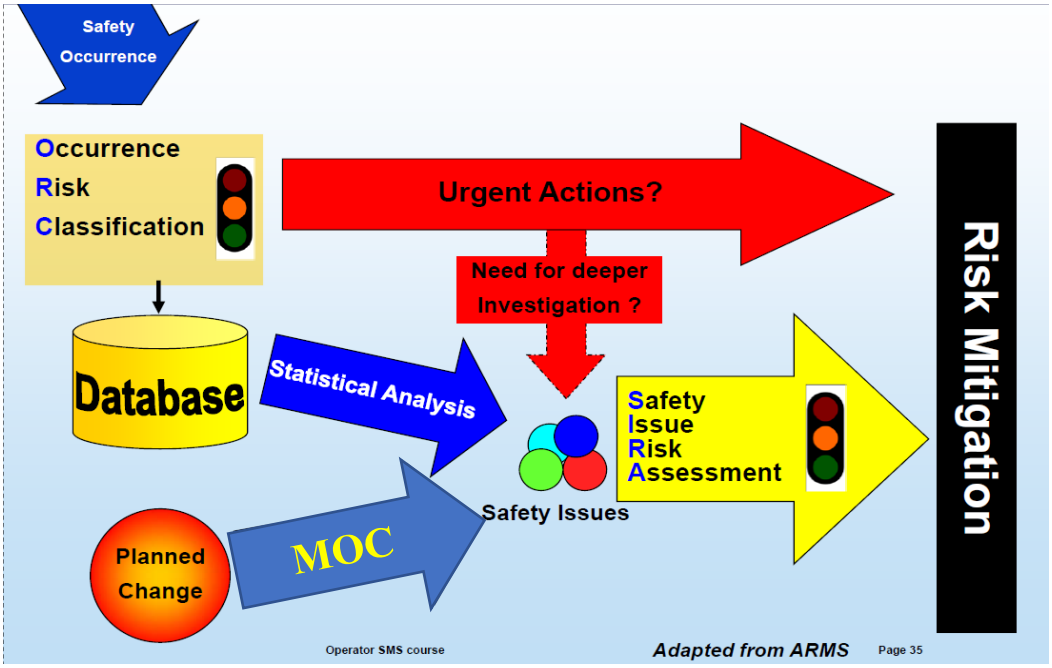


Figure 9.1. Process summary of Safety risk management

9.6.1.1. Occurrence Risk Classification - **ORC**: All reported safety events must be reviewed and assessed daily to determine their associated risk levels, enabling timely and appropriate actions and risk mitigation measures. This process should be carried out within an appropriate time frame, not exceeding two working days. ORC is a form of safety risk assessment based on reported events or occurrences. All such occurrences are recorded and maintained in the Vietnam Airlines safety database.

9.6.1.2. Safety Issue Risk Assessment- **SIRA**: By analyzing the safety database, any safety issues affecting Vietnam Airlines' operations will be identified. Once identified, Vietnam Airlines will conduct safety risk management on these issues using the Safety Issue Risk Assessment (SIRA) methodology.

9.6.1.3. Management of Change- **MOC**: Vietnam Airlines is subject to continuous annual development, where changes are inevitable. Such changes may also originate from external sources, including updates to VAR. During periods of change, new hazards and safety risks may arise.

In response, Vietnam Airlines shall promptly initiate the change management process, in which the Safety Issue Risk Assessment (SIRA) plays a central role.

9.6.2. Overview of safety risk management processes: - AC-01-003 4.4.3.1.B.

9.6.2.1. Safety risk management is one of the two core components of the Safety Management System. It encompasses three fundamental processes: hazard identification, safety risk assessment, and safety risk mitigation.

9.6.2.2. Flow chart of safety reisk management processes as follows:

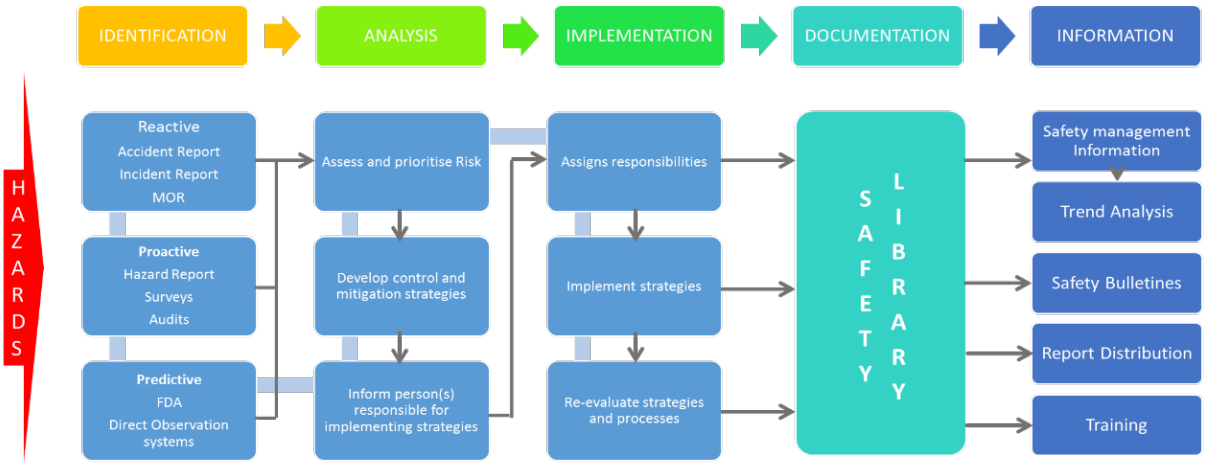


Figure 9.2. Flow chart of safety risk management processes

9.6.3. Sources of Hazard identification - AC-01-003 4.4.2.

9.6.3.1. The identification of hazards fundamentally relies on safety reporting conducted by personnel. This includes the reporting of safety-related information, events, occurrences, and incidents encountered during the course of normal duties.

9.6.3.2. Vietnam Airlines has established a Safety Reporting System to facilitate and encourage personnel to report and share safety-related information across all areas of operation. Detailed information on the Safety Reporting System is provided in Chapter 8 of this manual.

9.6.3.3. To ensure that safety information is timely, accurate, and comprehensive, Vietnam Airlines has been implementing a Non-Punitive Reporting Policy and continues to foster a positive safety culture. This topic is discussed in Chapter 7 of this manual.

9.6.3.4. In addition to the Safety Reporting System, Vietnam Airlines also utilizes other valuable sources for hazard identification - including Safety and Quality Audit Programs, safety surveys, safety studies, and internal safety investigations. These methods support reactive, proactive, and predictive approaches to hazard identification. Refer to AC-01-003 4.4.2.2 for further guidance.

9.6.3.5. Flight Data Analysis (FDA) is a proactive safety program that involves the systematic collection and analysis of flight data to identify operational risks and trends. By monitoring actual flight performance, FDA helps VNA detect deviations from standard procedures, enhance pilot training, and implement safety improvements. It plays a vital role in supporting a data-driven safety culture and is a key component of a SMS.

9.6.3.6. Line Operations Safety Audit (LOSA) is a proactive safety program that involves trained observers collecting data on normal flight operations during routine flights. The goal is to identify threats, errors, and undesired states in the operational environment, as well as the strategies used by flight crews to manage them. LOSA provides valuable insights into human performance and organizational factors, supporting continuous safety improvements and reinforcing a just culture within the SMS.

9.6.3.7. Vietnam Airlines has been curently implementing a comprehensive safety management software system known as AQD. Since 2018, AQD has been progressively deployed across all operational areas. The application of this system enhances the overall effectiveness of safety management and, in particular, strengthens safety risk management processes.

9.6.4. Occurrence risk classification process- **ORC**:

9.6.4.1. The main objective of the ORC is to serve as the initial screening point for all incoming safety data and to determine whether urgent action is required. This preliminary assessment is essential regardless of the risk assessment methodology applied. Ideally, the ORC should be conducted within one to two days of the event by SQD personnel using the AQD Safety module.

9.6.4.2. Once an occurrence has been entered into the AQD database, assigned SQD personnel shall classify the occurrence based on its associated safety risk. This classification is conducted using the Risk Assessment facility integrated within the AQD system.

9.6.4.3. Determine serverity of potential consequences related to the occurrence: The Severity is assessed across several dimensions. The highest rating among these dimensions determines the final severity level.

Severity	Descriptors	Quantitative Criteria	Levels
Catastrophic	Human	≥ 1 fatality (passenger or crew member).	A
	Aircraft	Total loss of aircraft or unrecoverable damage.	
	Reputation	Severe media crisis; major damage to corporate and national reputation.	
	Regulation	Major violation of international or national regulations; license suspension or operational ban.	
	Operation impact	Complete disruption of the flight network or core operations; severe financial losses.	
Hazardous	Human	≥ 1 serious injury (e.g. fractures, major burns, long-term hospitalization).	B
	Aircraft	Major damage; failure of critical systems; significant component replacement required.	
	Reputation	Significant reputational impact; widespread negative media coverage.	
	Regulation	High-level regulatory enforcement action; requirement for in-depth investigation or enhanced oversight.	
	Operation impact	Severe operational disruption (multiple flight cancellations/delays; major impact on primary routes).	

Severity	Descriptors	Quantitative Criteria	Levels
Major	Human	Minor injuries (e.g. cuts, sprains; no or short-term hospitalization).	C
	Aircraft	Moderate damage requiring maintenance but not affecting flight capability.	
	Reputation	Limited reputational impact (contained within internal channels or limited online discussion).	
	Regulation	Regulatory concern raised; request for detailed report or increased scrutiny.	
	Operation impact	Limited operational disruption (1–2 flights affected; manageable changes to schedule).	
Minor	Human	No injuries.	D
	Aircraft	Minor damage with no operational impact; routine repair or maintenance.	
	Reputation	No external reputational impact; internal awareness only.	
	Regulation	No regulatory breach, but lessons may be drawn.	
	Operation impact	No significant impact on operations; no flight delays or extra cost incurred.	
Negligible	Human	No consequences.	E
	Aircraft	No damage; no degradation of aircraft function.	
	Reputation	No impact on reputation.	
	Regulation	No legal or regulatory relevance.	
	Operation impact	No operational impact.	

Table 9.1 Quantitative Severity Assessment Table

9.6.4.4. Determine Likelihood of the occurrence:

Likelihood	Descriptors	Definition	Quantitative Criteria	Value
Frequent	Expected to occur	Likely to occur many times during routine operations.	1 occurrence per month per fleet/type/operation;	5

Likelihood	Descriptors	Definition	Quantitative Criteria	Value
			Known recurring issue; observed multiple times per year.	
Occasional	Likely to occur	Can be expected to occur occasionally.	1 – 12 occurrences per year per fleet/type/operation; Repeated but irregular maintenance issue; observed during audits.	4
Remote	Unlikely but possible	Could occur at some point during operations.	1 occurrence every 1–3 years; Rare system anomaly or human error with previous occurrence.	3
Improbable	Very unlikely	Not expected to occur under normal circumstances.	1 occurrence every 3–10 years; Incident that occurred once in a decade across the airline.	2
Extremely Improbable	Practically unheard of	May only occur in exceptional circumstances; no known recent history.	< 1 occurrence per 10 years (or never recorded); No record in company history or industry; theoretical scenario.	1

Table 9.2 Quantitative Likelihood Assessment Table

9.6.4.5. To ensure objectivity, consistency, and alignment with the organization's strategic safety objectives, all quantitative criteria used for assessing Severity and Likelihood must be formally approved by the designated authority (e.g., SRB or CEO).

9.6.4.6. These criteria shall be reviewed at least annually, or whenever there are significant changes in operational context, regulatory frameworks, or organizational priorities. Necessary adjustments shall be made to maintain the effectiveness and regulatory compliance of the risk assessment process.

9.6.4.7. As part of this process, the annual SRB's meeting shall include the review and endorsement of the risk assessment criteria as a standing

agenda item. This ensures that the criteria remain current, evidence-based, and aligned with the VNA's operational reality.

9.6.4.8. Documented approval and review outcomes shall be retained within the AQD.

9.6.4.9. Identify risk level: a combination of the severity and likelihood is risk index.

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

Table 9.3 Safety Risk Matrix

9.6.4.10. Risk Mitig toation Action strategies and Responsibilities by Risk Level:

Risk Level	Definition	Required Actions	Responsible
Intolerable	- Risk is unacceptable under any circumstances. - Immediate threat to safety	- Suspend affected operations immediately; - Initiate formal safety investigation (refer to SMSM chapter 11); - Issue urgent safety recommendations if needed; - Inform Civil Aviation Authority if required; - Implement corrective actions under direct	- Accountable Executive (CEO); - SQD; - SQD; - SQD; - All relevant.

Risk Level	Definition	Required Actions	Responsible
		supervision of top management.	
High	Significant risk requiring urgent mitigation.	- Initiate internal safety review or limited scope investigation; - Develop and implement corrective/preventive actions; - Issue department-level safety recommendations; - Closely monitor implementation progress.	- SQD; - Department relevant,; - SQD.
Tolerable	Risk is tolerable with control measures in place.	- No formal investigation required, but may conduct safety study or analysis; - Maintain mitigation measures; - Monitor via routine safety oversight; - Document learning outcomes for future prevention.	- SQD; - Divisions - SQD.
Acceptable	Risk is sufficiently low and no further mitigation is required.	- No investigation or recommendations required; - Document occurrence in AQD; - Include in trend analysis and monthly/quarterly safety reports when appropriately (for examaple: KPI).	- Operational divisions with data reporting to SQD.

Table 9.4. Risk Mitigation Actions and Responsibilities

9.6.5. Safety issue risk management (SIRA) - AC01-003 4.4.3.

9.6.5.1.1. The main purpose of data analysis is to identify Safety Issues affecting the current operation. Data analysis is about examining the safety database to identify trends and clusters of related events. It's a learning and discovery process from existing data.

9.6.5.1.2. VNA has been utilizing the AQD Analysis module to perform safety data analysis, with the relevant data stored in the database.

Note: To ensure proficient use of this essential tool, users are advised to refer to the "Rolls-Royce SMS Solution v2017.2 User Manual – Analysis" for guidance and implementation support.

9.6.5.1.3. In addition to AQD, VNA is also operating the Flight Data Analysis Program (FDAP) effectively. Full reference to this system can be found in Section 10.8 of this document. In addition, Vietnam Airlines also maintains several databases such as CoA, CMR, and the SAFA findings database, which are very useful for proactively identifying hazards and associated risks.

9.6.5.1.4. SQD's safety analyst, in coordination with SMEs from relevant departments, shall analyze the database to identify safety issues that require management attention.

9.6.5.1.5. SQD is also responsible for monitoring safety issues arising from SAGs/SRB meetings, investigations, and audits, and for generating relevant management reports.

9.6.5.1.6. Depending on the nature of the safety issues, SQD shall prepare a safety management report, which includes identified safety issues and proposed recommendations, and submit it to the SRB and/or SAG for consideration and appropriate action at their respective meetings.

9.6.5.1.7. During these meetings, based on SQD's proposals, the Chair of the SRB and/or SAG shall conclude and assign responsibilities for each safety issue.

9.6.5.2. Create Risk Review:

9.6.5.2.1. To implement the conclusions of the SRB and/or SAG meeting, the SQD Director or a designated representative shall initiate a Risk Review in the AQD Risk module as soon as possible.

9.6.5.2.2. An appropriate team shall be formed to conduct the Risk Review. This team may include safety risk coordinators, assigned SMEs, and observers.

Note: All of the above-mentioned safety issues shall be thoroughly reviewed and considered with due attention at the subsequent meetings of the SRB and SAG.

9.6.5.3. Conduct Risk Review:

The SMEs shall implement following steps:

9.6.5.3.1. Identify Hazards, Threats, Errors: To identify hazards - including both general hazards and specific hazards or their components (eg., threats, errors) - the "**SHELL**" and "**Bow-tie**" models are strongly recommended.

9.6.5.3.2. Identify associated risks: Apply the **ORC** method as described in Section 9.6.4 of this manual.

Note: The Consequences of a Risk are all the potential outcomes the organisation wishes to consider. Some may be more or less likely than others, and they may vary in severity. Qualitative Consequences are those for which the severity is judged in a subjective way.

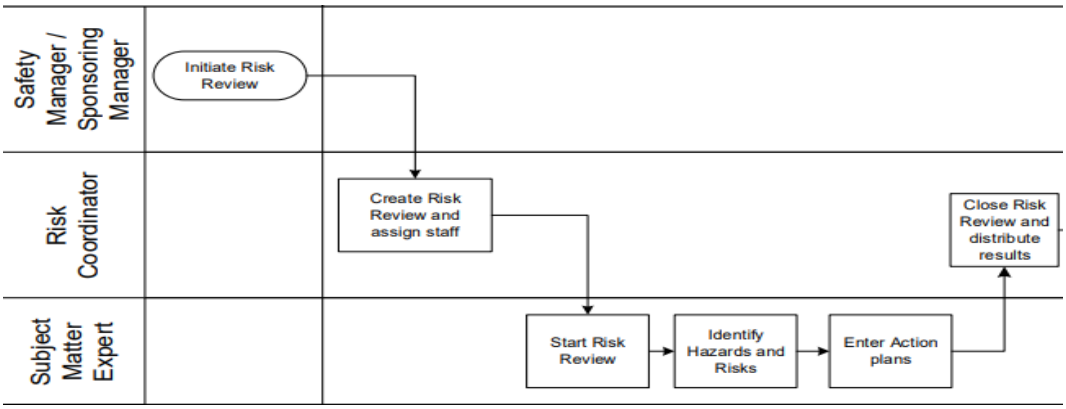


Figure 9.3. Flow chart of safety risk review process

9.6.5.3.3. Assess current and resultant Risk levels and consequences:

9.6.5.3.3.1. Safety Risk Severity Assessment expressed in alphabetical value using the highest severity taken from Table 9.1;

9.6.5.3.3.2. Safety Risk Probability Assessment expressed in numerical value using Table 9.2;

9.6.5.3.3.3. Determine the safety risk index (expressed in terms of alphanumeric value and a safety risk level description) by matching the safety risk severity and probability values with the use of Table 9.3;

9.6.5.3.3.4. Determine the safety risk tolerability criteria through the safety risk index, using Table 9.4.

9.6.5.3.4. Record existing barriers and controls: Assessment of existing defences (i.e., training, regulations and technical).

9.6.5.4. Develop an action plan:

9.6.5.4.1. Based on the identified safety risk level from the previous step and the risk acceptance criteria specified in Table 9.4, the SMEs, in coordination with their direct manager and SQD, shall determine an

appropriate safety mitigation strategy. They shall also identify a target risk level that is As Low As Reasonably Practicable (**ALARP**).

Note: A justification should be entered into the AQD for clarification.

9.6.5.4.2. Inform the safety risk coordinators:

SMEs uses AQD Risk facility to inform the coordinators.

9.6.5.5. Finish Risk Review:

9.6.5.5.1. Review records and documentation related to the risk review:

9.6.5.5.2. Assigned SQD personnel shall review all records and documentation related to the risk review. When necessary, recommendations and comments shall be provided to the SMEs for appropriate adjustments and/or corrections.

9.6.5.5.3. Approval of Safety Mitigation Strategies:

9.6.5.5.4. The SAG/SRB shall review and approve the proposed safety mitigation strategies and actions to ensure the risk is reduced to ALARP.

Note: For reference and facilitation, please consult the Rolls-Royce SMS Solution 2020.1 Manual – Risk and Sample Workflow of Risk Review by accessing the website: https://vhat.vietnamairlines.com

9.6.5.6. Safety risk control and mitigation implementation.

9.6.5.6.1. Safety risk mitigation strategies.

The three generic safety risk mitigation approaches include:

9.6.5.6.1.1. Avoidance: The activity is suspended due to intolerable safety risks or when the cost of mitigation outweighs the expected benefits.

9.6.5.6.1.2. Reduction of operation: The activity continues with limited exposure to safety risks, where severity or likelihood is reduced through mitigation measures.

9.6.5.6.1.3. Segregation of exposure: Actions are taken to isolate the potential consequences of a hazard or to implement multiple layers of defense to protect against them.

Note: When selecting a safety risk control or mitigation strategy, it is possible to combine more than one approach, as long as they are appropriate and achieve the intended objective.

9.6.5.6.2. Implement the approved mitigation strategy and actions – VAR12.075(a)(2)

9.6.5.6.2.1. After safety risks have been assessed, the next step is to develop a mitigation strategy and action plan, and implement them to reduce the risk to a level that is As Low As Reasonably Practicable (ALARP).

9.6.5.6.2.2. To ensure that the safety objectives are achieved and the mitigation measures are effective, the entire mitigation process shall be monitored, supervised, and measured in accordance with the Safety Assurance Program. Refer to Chapter 10 of this Manual.

9.6.5.6.2.3. Each proposed solution shall be reviewed in terms of its effectiveness, cost-benefit, feasibility, potential challenges, stakeholder acceptability, implementation timeframe, and the possibility of introducing new hazards.

9.6.5.6.2.4. Once the mitigation solutions are developed and submitted by the SAG or Heads of Departments/Units, they shall be approved by the CEO and/or Head of concerned SAG/department, who will then issue directives for implementation.

9.6.5.6.2.5. Depending on the significance of the safety issue and its impact on VNA, the SRB shall review and approve the safety risk mitigation strategy.

9.6.5.6.2.6. Upon approval, the implementation of the safety risk mitigation solution is the responsibility of the relevant SAG/Departments.

9.6.5.6.2.7. The monitoring in the status of the handling of the safety risks raised to the concerned Department will be monitored by SAG through the SAG Hazards/Safety Events Action Log.

9.6.5.7. Dissemination of safety issue and information:

9.6.5.7.1. Hazard identification and safety risk management report will be presented at an appropriate safety management review meeting (SAG/SRB meeting).

9.6.5.7.2. Dissemination of safety information will be also accompanied in accordance with Chapter 12.2 Safety information dissemination.

9.6.5.8. Next review procedure:

9.6.5.8.1. Each identified risk shall be reviewed periodically, at least once per year, depending on its risk level.

9.6.5.8.2. In some cases, the next review may be conducted earlier, based on operational needs or changes in the risk environment.

9.6.5.8.3. The Subject Matter Expert (SME) shall perform the review before the deadline specified in the AQD Risk Module (under the "Monitor" tab).

9.6.5.8.4. The content of the review shall cover the period from the original risk identification date to the present, and shall include, at a minimum:

i) Reviewing and updating any newly occurred events related to the risk;
ii) Reviewing and updating any new findings;
iii) Identifying and updating any new hazards or threats (if any);
iv) Reviewing and revising existing or new barriers and mitigation actions, including evaluating the effectiveness of implemented barriers;
v) Adjusting and updating the risk level/value if appropriate;
vi) Attaching all relevant documents and evidence to the risk review records.

9.6.6. Management of change- **MOC**.

9.6.6.1. Any changes within VNA shall be proactively identified by the relevant departments. For further details, refer to Chapter 15 of this manual.

9.6.6.2. VNA considers any change as potentially safety-related. Therefore, the Safety Issue Risk Assessment (SIRA) process shall be applied to each applicable change to assess and manage any associated safety risks.

9.7. Specific safety risk management.

9.7.1 Requirements on risk management of the transport of Items in the cargo compartment - VAR12.154, ORG3.4.1

9.7.1.1 VNA shall carry out the risk management in the transport of items in the cargo compartment. Such risk assessment should, as a minimum, include consideration of the following factors:

a) Hazards associated with the properties of the items to be transported (carry out by Cargo Dept., Passenger Service Dept.);

b) Capabilities of the operator (carry out by relevant Depts);

c) Operational considerations (e.g. area of operations, diversion time) (carry out by OCC);

d) Capabilities of the aircraft and its systems (e.g. cargo compartment fire suppression capabilities) (carry out by Technical Dept.);

e) Containment characteristics of unit load devices (carry out by Cargo Dept);

f) Packing and packaging (carry out by Cargo Dept);

g) Safety of the supply chain for items to be transported (carry out by Cargo Dept);

h) Quantity and distribution of dangerous goods on the flight (carry out by Cargo Dept).

9.7.1.2 Above-mentioned Departments shall establish procedure(s) and conduct of specific safety risk assessments in accordance with Chapter 9 and 15 of this Manual.

9.7.2 (Intentionally Open)

CHAPTER 10
SAFETY PERFORMANCE MONITORING AND MEASUREMENT

10. Safety performance monitoring and measurement–VAR12.075(a)(3), (4)

10.1. Purpose.

This part is to develop and maintain the means to verify the safety performance of Vietnam Airlines and to validate the effectiveness of safety risk controls.

Vietnam Airlines safety performances are objectively reflected in a set of safety performance indicators.

10.2. References.

10.2.1 VAR 12.075 (a) (3), (4).

10.2.2 AC-01-003 Part 5, Paragraph 5.1.

10.2.3 State Safety Program in Civil Aviation Field, issuing with the decision numbered 1189/QĐ-BGTVT, dated 07/5/2013 by the Minister: paragraph 2.2.2.

10.2.4 ICAO Doc 9859

10.2.5 IOSA Standard Manual.

10.3. Notions and Definitions.

10.3.1 Safety levels: are basic features to present quality of the safety management system. The safety levels are objectively through the set of safety performance indicator, their targets and alert levels.

10.3.2 Set of safety performance indicators: are a set of specific and typical parameters on degree of performance of the SMS. The set of safety performance indicators shall be corresponding size, operation scope of the organization and they are recognized and acceptable to CAAV.

10.3.3 Value of the safety performance indicators: are results of measuring on performance of the indicators, in basic of specific time duration, reflecting safety performance of the organization.

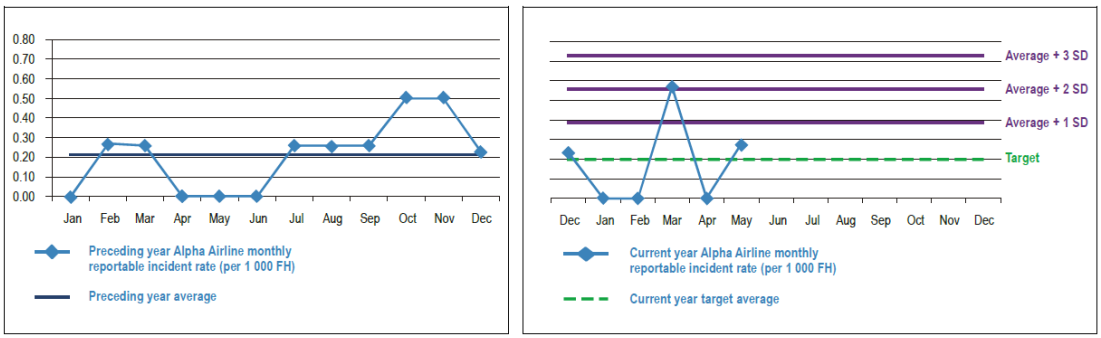
10.3.4 Safety performance target: An safety objective or result towards which efforts are directed by the organization. This target shall be specific, accuracy and measurable and correspondence with organization's resources. The target shall be periodically reviewed and acceptable to SRB;

10.3.5 Value of the safety performance target: is a specific figure of objective or result towards which efforts are directed by the organization on safety.

10.3.6 Acceptable level of safety (ALoS): The minimum level of safety of a service provider, as defined in its safety management system, expressed in terms of safety performance targets and safety performance indicators.

10.3.7 Safety warning levels: are components which present of the Acceptable level of safety. When alert conditions are triggered, the organization shall immediately implement appropriate safety actions in order to define root causes, safety risk management and issue mitigations to fix abnormal trends which are not acceptable.

10.3.8 A sample of safety performance indicator, safety target and acceptable level of safety (safety alert levels) which are recommended by ICAO Doc.9859 Ed.3 SMM.



Picture 10.1. Example of an safety performance indicator chart

10.4. General policy on Vietnam Airlines Safety performance indicators

10.4.1 Vietnam Airlines sets, expands and maintains the set of safety performance indicators in accordance with the state safety program, safety policy, safety objectives and safety target.

10.4.2 The set of safety performance indicators, with reference value (including value of safety performance target, acceptable levels of safety and safety alert levels) of each safety performance indicator will form a set of safety performance indicators of Vietnam Airlines.

10.4.3 The set of safety performance indicators of Vietnam Airlines are determined from the following sources:

a) Safety performance indicators as required by the SSP;

b) The results of the AOC audit, MARI... of the CAAV;

c) Findings/Recommendations from Foreign Aviation Authorities; 3rd party Audit results;

d) Results of safety inspection and supervision; internal safety - quality audits of Vietnam Airlines;

e) The implementation of Vietnam Airlines' Safety Culture;

f) Measurement results of the previous year's safety performance indicators.

10.4.4 Values of safety performance target, acceptable levels of safety and safety alert levels) of each safety performance indicator, express safety objective or result towards and acceptable tolerability to abnormal trend of the indicator of Vietnam Airlines. Every year, SRB assigns SAG Teams to complete these values and submit them to SRB for approval and CAAV for acceptance through the Safety – Quality Dept.

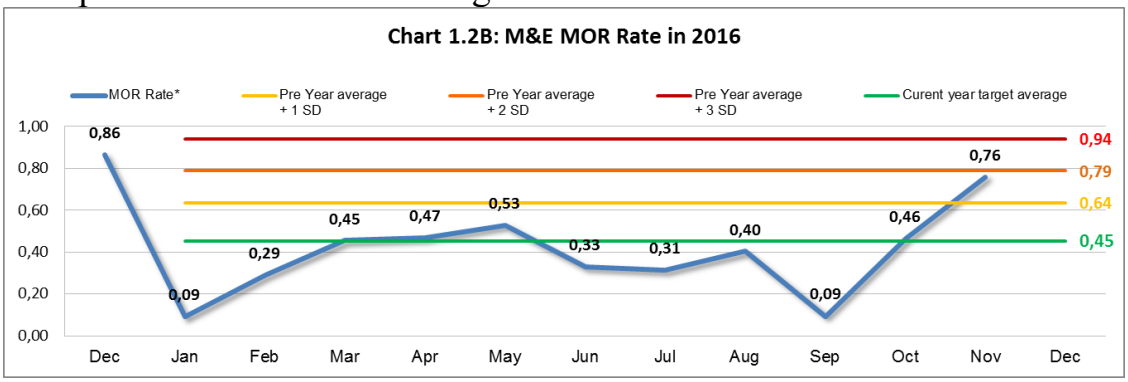
10.4.5 The set of safety performance indicators attached with their references values are approved by SRB and acceptable to CAAV. In case of changes as adding, deleting or adjusting to reference values, alert levels or acceptable level of safety, Vietnam Airlines shall report to CAAV for approval. Vietnam Airlines will deploy once these changes are effect.

10.4.6 Safety – Quality Dept advises SRB in the process of building, developing, reviewing, evaluating and maintaining the safety performance indicators of Vietnam Airlines.

10.4.7 A set of safety performance indicators are mentioned in Appendix 10.1 to this manual.

10.5. Method expression of safety performance indicator.

10.5.1 Way to express trend (paragraph) of safety performance indicator. See example illustration as following:



Picture 10.2. Sample expression on safety performance indicator

Description of the indicator, target and acceptable level of safety:

- Name of indicator: Aircraft concession rate
- Method identifying performance value:

$$\text{Performent value} = \frac{\text{Numbers of Concessions X 1000}}{\text{Total of Flight in month}}$$

- Green line expresses a target for striving and commitment.
- Red line, orange line and yellow line express 03 alert levels high, medium and low in turn.

10.5.2 Method identifying target value, acceptable level of safety values.

10.5.2.1. Safety performance target:

a) Base on the safety object and direction by SRB, Safety performance target of next year will be determined appropriately;

b) When reviewing safety performance target, it is necessary to study average performance value of the indicator of preceding year, valuable safety budget and assessment of cost-benefit in order to obtain the expectation;

c) Vietnam Airlines applies method identifying the safety target mentioned in ICAO Doc 9859, Appendix 6 to Chapter 5, Table 5-A6-1:

SMS safety performance indicators (individual service provider)					
High-consequence indicators (occurrence/outcome-based)			*Lower-consequence indicators (event/activity-based)*		
Safety performance indicator	*Alert level criteria*	*Target level criteria*	*Safety performance indicator*	*Alert level criteria*	*Target level criteria*
Air operator individual fleet monthly serious incident rate (e.g. per 1 000 FH)	Average + 1/2/3 SD (annual or 2 yearly reset)	__% (e.g. 5%) improvement between each annual mean rate	Operator combined fleet monthly incident rate (e.g. per 1 000 FH)	Average + 1/2/3 SD (annual or 2 yearly reset)	__% (e.g. 5%) improvement between each annual mean rate
Air operator combined fleet monthly serious incident rate (e.g. per 1 000 FH)	Average + 1/2/3 SD (annual or 2 yearly reset)	__% (e.g. 5%) improvement between each annual mean rate	Operator internal QMS/SMS annual audit LEI % or findings rate (findings per audit)	Consideration	Consideration
Air operator engine IFSD incident rate (e.g. per 1 000 FH)	Average + 1/2/3 SD (annual or 2 yearly reset)	__% (e.g. 5%) improvement between each annual mean rate	Operator voluntary hazard report rate (e.g. per 1 000 FH)	Consideration	Consideration

Picture 10.3. Examples of safety performance indicators for air operators

10.5.2.2. Acceptable levels of safety:

a) Acceptable levels of safety is expressed by 03 safety alert lines: High level, medium level and Low level;

b) Calculating values of alert levels is depend on safety object, safety policy, safety tolerability and budget for investment of Vietnam Airlines;

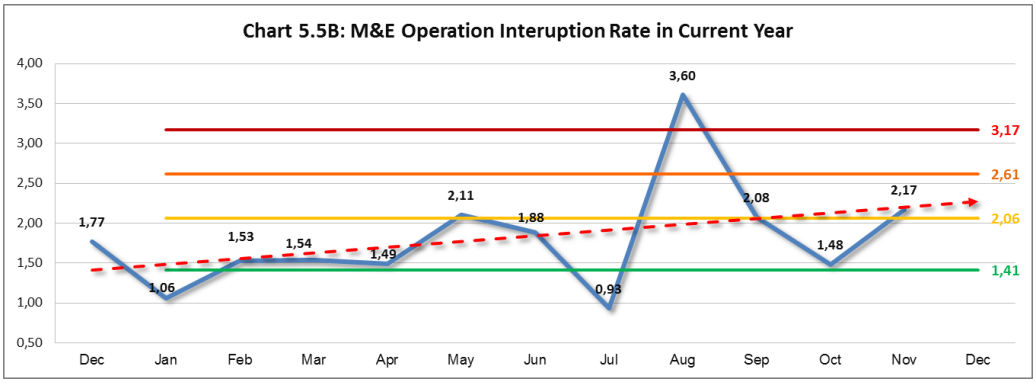
c) Following ICAO safety recommended and practice mentioned in SMM Doc.9859, the alert level lines for current year are average + 1/2/3 SD;

d) In accordance with safety object, safety policy, safety tolerability and safety budget, safety coefficient 1/2/3 may be considered, adjusted by SRB.

10.5.2.3. Rules defining safety Alert level trigger based on safety trend monitoring of the indicator.

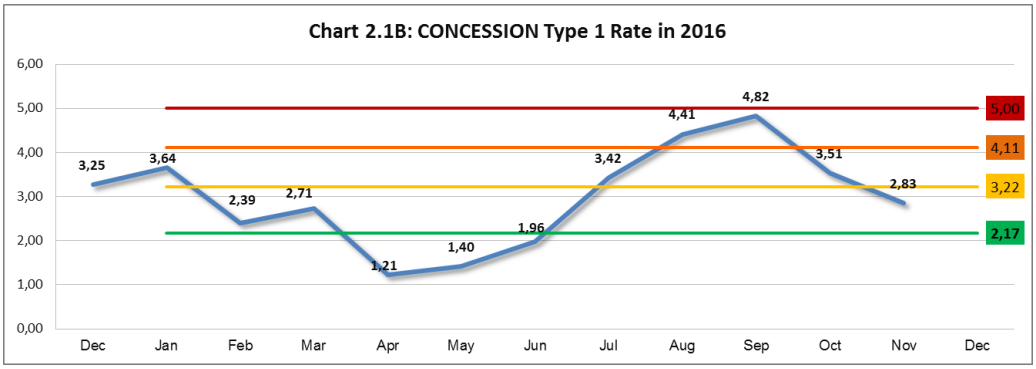
Based on continuously monitoring safety performance value of each indicator at safety meeting (SAG, SRB), comparing to acceptable level of safety, an alert level can be triggered:

10.5.3.1. Any single point is above the 3 SD line; or



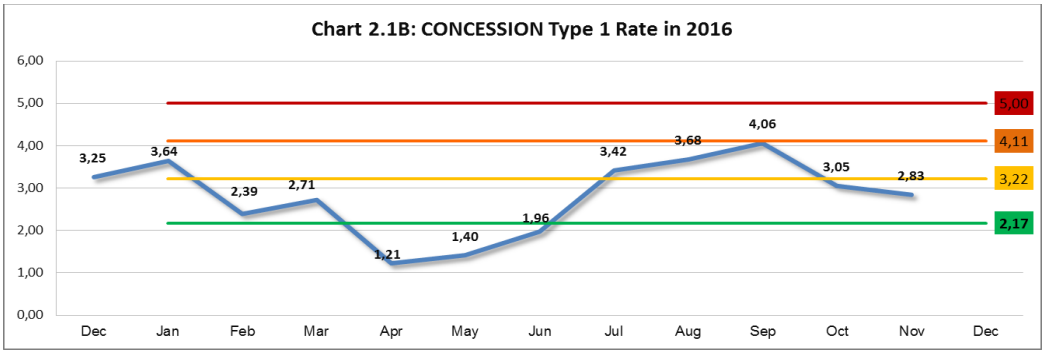
Picture 10.4. Safety warning is triggered when a single point (in August) is above the 3 SD line

10.5.3.2. Two consecutive points are above the 2 SD line; or



Picture 10.5. Safety warning is triggered when two single points (in August, September) are above the 2 SD line

10.5.3.3. Three consecutive points are above the 1 SD line



Picture 10.6. Safety warning is triggered when three single points (in July, August, September) are above the 1 SD

10.6 Process of setting and selecting safety performance indicators.

10.6.1 A set of safety performance indicators of Vietnam Airlines have been establishing and developing for several years. List of indicators is presented at Appendix 10.1 and 10.2 of the SMSM. Every year, the set of indicators will be reviewed and approved by SRB. Then, the set of indicators will be reported to CAAV for approval or recognition.

10.6.2 Safety- Quality department is responsible for studying, analyzing safety reporting system, safety database (For example: AQD, AGS, MOR...) in order to identify operations and activities where are subject to safety concern and effectiveness of safety mitigation, new safety performance indicators will be added and reporting to SAG, SRB for consideration.

10.6.3 Vietnam Airlines safety performance indicators will be selected if following minimum requirements are met:

10.6.3.1. Specific, typical characters for safety level of the system, in accordance with safety policy, object and target of Vietnam Airlines.

10.6.3.2. Typical characters for operations of Vietnam Airlines. Safety Indicators should be specified operation and activities related to.

10.6.3.3. Be measurable.

10.6.3.4. To update timely requirements of State Safety Program (Safety performance indicators are mentioned in SSP).

10.6.3.5. Any changes, revisions on safety policy, object and safety target of Vietnam Airlines.

10.6.3.6. Value of safety performance indicators in preceding year;

10.6.3.7. Safety resources balance.

10.6.3.8. Exchange on safety information with Airlines, safety group…

10.6.4 SAG will review recommendations submitted by SQD and also will report to SRB for adding, revising, deleting the safety performance indicators for approval.

10.6.5 SRB will review the report submitted by SAG at the meeting and then SRB will make decision appropriately.

10.6.6 After the set of safety performance indicator are granted by SRB, SQD is responsible for deploying following procedures: updating the set of safety performance indicator of Vietnam Airlines to the SMSM, submitting to

CAAV for recognition, approval and disseminating this set of indicators to SAG and departments, units for implementation.

10.6.7 Method identifying value of safety performance target for next year:

10.6.7.1. SQD is responsible to measure performance of each indicator in preceding year: reviewing average performance value, verifying in reference to the safety performance targets.

10.6.7.2. Based on safety objectives, direction on safety management activities approved by senior management and SRB (Example: 5% improvement between each annual mean rate), SQD in coordination with SAG, departments, units will determine value of safety performance target for next year.

10.6.7.3. When the safety target has been approved, SAG, departments, units are responsible for developing solutions, plans (including safety budget for implement) in order to obtain the approved safety target, then submit to senior management, SRB for approval.

10.6.7.4. Senior management, SRB will review and approve value of safety performance target, the safety solution, plans submitted by SAG, departments and units.

10.6.7.5. SQD will inform, deploy the target, safety action plan for the year to SAG, departments, units for implement. Beside this, SQD is responsible for monitoring, measuring and reporting results at SAG monthly meeting, SRB meeting.

10.6.7.6. In case of the safety solution is not effective, SAG, Departments, units are responsible for reviewing, adjusting, reporting to the senior management, SRB via SQD for approval

10.6.7.7. After that, the process will be repeated again from step c).

10.6.7.8. At the end of the year, SRB, SAG, Departments, Units will sum up performance results and prepare a new target for next year.

10.6.8 Acceptable level of safety for each indicator will be defined as following:

10.6.8.1. The highest requirement on safety raised from the State safety program (ALoS).

10.6.8.2. Preceding year performance value which are measured based on statistic and database;

10.6.8.3. In accordance with the approved safety policy, objective and target.

10.6.8.4. In accordance with ICAO Doc.9859 Ed.3 SMM recommended practices, having 03 levels set alert levels are high alert level, medium alert level and low alert level. Their values are determined as following:

Value of High alert level	*= Average in preceding year + 3x Standard Deviation SD*
Value of Medium Alert Level	*= Average in preceding year + 2x Standard Deviation SD*
Value of Low alert level	*= Average in preceding year + 1x Standard Deviation SD*

Depending on the safety policy, objective and safety tolerability approved by VNA senior management, SRB, safety coeffection 3/2/1 as mentioned above can be revised appropriately.

10.7. Safety performance Monitoring and measurement

10.7.1 Monitoring and measuring of safety performance is a process to review the safety performance indicators against Vietnam Airlines' safety objectives and safety goals. Each safety indicator is considered, referred to its reference values (acceptable level of safety (ALoS) - alert level and safety performance target value - desired level) which have been established.

10.7.2 The monitoring, measurements are implemented as follows:

10.7.2.1. SQD performs statistic and review the safety database, performs measurement continuously safety performance indicators and repots to VNA senior management, SRB, SAG for reviewing at periodical safety management meeting.

10.7.2.2. SAG will review the indicator at monthly meeting. If that indicator is greater more than the ALoS, SAG team leader is responsible for deploying action, identifying the root cause and giving specific solution in order to ensure that safety performance indicator will be back the ALoS and get the target.

10.7.2.3. SRB will continuously monitor safety performance results by the way to review the set of safety performance indicators at periodical meeting. SRB will direct and make objective to SAG for necessary actions.

10.7.2.4. When an alert is triggered, risk assessment shall be performed by appropriate department, units following SRB and SAG directions.

10.7.3 Department, Units are responsible for implementing appropriate actions as following:

10.7.3.1. Investigation in order to make clearly the root cause why this trend is sharply increasing.

10.7.3.2. Advices for measurement control in order to resolve this problem of abnormal increasing trend and controlling the indicator in expectation of ALoS and the target.

10.7.3.3. Submitting authorized person for approval of plan, program, solutions package. VNA management, Department directors, Units managers are responsible for reviewing and approval in accordance with authorization.

10.7.3.4. Deploying to perform the plan, program, solution which are approved by the authorization.

10.7.3.5. Reporting the results.

10.7.4 SQD is responsible for monitoring, assessment, measurement the effectiveness of safety solution deployed by SAG, departments, units.

10.7.5 Examples of safety performance indicators as ICAO Doc.9859 Ed.3 SMM/ Appendix 6.1 to Chapter 5 (Table 5-A6-1)

Safety Performance Indicators		
Naming of the indicator	Acceptable Level of Safety	Safety Target
Rate of Mandatory Occurence Report which are classified in A/B/C/D/E for fleet per 1000 flight	Average in preceding year + 3/2/1 x Standard Deviation	__% (e.g. 5%) improvement between each annual mean rate
Rate of Engine In flight shut down per 1000 flight for the fleet	Average in preceding year + 3/2/1 x Standard Deviation	__% (e.g. 5%) improvement between each annual mean rate

Table 10.1. Examples of safety performance indicator

10.7.6 In present, Vietnam Airlines has been applying some safety management tools and soft ware for ensuring safety, quality for operations and activities:

10.7.6.1. Integrated Safety- Quality system (AQD- SMSRR).
10.7.6.2. Flight monitoring system and analysis (AGS designed by SAGEM).
10.7.6.3. Aircraft status and health monitoring (Air Men, AHM).
10.7.6.4. Engine health monitoring (ADEM for V2533-A5; PW4168; PW4084D/4090 and RD for GE90).
10.7.6.5. Reliability Program.
10.7.6.6. Safety audit program and Quality Assurance program integrated.
10.7.6.7. Line operation safety audit LOSA.
10.7.6.8. SIM quality assurance program (SOQA).
10.7.6.9. Ground operation inspection and supervision program

Remarks: The safety management tools and software mentioned before are operated by departments, units of Vietnam Airlines in accordance with approved documents.

10.8 Flight Data Analysis Program – VAR12.075(d)

10.8.1 Introduction

10.8.1.1. This section defines all aspects of the Flight Data Analysis Program (FDAP), including human resources, facilities, procedures, and the coordination between the Safety and Quality Department (SQD) and other relevant departments.

10.8.1.2. Vietnam Airlines establishes and maintains the FDA (Flight Data Analysis) program as a component of the Safety Management System, located at the Safety-Quality Department, with a non-punitive policy applied. The commitment of VNA's leadership to the non-punitive policy is also affirmed through the FDA program.

a) Flight data and other relevant information are analyzed thoroughly such that, as far as reasonably practicable, all relevant factors associated with an event are identified, not just the action or inaction of specific individuals.

b) Investigation of FDA events focuses on systemic issues that might influence behaviors, rather than on individual actions.

c) Individuals involved in the investigation of an event will be treated fairly based on the quality of their behavioral choices.

d) Factual details of an event are provided to relevant operational managers for an objective review of all factors involved and Just Culture review.

10.8.1.3. The FDAP here is a written agreement between SQD and FCD. VNA ensures that the agreement is not to undermine the safety of operation. For this purpose, the balance between safety and personal privacy shall be managed consistently and proactively to ensure ongoing mutuality of the program while achieving optimal safety.

10.8.1.4. The FDAP utilizes tools to process and analyze flight data continuously collected from aircraft, combined with other safety data sources such as in-flight evaluation results, captain reports, etc.

10.8.1.5. Objectives of the FDAP:

a) Identify trends that pose potential safety risks in flight operations;

b) Continuously monitor and measure safety-threatening issues in flight operations;

c) Conduct investigations into accidents, incidents, and events;

d) Support aircraft airworthiness activities, reduce operating and maintenance costs, and save fuel;

e) Support the training program for pilots.

10.8.2 Functions, Duties

10.8.2.1 The Safety Post Holder shall be responsible for guiding and overseeing the development and implementation of the FDAP.

10.8.2.2 Safety Quality Department

a) Director of SQD has the main responsibility for all FDAP activities following specifics:
   1) Ensuring the integration of the FDAP into the VNA's SMS;
   2) Signing and ensure compliance with the terms of the Flight Data Exchange (FDX) contract with IATA, include:
   i) Provide a means for participants to securely transfer their flight data;
   ii) Be non-punitive and offer adequate safeguards for the de-identification of all data received from participants;
   iii) Disseminate de-identified information to participants on emerging trends and areas of interest to global aviation safety;
   iv) Not use data for the purposes of investigation of the performance of individual participants.

b) Ensure the continuous and effective operation of the FDAP.

c) **Participate in safety meetings and in the investigation of accidents and incidents**, providing objective and independent analyses based on flight data (FDA) reports.

d) **Prepare and submit monthly reports** derived from flight data analysis results to the relevant aviation authority and related departments.

e) Provide safety recommendations to relevant agencies and units based on the results of flight data analysis.

f) **Maintain strict confidentiality of all information related to analysis reports.** Disclosure of such information is permitted only with formal approval from Vietnam Airlines' top management.

g) **Implement updates to the FDA system as instructed by the service provider**, and ensure monthly transmission of flight data to IATA as per the established agreement;

h) Director of SQD annually chairs FDA review meetings related to the assessment and improvement of the FDA data managements, including the following contents:
   1) Review of policies and procedures of FDAP;
   2) Data input process, analyzed data and post-analyzed data;
   3) Data used for safety review, investigation, data sharing with IATA;

4) Update the limits of events (if any) as required by VAR, manufacturers Boeing, Airbus, ATR...
5) Send flight data analysis specialists to participate in related seminars and conferences;
6) Review and adjust service contracts of service providers (AITS, SAFRAN, CEFA...);
7) Propose solutions to improve FDAP operations.

10.8.2.3 Operations Control Center:

Provide operational documentation support for the implementation of the FDA Program.

10.8.2.4 Technical Department:

a) Take the lead in ensuring the complete and timely provision of flight data for the FDAP.
b) Receive and handle all information related to technical getting from FDAP.
c) Support in the field of technical for FDAP such as technical manuals, aircraft equipment, maintenance, and so on.

10.8.2.5 Digital Transformation and Technology Department:

a) Ensure that the infrastructure for the FDAP operates reliably and continuously;
b) Ensure that the transmission and reception of flight data to the server and workstations are not disrupted;
c) Ensure that the flight data is securely protected, stored in accordance with regulations, and readily accessible when needed;
d) Support the SQD in proposing technological solutions to improve the effectiveness of the FDAP.

10.8.2.6 VAECO:

a) Directly collect and transfer flight data to the FDA Program as soon as possible and no later than 03 days after flight completion, ensuring a minimum flight data capture rate of 90% and the best possible data quality from QAR/WQAR devices;
b) Retrieve and send flight data to the SQD as soon as possible and no later than 02 hours from the time of the incident.

10.8.2.7 Flight Crew Division 919:

a) Assign safety pilot representatives to coordinate in clarifying incidents and provide relevant information to the FDA Program;
b) Thoroughly review the analysis reports from SQD, identify the root causes of incidents, and propose effective preventive measures to enhance safety quality.

c) Implement and execute safety recommendations based on flight data analysis results and provide feedback to SQD.

10.8.3 Flight Data Monitoring results

10.8.3.1. Individuals responsible for the organizations receiving flight data analysis results shall be accountable for maintaining confidentiality.

10.8.3.2. All reports must not disclose the names of flight crew members, flight numbers, or flight times, except in cases serving investigations, accidents, incidents, or safety-related events.

10.8.3.3. Only authorized representatives of the relevant organizations shall be permitted to access such reports.

10.8.4 Analysis Expert Qualification

10.8.4.1 Being a pilot or a person who has much experience in flight operations and safety field at least 3 years;

10.8.4.2 Have enough knowledge about flight operations monitoring system, flight safety, standard operating procedures and flight operations training;

10.8.4.3 Successfully completed basic and advanced FDA training course;

10.8.4.4 Have to be trained updated and advanced the flight data analysis skills when FDAP is updated and upgraded or Vietnam Airlines operates new aircraft types;

10.8.4.5 Have to be observed a minimum one (1) flight per year on an actual flight.

10.8.4.6 Have good morality.

10.9 Line Operations Safety Audit program

10.9.1 General:

10.9.1.1 The Line Operations Safety Audit (LOSA) is a part of Vietnam Airlines safety – quality assurance program, including cockpit and cabin operations to ensure flight safety, improve the systems and enhance the quality of flight operations.

10.9.1.2 The Safety Post Holder shall direct overall the Line Operations Safety Audit program in accordance with the *Line Operations Safety Audit Regulations* issued by the President and CEO of Vietnam Airlines.

10.9.1.3 The Safety – Quality Department shall assume the primary responsibility for developing the plan and organizing the implementation of the Line Operations Safety Audit. Relevant departments and units, including the Flight Crew Division, Cabin Crew Division, Operations Control Center, Flight Training Center, Aviation Security Department… shall be responsible for coordinating and supporting the effective execution of this program.

10.9.2 Principles of in-flight safety audit implementation:

10.9.2.1 The in-flight safety audit conducts an observation, recording and data collection approach to continuously improve safety and operational efficiency;

10.9.2.2 The audit must be independent and objective;

10.9.2.3 The audit requires prior approval from the PIC;

10.9.2.4 Collected data is used for statistical analysis and system improvements, not for punitive measures against flight crew members;

10.9.2.5 The audit applies to all operations flights except for special charter flights.

10.9.3 Audit content:

10.9.3.1 Observing real operations environments, identifying potential hazards, threats and errors;

10.9.3.2 Recording compliance with safety and security regulations, procedures;

10.9.3.3 Verifying corrective actions from previous audits.

10.9.4 Data process:

10.9.4.1 Crew names, date and number of audit flights must be kept confidential. Audit flight information is disclosed only with the approval of the Safety Postholder or the Safety – Quality Department Director.

10.9.4.2 Audit records are securely stored within the Safety & Quality Department.

10.9.5 Audit Report:

10.9.5.1 Main focus points which given from previous audits and results.

10.9.5.2 Data analysis: Based on statistical data and collected information, identifying frequently occurring issues, potential risks, and safety recommendations (if any).

10.9.5.3 Survey feedback from flight crew members.

10.9.6 Corrective Actions:

10.9.6.1 After receiving in-flight safety audit repot, Departments/ Divisions must address identified safety issues and submit corrective action plans with supporting evidence within the specified deadline.

10.9.6.2 The Flight Crew Division and Cabin Crew Division inform all flight crews and cabin crews the audit results and assure that they all well know about it.

10.9.6.3 The Safety – Quality Department monitors the effectiveness of corrective actions in subsequent audits.

CHAPTER 11
SAFETY INVESTIGATION

11. Safety investigation

11.1 Reference documnets:

a) ICAO Annex 13;
b) ICAO Doc 9859;
c) Decree 75/2007/NĐ-CP dated 09/05/2007 of Vietnam Government;
d) VAR Part 19;

11.2 General

a) Accidents, incidents investigation is a formal process of gathering, analyzing and suming up in order to identify the causes of the accidents, incidents.

b) The sole objective of the investigation is to find gaps in the system to prevent accidents and incidents and not to punish for blame or liability; In a safety management system, the investigation process plays a unique role, an essential process to carry out when preventive measures, barriers, checks and balances in the system have a gap.

c) Internal safety investigations plays an important part into VNA SMS. Vietnam Airlines establishes internal safety investigations within the scope of its service provision to its customers in accordance with the requirements of ICAO, IATA and Vietnamese Law.

11.3 Internal safety investigation system

11.3.1 Vietnam Airlines's policy on safety investigation

a) Vietnam Airlines has been developing, maintaining and operating an internal safety investigation system effectively for every occurrences and safety matters in order to identify causes, conducting safety briefings, giving recommendation and effective, appropriate corrective actions, preventing the accident and incident re-occur; – VAR12.075 (c)(3);

b) The purpose of the investigation is to improve the system, not to punish individuals

11.3.2 Scope of internal investigation

a) Accidents, incidents, and safety events occurring within the scope of Vietnam Airlines' SMS, as described in Chapter 3, Section 3.1.2 of this manual, are subject to safety investigation.

b) For accidents, incidents, or safety events related to contracted services, Vietnam Airlines may request the service provider to conduct an investigation and provide the investigation results.

11.4 Internal Safety Investigator.

11.4.1 General Requirements:

a) Must hold a university degree.

b) Must possess a certificate in aviation accident and incident investigation.

c) Must have knowledge of international regulations and those issued by the Civil Aviation Authority of Vietnam related to aviation.

d) Must demonstrate skills in presentation, teamwork, and report writing.

e) Must be approved by the Director of SQD.

11.4.2 Specialized Aviation Training:

a) Flight Operation

(i) Being captain, cabin purser and individual with at least 03 year experiences in aviation area.

(ii) Having basic training in flight operations, flight dispatch.

(iii) Having been trained in aviation safety and safety management system including methods for identifying hazards and potential hazards and risks during operation process.

b) Aircraft Technical and Maintenance

(i) Being an aircraft engineer with 03 year experiences in aircraft engineering area.

(ii) Clearly understanding about aircraft technical document system.

(iii) Having knowledge of maintenance standards, maintenance contracts and related regulations.

(iv) Having been trained in aviation safety and safety management system including methods for identifying hazards and potential hazards and risks during operation process.

c) Ground Operation

(i) Having at least 03 year working experiences in ground operation area.

(ii) Having been trained in specific fields such as: weight and balance, safety aprons, dangerous goods, ground equipments etc....

11.4.3 Ethical conduct

(i) Honest, impartial and objective.

(ii) Not being disciplined due to behavioral and ethical conduct in working duration.

(iii) Not receiving any gifts, privileges from the investigated departments/ division or individuals.

11.4.4 Rights and Obligations of Safety Investigators.

11.4.4.1 Safety investigators are entitled to the following rights:

a) Access the scene, inspect the site of the incident or event, and approach the aircraft, its equipment, or any facilities and devices related to the investigation work;

b) Seize or coordinate with relevant authorities or units to seize and use evidence, documents, and other materials necessary for the investigation;

c) Record and inventory evidence at the scene;

d) Request organizations, units, or individuals to provide information and documents related to the incident or event for investigative purposes;

e) Request forensic examination of samples, evidence, documents, or the health conditions of individuals involved in the incident or event under investigation;

f) Be provided with the results of such examinations for use in the investigation of the safety incident or event;

g) Question and review witness statements regarding matters related to the safety incident or event.

11.4.4.2 Safety investigators have the following obligations:

a) Conduct investigations of safety incidents or events promptly, truthfully, and objectively;

b) Strictly comply with the instructions of the Investigation Team Leader regarding the content, methods of investigation, and measures to ensure safety during the investigation process;

c) Do not disclose any information related to the investigation of the safety incident or event to others or to the media without official authorization to do so.

11.4.5 Approval of the internal Safety Investigators:

To ensure the availability of qualified personnel for the conduct of safety investigations, the Heads of the Departments or Units shall, on an annual basis, review and formally approve the list of internal Safety Investigators.

11.5 Responsibilities and Authorities of the Leader of the Safety Investigation Team

The leader of the safety investigation team has responsibilities and authorities as:

a) Organizing the implementation and assignment of tasks to members of the safety investigation team for the performance of tasks and rights according to regulations.

b) Hosting the meetings of safety investigation team; formally informing or nominate a member of the investigation teams as a spokesman during the investigation.

11.6 Training requirement:

11.6.1 Basic training

a) VNA is responsible for organizing investigation trainings or sending qualified personnel to accredited organizations/ centers for aviation accident/ incident investigation trainings.

b) Such training courses may include:

(i) Basic training,

(ii) Aviation incident investigation training,

(iii) Advanced training.

11.6.2 Retraining / recurrent training:

a) After initial basic training, leaders of departments/divisions are responsible for organizing the training courses about investigation and joining with investigative work for investigators called On-Job Training (OJT).

b) In this type of training, investigators will be familiarised with the procedures for investigating, collecting and evaluating practical information, improving teamwork skills and reporting.

c) In order to complete this phase, trained investigators must participate in at least one investigation before being approved as an official investigator.

11.7 Safety investigation procedure.

11.7.1 Investigation Levels

a) For accidents and incidents classified as Level A, B, and C, CEO shall decide on the establishment of a Corporation-level Investigation Team. Safety EVP shall act as the Head of the Investigation Team, and other team members shall be appointed by the EVP.

b) For Level D incidents, Safety EVP shall decide on the establishment of an Investigation Team. The Head SQD shall serve as the Head of the Investigation Team. Other team members shall be appointed based on the recommendation of the ATCL Department.

c) For Level E events, SQD shall review, assess, and either lead the investigation or request the relevant unit to conduct the investigation. The relevant unit may also proactively initiate an investigation if deemed necessary.

11.7.2 Safety Investigation Steps.

11.7.2.1 Formation of the Investigation Team.

a) SQD shall submit a request to the authorized leadership for approval to establish the Investigation Team.

b) Upon approval, the SQD shall initiate the investigation in the AQD system.

11.7.2.2 Conducting the Investigation

The Investigation Team shall carry out the investigation according to the following steps:

a) Collect relevant information and factual evidence as guided in Appendix 11.1 of this document.

b) Conduct interviews with individuals involved.

c) Analyze the information and factual evidence, and determine the root causes. The detailed procedures for this step are provided in Appendix 11.2.

d) The next steps to be carried out in AQD:

(ii) Create Findings.

(iii) Publish Findings and Request Response.

(iv) Respond to Findings.

(v) Review and Accept/Reject Finding Response.

(vi) Summarize and Finish the Investigation.

(vii) Close the Investigation.

11.8 Post-Safety Investigation Activities

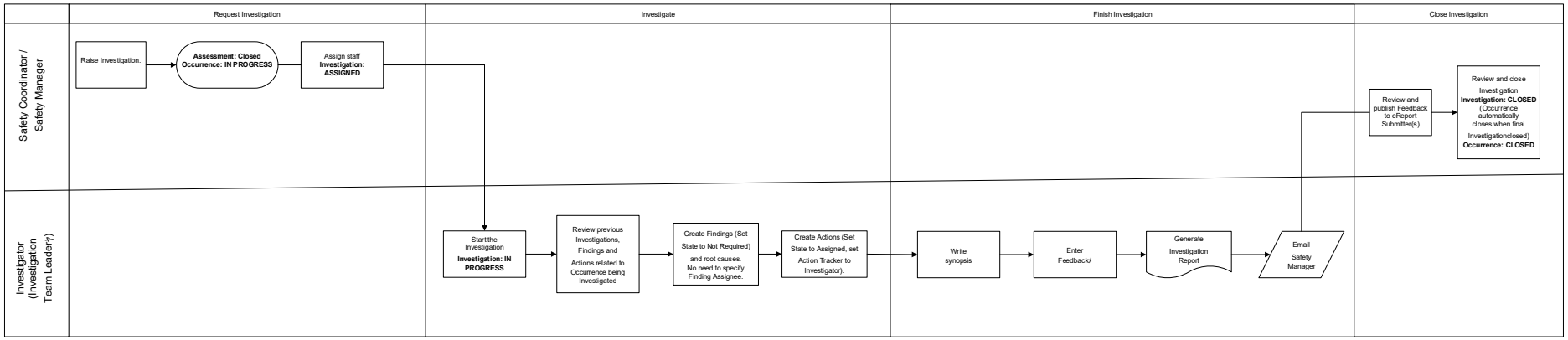
a) Issuance of safety recommendations.
b) Implementation of corrective/preventive actions.
c) Monitoring of actions through the AQD system.
d) Monitoring the effectiveness of the actions.
e) Communication and dissemination of safety information, investigation outcomes, and lessons learned – in accordance with VAR 12.075(c)(4).
f) Safety de-briefing: Safety de-briefing involves analyzing, explaining, and discussing safety aspects related to a specific accident, incident, or safety event. It helps to better understand the causes, consequences, and preventive measures, and contributes to enhancing future safety performance. Safety de-briefing is classified as follows:
   (i) Accidents and incidents classified as Level A, B, and C are de-briefed at the corporate level, chaired by Safety EVP.
   (ii) De-briefings for Level D incidents due to human error are chaired by the SQD Director.
   (iii) Level E events and other safety occurrences are de-briefed by the Leader of the respective unit.
g) Investigation records: For corporate-level investigations, records shall be stored in the AQD system and at the SQD; For unit-level investigations, the respective unit is responsible for storing the investigation records. The retention period for records is specified in Section 14.1.

11.9 Appendix

a) Appendix 11.1: Factual information checklist;

b) Appendix 11.2: SHELL model and interactions of the components.

11.10 Process flowchart for actions in AQD



CHAPTER 12
SAFETY TRAINING AND COMMUNICATION

12. Safety Training and Communication

Reference documents:

a) AC 01-003 6.1-6.2;
b) ICAO Doc 9859;
c) IOSA Standard Manual.

12.1 Safety training

12.1.1 Requirements on safety training

Safety training is an important issue which is paid attention by Vietnam Airlines. Vietnam Airlines develop a comprehensive safety training program suitable for every working position category within SMS system. Safety training policy for Vietnam Airlines staff is as follows:

a) Being Vietnam Airlines staff, every individual shall be initially trained and instructed on safety during his/her start working at the company;

b) All staffs of Vietnam Airlines are trained SMS. Depending on positions, employees must be trained to understand some or all of the content including:

1) Understanding VNA's purpose, objectives and safety policy.

2) Ensuring the level of understanding of safety roles in VNA and the responsibilities of safety-related positions; and

3) Principles of basic risk management;

4) Safety reporting system;

5) Safety audit program;

6) Safety communication;

7) The process of evaluating effectiveness of training;

8) Documentation of initial training requirements and recurrent training.

c) Curricula, syllabuses and teaching materials must be designed in accordance with certain target groups;

d) Test at the end of each training module, survey or feedback from trainees/staff after training together with staff capability after training which could be recognized through safety audits and safety performance results are used by Vietnam Airlines to recognize and evaluate the effectiveness of safety training; The result is determined to meet at least 80% of correct questions out of total number of questions.

e) SMS training is periodically conducted by Vietnam Airlines within 36 months and ensures staffs are provided with new knowledge, changes in SMS (if any) in a timely manner. All VNA's staffs are trained periodically SMS through methods of self-reading and disseminating safely information through safety notices, safety bulletins, safety concluding of safety reviews, meeting conclusion of SRB and SAGs, safety information on the VNA website ...

f) Heads of departments/divisions have responsibility to ensure all staffs are trained under SMS training program in accordance with the requirements of assigned positions.

12.1.2 SMS training program for staff

SMS training for Vietnam Airlines staff is divided into 05 following modules:

a) SMS 1: ½ day (04 lessons)

1) Vietnam Airlines safety policy
2) Introduction to SMS includes the concept of hazards, consequences and risks, risk management process;
3) Role and responsibilities of departments/divisions and individuals in VNA in SMS system;
4) Safety reporting and safety reporting system of Vietnam Airlines

b) SMS 2: 1 day (08 lessons)

1) Vietnam Airlines safety policy
2) Introduction to SMS includes the concept of hazards, consequences and risks, risk management process;
3) Role and responsibilities of departments/divisions and individuals in VNA in SMS system;
4) Safety reporting and safety reporting system of Vietnam Airlines;
5) Safety responsibility of the management level (promoting SMS and encouraging staffs to report on hazards);
6) Introduction to safety management processes, HIRA and management of change;
7) Safety Data Analysis.

c) SMS 3: 1 day (08 lessons)

1) Vietnam Airlines safety policy

2) Introduction to SMS includes the concept of hazards, consequences and risks, risk management process;
3) Role and responsibilities of departments/divisions and individuals in VNA in SMS system;
4) Safety reporting and safety reporting system of Vietnam Airlines
5) Safety Assurance and safety promotion;
6) Safety roles and responsibilities;
7) Acceptable levels of safety indicators.

d) SMS 4: ½ day (04 lessons)
1) Overview of SMS, including SMS roles and responsibilities, safety policies and objectives;
2) CAAV requirements for SMS.

e) SMS 5: 01 day (08 lessons)
1) All contents of SMS;
2) ICAO and CAAV detailed requirements for SMS;

Training programs with equivalent syllabus of other competent organizations shall be accepted by Vietnam Airlines.

Table 12.1 SMS training requirements for VNA staff

No	Module	Trainee groups						Training methods
		President, CEO, vice presidents	Postholder/ Director and Deputy Directors of safety quality Dept	Manager and equivalent are responsible for SMS	Directors or equivalent	Managers, group leaders or equivalent, Captain	Executive, staff, F/O, cabin crew	
1	SMS 1						X	*Elearning*
2	SMS 2					X		*Class training/ Elearning*
3	SMS 3				X			*Class training/ Elearning*
4	SMS 4	X	X					*Class training/ Elearning*
5	SMS 5			X				*Class training/ Elearning*

12.1.3 Methods of safety training

Safety training can be conducted by the following methods:

a) On class;

b) Self-study;

c) E-Learning.

After training on safety in the above forms, all employees must perform the test with a minimum passing score of 80%.

12.1.4 Responsibility on SMS training for Vietnam Airlines staff

a) Safety Post holder has responsibility:

1) To approve safety training policy in compliance with CAAV and related requirements;
2) To ensure the availability of all resources to implement the approved policy and safety training programs of Vietnam Airlines;
3) To monitor the effectivity and effectiveness of Vietnam Airlines SMS training programs.

b) Director of Human Resource Department has responsibility:

1) To organize and develop safety training policy for all Vietnam Airlines staff.
2) Assuming the prime responsibility for formulating basic and recurrent SMS training plans for VNA's staff and staff of outsourced service providers serving for VNA in accordance with the SMSM document.
3) To coordinate with SQD and departments/divisions within Vietnam Airlines to develop programs and curricula suitable to each subject specified in the SMSM document.

c) Director of SQD has responsibility:

1) To coordinate with Human Resource department Director to periodically review SMS training policy for Vietnam Airlines staff.
2) To take charge of professional development of SMS training programs and curriculum for each subject as defined in the SMSM document. To conduct a review and evaluation of SMS training results through a quality safety audit.

d) Heads of other departments/divisions of Vietnam Airlines have responsibility:

1) To ensure that all staff of their departments/divisions receive SMS training and have suitable safety knowledge to fulfill the job.

2) To promote safety and SMS actively and be responsible for development of a right safety culture within their departments/divisions.

12.1.5 SMS training for staffs of service providers.

VNA ensures that employees of outsourced service providers operating for VNA must be trained in SMS and have the ability to perform safety tasks specified in the SMSM document.

Training and training of SMS system is stipulated as follows:

a) For outsourced service providers that have developed an SMS system:

VNA agencies/ offices who directly sign service contracts with outsourced service providers will send remote evaluation forms (Using Form: SQ-SMS-RF02-01);

SQD reviews the SMS training system of the outsourced service providers through the evaluation form after the service provider has filled in the information in the evaluation form;

SQD will respond in writing to the supplier about the supplier's ability to demand for SMS training requirement.

Training contents of the outsourced service provider's SMS training program must at least meet the training requirements set out in section 12.1.5 c) below.

1) If the SMS training requirements are met as item 12.1.5 c), VNA accepts training materials and training program for the outsourced service provider's SMS system.

2) If the SMS training requirements are not met as item 12.1.5 c), VNA and the outsourced service provider will coordinate to train the missing contents to fully meet the SMS training requirements.

b) For outsourced service providers that have not built SMS system: VNA SMS system shall be trained for employees of outsourced service provider operating for VNA through the training method regulated in 12.1.3 of this document.

c) The minimum training program covers the following contents:

1) Safety policy and objectives.

2) Roles and responsibilities.

3) Principles of basic risk management.

4) Reporting system.

5) Evaluation process to ensure effective training of trainers.

6) Communicate and disseminate information safely.

d) Method of implementation

Employees of outsourced service providers operating for VNA shall have to read to understand the SMS of VNA.

Employees of outsourced service providers operating for VNA must take a mini-test of understanding the SMS of VNA.

e) At least within 36 months, agencies/ offices who sign the service contract with suppliers will consider retraining or updating the content of VNA SMS training to outsourcing service providers; assess the level of systematic understanding of VNA through the implementation of the test.

f) VNA will carry out the safety monitor of the service supplier through the audits.

12.2 Safety communication – VAR12.075(c) (4)

12.2.1 Process of safety communication.

12.2.1.1 Safety information includes:

a) Meeting conclusion of SRB, SAGs, safety seminars and conferences;

b) Safety review and investigation conclusions;

c) Safety bulletin, safety notice;

d) Safety objectives and indicators;

e) New changes or promulgation in regulations and safety procedures;

f) Other safety information;

12.2.1.2 Heads of departments/divisions have responsibility for developing procedures for transmission of safety information shall ensure that:

a) All employees have an understanding of SMS;

b) To transfer safety information and lessons;

c) To explain why SMS relates to professional activities;

d) To transfer of SMS updates;

e) Dissemination of safety audit methods to relevant individuals;

f) Providing guidance of risk reporting process to individuals;

g) Promoting the company's goals, objectives and culture.

12.2.2 Methods of Safety communication.

For Vietnam Airlines, safety information is communicated to external and internal units from the top management to employees at all levels and vice versa through means following:

a) The system of documents and safety documents.

b) The system of procedures and safety regulations.

c) Safety reviews.

d) Telephone and messaging systems.

e) The aviation information system (SITA ...) or e-mail system of Vietnam Airlines.

f) Vietnam Airlines' designed safety reporting system.

g) Safety bulletins, internal propaganda bulletins.

h) Safety Culture Website: https://vhat.vietnamairlines.com

CHAPTER 13
SMS CONTINUOUS IMPROVEMENT

13. SMS continuous Improvement – VAR12.075(a)(3)(4)

Reference documents:

a) VAR 12.075 (a)(3)(4);

b) AC-00-003 5.3, includes Appendix B;

c) ICAO Doc 9859;

d) IOSA Standard Manual.

13.1 Introduction to SMS continuous improvement.

Under regulation, The service provider shall monitor and assess the effectiveness of its SMS processess to enable continuous improvement of the overall performance of the SMS. Thus, continuous improvement activity is one element of SMS. Vietnam Airlines SMS continuous improvement is achieved through the following 02 main process:

a) Internal SMS Audit

b) Safety reviews.

13.2 Internal SMS Audit.

13.2.1. Vietnam Airlines conduct internal SMS Audit to ensure that the structure of VNA's SMS is sound. It is also a formal process to ensure continuous improvement and effectiveness of SMS.

13.2.2 Vietnam Airlines internal SMS audit program is integrated to its quality assuarance program and the integrated program is named "Safety - Quality audit program. Details of this program such as: Audit plan, auditor approval process, methodology, procedures, checklist... is addressed in the VNA's.

13.2.3 The overall scope of SMS audit include:

a) Regulatory SMS requirement
b) Structure of safety accountabilities
c) Organizational safety policies and standards
d) Documentation, including SMS manual and SMS records
e) Review performance of safety report and investigation
f) Compliance with SMS hazard and risk evaluation procedures
g) Adequacy of staff training for their SMS roles
h) Performance indicators and Acceptable Level of Safety
i) Effective SMS intergration with other control systems
j) SMS intergration with contractors where applicable
k) Compliance with safety assessment plan or schedule
l) Assessments the implementation and compliance the safety management requirements of VNA's provider
m) Continuing assessments and management of change
n) Review completed safety assessments for any that may be obviuosly sub-standard orinadequate.

13.3 Safety Review.

13.3.1 Over and above internao SMS audit, safety reviews or surveys may be employed as a proactive procedure for examining particular elements, processes or specific operation for any safety concerns or sub-standard performance.

13.3.2 Such targeted safety surveys may be initiated as a follow up to informal feedback or voluntary and confidential reports to indentify issues that may contribute to generation of hazard and risks or their escalation factors, such as:

a) Problem areas or bottkenecks in daily operations

b) Perceptions and opinions about personnel's competency with possible safety implications

c) Poor Teamwork and cooperation between employee groups or departments (especially involving safety/operational/technical functions)

d) Areas of dissent or perceived confusion (especially involving safety/operational/technical functions)

e) Unsafe working procedures or conditions

f) Prolonged working hours or long-term manpower shortfall, etc…

13.4 SMS continuous improvement process

13.3.1 Vietnam Airlines improve continuously (not only SMS) through requests for improvement which are identified through:

a) Safety – Quality audit program

b) Requests from VNA (new requirements of aviation authorities, from competitors,... and/or Internal requests under safety review results).

SMS continuous improvement is also an importance part of the above mentioned continuous improvement of the whole company. Improvements, changes of SMS shall be implemented by Vietnam Airlines appropriately depend on the results of identification of the needs for improvements and changes process.

13.3.2Depending on the level of improvement and change, the improvement/change management process shall contain the following steps:

a) Identification of SMS improvement possibility or change request (from audit recommendations and findings, external request for changes, or internal needs for changes, improvement);

b) Define the scope of SMS improvement, change: Manual, documentation, procedure revision; training for staff; investment of new technology...

c) Risk identification, evaluation and mitigation;

d) Proposal of the most suitable method and plan for change, improvement;

e) Implementation of the approved plan. Depend on the importance and scope of the plan a SAG may be established with the involvement of related departments/divisions;

f) Evaluation of the project.

Note: *For the implementation corrective and preventive actions as a request of an safety audit, heads of related departments and organisations must carry out the root cause analysis and choose the most effective plan.*

System improvement through activities of QMS: Optimisation of working processes; Implementation of safety corrective preventive actions or improvement plans in timely manner is also considered SMS improvement. Refer to QMM Chapter 3 on Safety - Quality Assurance Program.

13.5 SMS continuous improvement procedure.

13.5.1 Objective.

SMS continuous improvement is a main element of safety assurance activities in SMS, Thus, VNA shall review and implement SMS continuous improvement process systematically to ensure maintaining effectiveness and effeciency of SMS.

13.5.2 Scope.

This process is applied for all Department/Division, unit within VNA's SMS.

13.5.3 Participants and Responsibility.

a) President&CEO is responsible for effectiveness and effeciency of SMS continuous improvement process.

b) SRB is responsible for reviewing, giving directions and approving continuous improvement measure.

c) SAGs review and submit continuous improvement measure for Board of authoritative management for approving.

d) SQD implement internal safety audit; assess safety review reports from other Departments/Divisions/Units; conduct safety review (if any); analyse root cause and propose continuous improvement measures.

e) Departments/Divisions/Units within VNA's SMS are responsible for implementing safety review process and follow this procedure.

13.5.4 Reference Document

a) VAR 12.075 (a)(3)(4)

b) AC-00-003 5.3, includes Appendix B

c) ICAO Doc 9859

d) VNA's QMM.

13.5.5 Procedure.

SMS continuous improvement process is carried out following steps below:

a) **Step 1**:

1) SQD implement internal safety audit base on approved annual audit plan.

2) Departments/Divisions/Units within VNA's SMS carry out safety review (if any) in daily operations such as: Flight/Technical/ground handling/cargo operations…. (through feedback from empployee, confidential/optional report, issues are raised from operation supervision) and send to SQD under monthly safety reports.

b) **Step 2**: SQD carry out:
   1) Analyse: SMS internal audit results, safety review report from Departments/Divisions/Units.
   2) Identify issues and root causes.
   3) Identify improvement activities, then determine improvement scope (include: Policy, document system, Technology/facilities, training, service provider changing, environmental improvement, adjust safety performance indicators….
   4) Evaluate improvement measure and safety risk mitigation solution base on: safety,effectiveness, practicality, cost/benefit.

c) **Step 3:** Submit and approve improvement solution (scope, measure, plan…)
   1) Depend on each area (Flight/technical/ground/cargo..) and improvement scope, SQD submit improvement solution to SAGs or SRB.
   2) SAGs and/or SRB review improvement solution then submit Board of authoritative management for approving.

d) **Step 4:** Implement approved SMS improvement solution.
   1) All related Departments/Divisions/Units within VNA are resposible for implementation of approved solution and report progress to SRB/SAGs/SQD.
   2) For huge improvement program, SQD will coordinate with related Departments/Divisions/Units to adjust program ensure the solution is suitble and effective. The adjusted programe shall be submit Board of authoritative management for approving.
   3) SQD follow and assess SMS improvement progress through reports of related Departments/Divisions/Units. Besides, SQD shall monitor and measure VNA's safety performance indicators for evaluating of effectivenes of SMS improvement solution and report SAGs and/or SRB.

13.5.6 Records:

a) SMS continuous improvement records include:
   1) Analysis report of SMS internal audit results, safety review results.
   2) Report of improvement identification, include: scope, measures and plan of improvement process.
   3) The records concern implemetation, following and assessing effeciency of SMS improvement.

b) All above records be retained for the period of 3 years at SQD.

CHAPTER 14
SMS DATA AND RECORDS MANAGEMENT

14. SMS Data and Records Management

14.1 Purpose

The purpose of this chapter is to describe the data and records management process of VNA's safety management system compliance with law, standards and recommended practices of the International Civil Aviation Organization (ICAO), Ministry of Transportation (CAAV), other Aviation Authorities and International Air Transport Association (IATA).

14.2 Scope of application

The scope of this chapter is consistent with VNA's safety management system mentioned in Chapter 3 of this manual.

14.3 Reference Document

14.3.1 ICAO Annex 19 - Safety Management;
14.3.2 ICAO Doc 9859;
14.3.3 VAR 12 075 - Safety Management System;
14.3.4 AC-01-003 - Development of Acceptable Safety Management Systems;
14.3.5 IOSA Standard Manual.

14.4 Documentation, safety record and safety data of Vietnam Airlines

Documentation, safety record and safety data of Vietnam Airlines include:

14.4.1 Safety Policy;

14.4.2 Safety reports (*Ref. Chapter 8 - Reports and data safety*);

14.4.3 Internal, external, and third-party quality and safety audit records;

14.4.4 HIRA, risk management, management of change, FRMS records;

14.4.5 Records of safety's monitoring and measurement (KPI);

14.4.6 Records of safety investigations, safety dissemination sessions;

14.4.7 Records of working sessions of SRB, SAG;

14.4.8 SMS training records and manual;

14.4.9 Safety Bulletin;

14.4.10 Records of SMS improvements and changes;

14.4.11 Records of safety survey;

14.4.12 Records of Flight data analysis.

14.5 Document storage and records:

Principles of document, records and safety data storage has been stated in VNA's Quality Manual.

14.5.1. Safety data and records are retained in different departments, divisions of Vietnam Airlines.

14.5.2. Safety records and data are archived in both hardcopy and digital forms.

14.6 Statement of confidentiality

Vietnam Airlines commits to use all power to keep information confidential in all necessary cases in order to keep the information sources safe and to maintain its non-punitive safety policy that include:

14.6.1 For flight data – VAR12.075(d)(1)

a) Confidentiality: the identity of individual crewmembers cannot be associated with any FDM data, except for the purposes of crew-contact when an investigation is deemed necessary;

b) Anonymity: any identification of airline flight and/or flight crews with specific FDM flight data necessary during an analysis is eliminated permanently at the earliest possible time;

c) Data access and control: SQD is responsible for data protection. In addition, data access and control guarantees the protection of data; only authorized personnel of the SQD has access to the data. The data processing and storage locations are subject to protection.

d) Facilities: the access to facilities for all systems, offices, equipment, workstations, computers, and peripherals associated with the FDM program is controlled.

14.6.2 For personal information of a confidential report

a) Confidential reports are received and processed by SQD follow a separate procedure to keep all personal information of the confidential report sources hidden before safety information can be passed to a normal processing procedures;

b) SQD Director or authorized person who handle the report has the responsibility to keep name and all personnel information of the report source confidential;

c) The reporter shall be informed by SQD about processing results as soon as possible;

d) Vietnam Airlines prohibit disclosure of name and personnel information of the confidential reporting sources. Violation of this policy shall be subjected to Vietnam Airlines internal punishment procedures and rules.

14.6.3 For information of occurrence and safety investigations

a) Information of occurrence and safety investigations or parts of them are only disclosed to the related parties upon approval of Vietnam Airlines authorized persons.

b) Violation of this policy shall be subject to Vietnam Airlines internal punishment procedures and rules.

14.6.4 Retention period of safety records, documentation and data

No	Safety documents, data, records	Place of retention	Period of retention	Remarks
1	Safety policy	SQD	05 years	
2	Safety reports	SQD; Related Dept./Divisions	05 years	
3	Internal, external and third parties audit records, reports (include in-flight audit of flight and cabin crews)	SQD; Related Dept./Divisions	05 years	*In-flight audit records are retained in LOSA database*
4	Records of HIRA, risk management, management of change, FRMS	SQD; Related Dept./Divisions	10 years	
5	Records of safety's KPI	SQD; Related Dept./Divisions	5 years	
6	Records of occurrence & safety investigations, safety dissemination sessions	SQD; Related Dept./Divisions	10 years	
7	Records of working sessions of SRB, SAG	SQD; Related Dept./Divisions	10 years	
8	Records of safety and SMS training	SQD; HR Dept.; Related Dept./Divisions	02 years after staff stops working at Vietnam Airlines	
9	Safety Bulletin	SQD; Related Dept./Divisions	5 years	
10	Records of SMS improvements and changes	SQD; Related Dept./Divisions	5 years	
11	Records of safety survey	SQD; Related Dept./Divisions	5 years	
12	Records of Flight data analysis			
	Records of safety analysis (as results of SMS processes)	SQD; Related Dept./Divisions	10 years	
	Flight data	SQD; Related Dept./Divisions	Raw data: 10 years Statistical data: Forever	*Server*

CHAPTER 15
MANAGEMENT OF CHANGE

15. Management of change

15.1 Purpose

The purpose of this chapter is to describe the processes of managing change in aviation safety of Vietnam Airlines that meet the requirements, standards and practice recommendations of the International Civil Aviation Organization. ICAO) and the International Civil Aviation Association (IATA).

15.2 Scope of application

The scope of application of this chapter consistent with the scope of the safety management system of Vietnam Airlines has been mentioned in Chapter 3 of this document.

15.3 Reference documents

a) ICAO Annex 19 Safety Management;
b) ICAO Doc 9859;
c) VAR 12.075 Safety Management System;
d) AC- 01-003 Development of Acceptable Safety Management Systems;
e) IOSA ORG 3.1.5

15.4 Concepts

a) Management of change is a systematic approach that identifies and analyzes internal and external changes that may affect the organization's operations and evaluate, control the risks associated with the changes.

b) The process of change management is designed to ensure that any internal and external changes affect safety of the service operations, the operation process ... are conducting management.

15.5 Classification of changes.

a) Internal changes

Internal changes include the expansion, downsizing or consolidation of organizations, personnel, new initiatives, business decisions, as well as the renewal or modification of a system, equipment, program, products and services.

b) External changes

External changes include new laws or operating condition changes (eg new regulations on safety, security, revision of Dangerous Goods Regulations, change of Air Traffic Control system...).

15.6 Vietnam Airlines' policy for management of change

a) Vietnam Airlines develops and applies effectively of change management process which meet the requirements of the Authority, in accordance with its orientation and safety objectives.

b) Before applying the change, Vietnam Airlines must implement a change management process to identify the hazard, thereby providing solutions to mitigate risk to achieve the acceptable safety levels (ALARP).

c) Departments and units shall utilize the AQD application (Risk Module) to perform Management of Change through the "Proactive Risk Review Process."

15.7 Responsibilities

15.7.1 President & CEO

a) Ensure the provision of resources for the implementation of the Corporation's Management of Change process.

b) Directly decide on, or require responsible units to carry out, the Management of Change process when the change affects two or more areas of the Corporation.

c) Approve or delegate the approval of the Management of Change report.

15.7.3 Safety Postholder - Executive Vice President of Safety

a) Advise the General Director and the SRB on matters related to the Management of Change.

b) Ensure that the Corporation's Management of Change (MoC) process is maintained and effectively implemented.

c) Decide on, or require responsible units to implement, the Management of Change process when the change affects one area of the Corporation.

15.7.4 Other Executive Vice Presidents

Direct their respective Units/Departments to implement Management of Change (MOC) for changes affecting their functional areas or specific Units/Departments, and monitor the MOC process as implemented in the AQD.

15.7.5 Safety - Quality Department

a) Advise the SRB, the CEO, and the Safety Posholder on hazard identification, safety risk assessment, and risk mitigation when changes are implemented.

b) Participate in the Management of Change (MoC) process together with relevant units via the AQD system.

15.7.6 Other departments and divisions

a) Disseminate and communicate changes, newly identified hazards, and safety risk levels within the unit.

b) Proactively implement the Management of Change process within the unit or as directed by the General Director or Deputy General Director for Safety, using the AQD application.

c) Develop and implement safety risk mitigation measures in accordance with the approved plans and programs.

d) Support the SQD in hazard identification and development of safety risk mitigation measures.

e) Coordinate with the SQD to deliver safety training and education when necessary.

15.7.7 Employees involved.

a) Participate in training to gain adequate awareness of changes that may affect safety in daily operations.

b) Take part in the Management of Change process via the AQD system as assigned by the unit's leadership.

15.8 Assignment of responsibilities for the management of change (Risk Review-RR) on AQD.

15.8.1 Roles of Stakeholders involved in AQD.

15.8.1.1 Management of change affecting 2 or more areas of VNA

	Sponsoring Manager	Risk Coordinator	Subject Matter Expert	Action Assignee	Observer
Initiate Risk Review	CEO/ Authorized person				Safety EVP
Create, Assign staff & Start RR		SQD's Director/ Manager/ Executive			Safety EVP
Identify Hazards and Risks			Unit's Director/ Manager/ Executive		Safety EVP
Enter Action plans			Unit's Director/ Manager/ Executive		Safety EVP
Close Risk Review and distribute results		SQD's Director/ Manager/ Executive			Safety EVP
Complete Actions				Unit's Manager/ Excutive	Safety EVP
Close Actions		SQD's Director/ Manager/ Executive			Safety EVP
Update Risks		SQD's Director/ Manager/ Executive			Safety EVP

15.8.1.2 Management of change affecting 1 area of VNA.

	Sponsoring Manager	Risk Coordinator	Subject Matter Expert	Action Assignee	Observer
Initiate Risk Review	Unit's Director				SQD Director
Create Risk Review and assign staff		Unit's GM/Executive			SQD Director
Start Risk Review			Unit's Director		SQD Director
Identify Hazards and Risks			Unit's Manager/ Executive		SQD Director
Enter Action plans			Unit's Executive		SQD Director
Close Risk Review and distribute results		Unit's GM/Executive			SQD Director
Complete Actions				Unit's Excutive	SQD Director
Close Actions		Unit's GM/ Executive			SQD Director
Update Risks		Unit's GM/ Executive			SQD Director

15.8.1.3 Management of change affecting 1 Unit within VNA.

	Sponsoring Manager	Risk Coordinator	Subject Matter Expert	Action Assignee	Observer
Initiate Risk Review	Unit's Director				SQD GM
Create Risk Review and assign staff		Unit's GM/ Executive			SQD GM
Start Risk Review			Unit's Director		SQD GM
Identify Hazards and Risks			Unit's Manager/ Executive		SQD GM
Enter Action plans			Unit's Executive		SQD GM
Close Risk Review and distribute results		Unit's GM/ Executive			SQD GM
Complete Actions				Unit's Excutive	SQD GM
Close Actions		Unit's GM/ Executive			SQD GM
Update Risks		Unit's GM/ Executive			SQD GM

15.8.1.4 Management of change affecting a subsidiary and required to be reported in AQD

	Sponsoring Manager	Risk Coordinator	Subject Matter Expert	Action Assignee	Observer
Initiate Risk Review	Company's CEO				SQD GM
Create Risk Review and assign staff		Company's Board of Director/ GM			SQD GM
Start Risk Review			Company's Manager/ Executive		SQD GM
Identify Hazards and Risks			Company's Manager/ Executive		SQD GM
Enter Action plans			Company's Executive		SQD GM
Close Risk Review and distribute results		Company's Board of Director/ GM			SQD GM
Complete Actions				Company's Executive	SQD GM
Close Actions		Company's Board of Director/ GM			SQD GM
Update Risks		Company's Board of Director/ GM			SQD GM

15.8.2 Responsibilities of Review Participants in the AQD System

15.8.2.1 Safety Manager / Sponsoring Manager.

a) Initiates the risk assessment process related to the proposed change.
b) Defines the scope and objectives of the change.
c) Requests the creation of a Risk Review.
d) Approves or rejects the proposed change based on the risk assessment outcome.

15.8.2.2 Risk Coordinator.

a) Oversees and manages the entire Risk Review process.
b) Creates the Risk Review.
c) Assigns a Subject Matter Expert (SME) to conduct the risk assessment.
d) Starts the Risk Review in the system.
e) Monitors the progress of the Review and supports report generation.
f) Ensures that all records are properly maintained.

15.8.2.3 Subject Matter Expert (SME).

a) Performs the risk assessment and proposes an appropriate action plan.
b) Identifies hazards and risks associated with the change.
c) Records safety controls and enters the mitigation plan into the system.
d) Supports the Risk Coordinator in generating the Review report.

15.8.2.4 Action Assignee.

a) Implements assigned risk control actions according to the plan.
b) Completes the actions assigned within the defined timeframe.
c) Updates action progress in the AQD system.
d) Confirms completion once the action is fulfilled.

15.8.2.5 Observer.

Monitors the entire Risk Review process but is not permitted to edit content or take any action within the Review.

15.9 Management of change procedure.

15.9.1 Identification of change and the need for management of change.

The SQD and relevant units initially determine whether change management is required, define the scope, and conduct a preliminary safety risk assessment, then submit to the CEO, Safety EVP, or relevant EVP for decision.

15.9.2 Conducting the management of change.

The management of change process shall be carried out using the AQD and includes the following steps:

a) Submit a request to initiate a risk review.

b) Create the risk review and assign the relevant Staff.

c) Start risk review

d) Conduct the safety risk assessment.

e) Propose and record the mitigation plan.

f) Close the risk review and allocate follow-up actions.

g) Implement the mitigation or corrective actions.

h) Close each action and update the risk status.

i) Generate the final report and maintain documentation records.

15.9.3 Approval of the management of change report.

a) The relevant EVP shall review and approve the management of change report for changes within their area of responsibility.

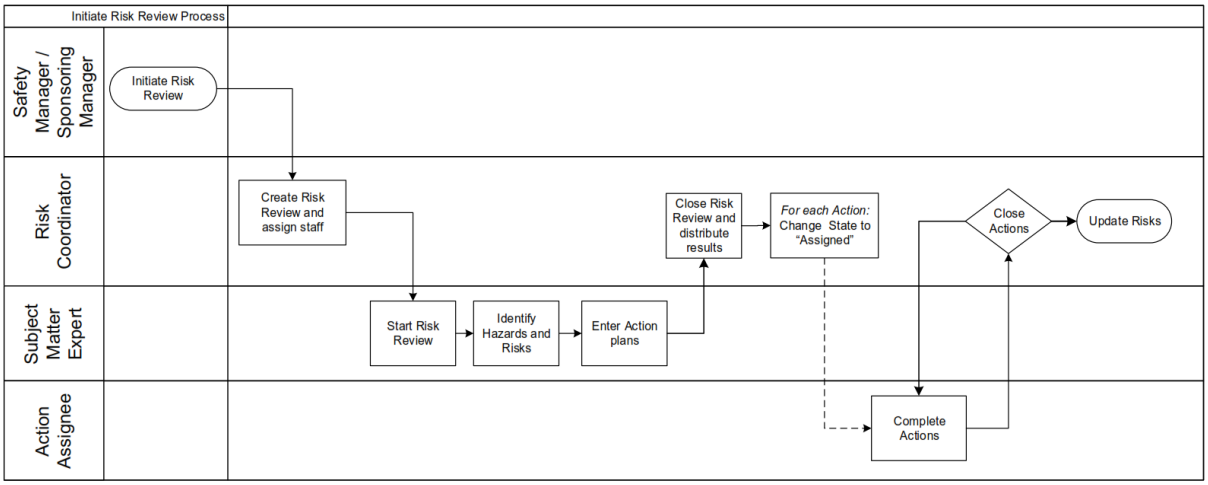
b) For changes that impact two or more areas, the management of change report shall be reviewed and approved by the CEO or the Safety EVP.

15.9.4 Records and archiving of management of change documentation.

a) All records related to the management of change shall be stored within the AQD.

b) A printed copy shall be retained at the relevant operational department for a minimum of five (05) years.

15.9.5 Flow chart



15.10 Appendix

Management of Change Report: use AQD report templates

Review 24/RR/1 Khai thác mở đường bay Munich

State	In Progress	**Sponsoring Manager**	Nguyen Dang Quang - SQD Director
Target Start/End	10 Sep 2024 -> 17 Sep 2024	**Facilitator**	
Actual Start/End	10 Sep 2024 ->	**Staff Allocated**	Hoang Nhat-SQD (SME), Hoang Anh Tuan-SQD (Observer), Tran Thi Hong Khanh-SQD (Facilitator), Nguyen Dinh Dan-SQD (SME), Phan Quy Doc-SQD (Co-ordinator), Thach Thuy Duong-SQD (SME), Tran Hoang Anh-SQD (SME)
Department	Safety – Quality Department		

Objective

- The objective of this report is to present a strategic plan for the initiation of flight operations to Munich Airport. The report includes a comprehensive risk assessment and outlines mitigation strategies to ensure seamless and efficient operations.
- This risk assessment seeks to identify, evaluate, and address risks associated with launching a new commercial flight to Munich Airport (EDDM). It involves a detailed examination of potential risks across several critical areas, including operational, technical, ground operations, and human factors. Special emphasis is placed on the principles of Risk Index (RI) and As Low as Reasonably Practicable (ALARP) to ensure risks are managed effectively and minimized to acceptable levels.

Scope

All aspects, including operational, technical, and human factors, will be encompassed.

Assumptions

Munich Airport serves Munich and Upper Bavaria as an international gateway.

Summary

Risk on all aspects: flight ops, technical and gorund ops have been reviewed with mitigation actions

Context

VNA is planning to start commercial operations to Munich. It ranks as Germany's second-busiest airport in terms of passenger traffic, following Frankfurt Airport, and is the tenth-busiest airport in Europe.

People Present

CCD

Stakeholders

- Flight Crew: The flight crew plays a pivotal role in flight operations. By receiving comprehensive information and timely notices, they will be equipped to operate the flight safely and efficiently.
- Flight Dispatchers: Flight dispatchers will be involved in setting up and calculating the optimal flight route, employing various resources to ensure that flight safety is fully accounted for.
- Additional Stakeholders: Other stakeholders, including maintenance teams, training departments, and ground staff, will be involved in various aspects of the flight. Their roles and responsibilities will be clearly defined to ensure a coordinated effort throughout the organization.

Review 24/RR/1 Khai thác mở đường bay Munich

- Risk Assessment

Risk Title	Cabin Crew Familiarity with Munich Airport		
Risk ID	R16-24	**Date Identified**	11 Sep 2024
Department	Cabin Crew Division	**Entered by**	Thach Thuy Duong-SQD
Category	Impact on the Environment	**Next Review**	11 Sep 2024
Risk Type	Operational - Safety	**Risk Owner**	Thach Thuy Duong-SQD

Risk Trend

Description Potential for technical failures in critical systems such as engines, hydraulics, or electrical systems when aircraft are away from the maintenance base.

Business Unit Affected	Risk Matrix Title	Current	Target	Unspecified Risk Rating	Unspecified Risk Rating
Cabin Crew Division	Primary Risk Matrix	Acceptable {7}	Acceptable {3}	Not specified	Not specified

Risk Accepted		Date	

Actions

Action ID	A32-24	**Action State**	Proposed
Department	Safety – Quality Department	**Assigned to**	Hoang Nhat-SQD
Due Date	11 Sep 2024	**To Be Tracked by**	Thach Thuy Duong-SQD

+ Update the Flight Information Manual (GERMANY) - Munich:
+ Providing information on customs/ quarantine regulations in MUC, hotel arrangements, and shuttle services.
+ Before the flight, the Purser shall conduct a comprehensive briefing for all crew members, covering detailed information on customs procedures, visa requirements, and any other relevant immigration protocols. Additionally, the Purser will provide crew members with important hotel information, such as accommodation details, check-in procedures, transportation arrangements, and any other pertinent logistics.

Completed		Date	

Prepared By		Date	
Approved By		Date	

CHAPTER 16
EMERGENCY RESPONSE PLAN

16. Emergency Response Plan

Reference documents:

a) AC–01–003 4.2;

b) IOSA Standard Manual.

16.1 Definitions

ICAO has defined three emergency phases are defined as follows

16.1.1 Uncertainty phase (INCERFA):

a) No communication has been received from an aircraft within a period of thirty (30) minutes after the time a scheduled position report should have been received; or when

b) An aircraft fails to arrive within thirty (30) minutes of the estimated time of arrival last notified to or estimated by Air Traffic Service Units, whichever is the later; except when no doubt exists as to the safety of the aircraft and its occupants.

16.1.2 Alert phase (ALERFA):

Following the uncertainty phase, subsequent communication checks have failed to reveal any news of the aircraft; or when

a) An aircraft has been cleared to land and fails to land within (5) minutes of the estimated time of landing and communication has not been re-established with the aircraft; or when

b) Information has been received which indicates that the operating efficiency of the aircraft has been impaired but not to the extent that a forced landing is likely; except when evidence exists that would allay apprehension as to the safety of the aircraft and its occupants.

16.1.3 Distress phase (DETRESFA):

Following the alert phase the absence of news from widespread communication checks under the circumstances points to the probability that the aircraft is in distress; or when

a) The fuel on board is considered to be exhausted or to be insufficient to enable the aircraft to reach safety; or when

b) Information is received which indicates that the operating efficiency of the aircraft has been impaired to the extent that a forced landing is likely; or when

c) Information is received or it is reasonably certain that the aircraft is about to make or has made a forced landing; except when there is reasonable certainty that the aircraft and its occupants are not threatened by grave and imminent danger and do not require immediate assistance.

Declaration of any of these phases above will only be made by Air Traffic Services (ATS).

16.2 Emergency and crisis response plan

Vietnam Airlines maintains an emergency management capability that is designed to control and manage any aircraft emergency situation that may occur during operation, while at the same time permit the continuation of normal operations with the minimum disruption and continuous safety level.

In cases of emergencies, crisis, individuals and organizations concerned shall have the responsibility to report in timely manner to VNA OCC all related information.

In uncertainty and alert phases (**INCERFA/ALERFA**) and in the followed distress phase (**DETRESFA**), VNA station staff/the Agent concerned upon receipt of ATC service provider about one out of three above emergency situations must:

a) In uncertainty/alert phases (**INCERFA/ALERFA)**:

1) Alert all the local facilities of VNA, the handling agent, and other local authorities as required.
2) Dispatch an INCERFA/ALERFA message by the highest priority and the most rapid channel to OCC detailing information relating to the emergency.
3) Open Aircraft Accident log and record all events, requests, telexes/facsimiles and information relating to the emergency.
4) Keep contact with ATC.
5) When the emergency is ended and no Accident ensues, notify all those previously contacted to revert to normal.

b) Distress phase (DETRESFA):

1) Alert all the local facilities of VNA and the handling agents.
2) Dispatch a DETRESFA message by the highest priority and the most rapid channel to OCC detailing information as required in Signal Form.
3) Open Aircraft Accident log and record all events, requests, telexes/facsimiles and information relating to the emergency.
4) Keep contact with ATC.
5) Inform ATC of the type and loading position if any Dangerous Good carried on board.

6) When the emergency is ended and no Accident ensues, notify all those previously contacted to revert to normal.

The detailed organization and applicable procedures for emergencies are described in the document: *"Vietnam Airlines Emergency Response Manual"*.

Equivalent procedures shall be applied flexibly in crisis cases with direct involvement and decisions of top management board.

CHAPTER 17
FATIGUE RISK MANAGEMENT SYSTEM (FRMS)

17. Fatigue Risk Management System (FRMS)

Note: Chapter 17 of Fatigue risk management system is compiled as the basis for Vietnam Airlines to develop FRMS. This content as well as Vietnam Airlines FRMS will be assessed and approved by CAAV according to implementation plan in Quarter 1 in 2018.

17.1 Introduction

17.1.1 Reference documents

a) VAR part 15; VAR 12.157, VAR 14.042

b) ICAO Annex 6;

17.1.2 Purpose

a) This chapter provides VNA policy and regulation to establish and operate FRMS in accordance with CAAV requirements and comply with ICAO standards as well as SARPs - VAR 15.010 (b), VAR 15.063 (a).

b) Currently, FRMS apply to Crew Member only. Based on CAAV specific regulations and this Chapter, other Departments/Divisions could establish FRMS for Dispatchers, Technical and Ground Services Staffs and others

17.1.3 FRMS includes 04 components - VAR Appendix 1 to 15.063 (a) (1)

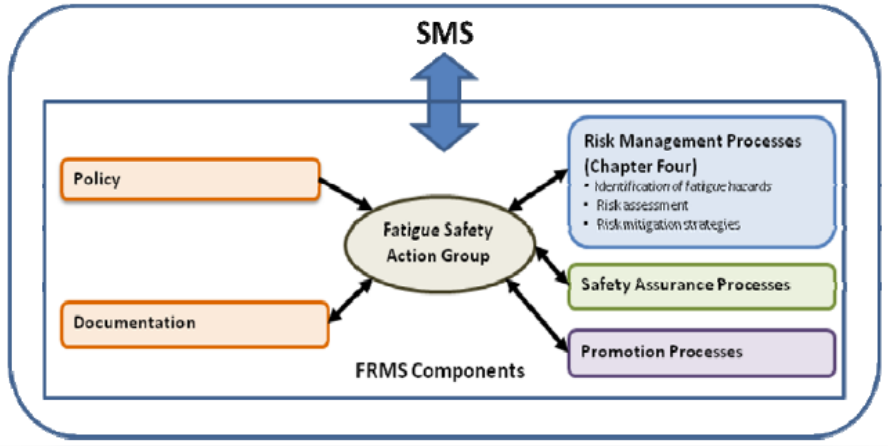
a) Policy and documentation

b) Fatigue risk management

c) FRMS safety assurance

d) FRMS promotion

Fatigue Risk Management System is incorporated into Safety Management System and approved by CAAV – VAR12.157 b2); VAR 12.157 d)



17.1.3 FRMS components

17.1.4 Definition and abbreviation

17.1.4.1 Definition

a) Crew member fatigue: A physiological state of reduced mental or physical performance capability resulting from sleep loss or extended wakefulness, circadian phase, or workload (mental and/or physical activity) that can

impair a crew member's alertness and ability to safely operate an aircraft or perform safety related duties.

b) Fatigue risk management system: A data-driven means of continuously monitoring and managing fatigue-related safety risks, based upon scientific principles and knowledge as well as operational experience that aims to ensure relevant personnel are performing at adequate levels of alertness.

17.1.4.2 Abbreviation

a) FRMS: Fatigue Risk Management System

b) FRM: Fatigue Risk Management

c) FSAG: Fatigue Safety Action Group

17.2 FRMS policy and documentation

17.2.2 Vietnam Airlines FRMS policy

a) The requirements for the FRMS policy:

1) Reflect the shared responsibility of management, flight and cabin crews, and other involved personnel;
2) Clearly state the safety objectives of the FRMS;
3) Be signed by President & CEO;
4) Be communicated to all the relevant areas and levels of VNA;
5) Declare management commitment to effective safety reporting, the provision of adequate resources for the FRMS and continuous improvement of the FRMS;
6) Clearly identify lines of accountability for management, flight and cabin crews, and all other involved personnel;
7) Be reviewed periodically to ensure it remains relevant and appropriate.

b) FRMS policy of VNA

Refer Appendix 17.1

17.2.3 Fatigue safety action group (FSAG)

17.2.3.1 Purpose

Fatigue Safety Action Group (FSAG) is responsible for coordinating all fatigue risk management activities at VNA. This includes responsibility for gathering, analyzing, and reporting on data that facilitates the assessment of fatigue-related risk among flight crewmembers. The FSAG is also responsible for ensuring that the FRMS meets the safety objectives defined in the FRMS Policy, and that it meets regulatory requirements. The FSAG exists to improve safety, and does not get involved in industrial issues.

17.2.3.2 Composition and tasks - VAR Appendix 2 to 15.063 (c), (d)

a) FSAG members

SAG1 members are also FSAG members, including:

1) Team Leader: Executive Vice President of Flight Operations
2) Representatives of:
   i) Flight Crew Division: Deputy Chief pilot in charge of Safety, Safety – Quality General Manager, Fleet Managers and Deputy managers of B787, A350, A321 and ATR72 fleet.
   ii) Cabin Crew Division: Deputy Director in charge of Safety, Safety – Quality General Manager.
   iii) Flight Training Center: Deputy Director in charge of Safety
   iv) ASOC General Manager of Operation control Division
3) SQD representative: inspects and monitors of compliance in FSAG activities.

b) Tasks and duties:

FSAG is responsible to Executive Vice President of Safety and report to SQD.

1) Devenlop, implement, and monitor processes for the identification of fatigue hazards;
2) Ensure that comprehensive risk assessment is undertaken for fatigue hazards;
3) Develop, implement, and monitor controls and mitigations as needed to manage identified fatigue hazards;
4) Develop, implement, and monitor effective FRMS performance metrics;
5) Cooperate with SQD to develop, implement and monitor FRMS safety assurance processes, based on agreed safety performance indicators and targets;
6) Ensure that all relevant personnel receive appropriate FRMS education and training, and that training records are kept as part of the FRMS documentation;
7) Communicate fatigue risks and the performance of the FRMS to senior management;
8) Ensure that it has adequate access to scientific and medical expertise as needed, and that it documents recommendations made by these specialist advisors and the corresponding actions taken.
9) FSAG meeting is held monthly accompanied with SAG1.

17.2.4 FRMS documentation

FRMS documentation is integrated into VNA SMS and includes the following :

a) FRMS policy and objectives ;
b) FRMS processes and procedures ;
c) Accountabilities, responsibilities and authorities for these processes and procedures;
d) Mechanisms for ongoing involvement of management, flight and cabin crew member and other involved personnel;
e) FRMS training program, training requirements;
f) Flight duty limitation and rest periods (refer FOM chapter 7, CCOM 2.7);
g) FRMS outputs including findings from collected data, recommendations and actions taken.

17.3 Fatigue risk management processes (FRM) - VAR Appendix 2 to 15.063 (b)

17.3.1 Introduction to FRM

a) FRM is carried out through Fatigue Risk Management Process. This process is similar to Safety Risks Management process of SMS.

b) FRM processes include:
   1) Identify where fatigue is a hazard;
   2) Assess the risk level that a given fatigue hazard represents;
   3) If necessary, put in place controls and mitigation strategies and monitor to make sure that they manage the risk at an acceptable level.

17.3.2 Step 1: Identify the operations covered

FRMS applies to operations as defined in FOM and CCOM. Other operations will operate under flight and duty time regulations.

17.3.3 Step 2: Gather data and information

a) Gather data and information in order to identify fatigue hazards in operations that are covered by FRM processes.

b) Data and information is gathered from reporting system, survey, FDA, safety-quality audit result…

c) FRM may be possible to identify potential fatigue hazards based on operational experience of VNA or other airlines, scientific study of fatigue in similar operations

17.3.4 Step 3: Hazard identification

Fatigue hazard identification is carried out by 3 type of processes:

17.3.4.1 Reactive hazard identification processes - VAR Appendix 3 to 15.063 (a)(2)

Reactive processes are designed to identify the contribution of crewmember fatigue to safety reports and events. The aim is to identify how the effects of fatigue could have been mitigated, and to reduce the likelihood of similar occurrences in the future. These processes are based on the following data source:

a) Fatigue reports - VAR Appendix 3 to 15.063 (a)(2) (i)
b) Confidential reports - VAR Appendix 3 to 15.063 (a)(2) (ii)
c) Audit reports - VAR Appendix 3 to 15.063 (a)(2) (iii)
d) Incidents - VAR Appendix 3 to 15.063 (a)(2) (iv)
e) Flight data analysis events - VAR Appendix 3 to 15.063 (a)(2) (v).

17.3.4.2 Proactive hazard identification processes - VAR Appendix 3 to 15.063 (a)(3) These processes are based on the following data source:

a) Voluntary reports - VAR Appendix 3 to 15.063 (a)(2) (i)
b) Crew fatigue survey - VAR Appendix 3 to 15.063 (a)(2) (ii)
c) Flight crew performance data - VAR Appendix 3 to 15.063 (a)(2) (iii)

d) Available safety databases and scientific studies - VAR Appendix 3 to 15.063 (a)(2) (iv)

e) Analysis of planned vs. actual time worked - VAR Appendix 2 to 15.063 (e), Appendix 3 to 15.063 (a)(2) (v).

17.3.4.3 Predictive hazard identification process - VAR Appendix 3 to 15.063 (a) (1)

These processed focus on establishing crew schedules and conditions that consider factors known to affect sleep and fatigue in order to minimise their potential future effects. There are 03 possible ways of doing this are listed below:

a) Previous experience (of VNA or others airlines) - VAR Appendix 3 to 15.063 (a)(1)(i)

b) Evidence-based scheduling practice - VAR Appendix 3 to 15.063 (a)(1)(ii)

c) Bio-mathematical models - VAR Appendix 3 to 15.063 (a)(1)(iii).

17.3.5 Step 4: Risk assessment - VAR Appendix 3 to 15.063 (b)

a) Once a fatigue hazard has been identified, the level of risk that it poses has to be assessed and a decision made about whether or not that risk needs to be mitigated. Fatigue risk assessment follows SMS principles (combining risk probability and risk severity). It evaluates the potential for injury, equipment damage, or loss due to a fatigue hazard, and provides recommendations about management of that risk.

b) Fatigue risk assessment: refer Chapter 9 of this manual.

17.3.6 Risk mitigation Refer 9.6.7 of this manual.

17.4 FRMS safety assurance processes - VAR Appendix 4 to 15.063

17.4.1 Introduction

a) FRMS safety assurance processes are part of routine operation of FRMS and they monitor how well the entire FRMS is functioning. They:
   1) Check that the FRMS is functioning as intended;
   2) Check that it meets the safety objectives defined in the FRMS policy;
   3) Check that it meets regulatory requirements;
   4) Identify where changes in the operating environment have the potential to increase fatigue risk;
   5) Identify areas for improvement in the management of fatigue risk (continuous improvement of the FRMS).

b) To do this, FRMS safety assurance processes use a variety of data and information as safety performance indicators that can be measured and monitored over time and a safety target for each safety performance indicators.

17.4.2 Step 1: Collect and review data - VAR Appendix 4 to 15.063 (a)(1)

a) This step involves bringing together and reviewing information gained through the FRM processes to examine the overall performance of the FRMS. Performance of the FRMS should be examined through indentifying a variety of safety performance indicators:
   1) In-flight incidents related to crewmember's fatigue
   2) Number of fatigue reports per month
   3) Number of Flights with over 05 hours of transit or delay time per month
   4) Number of days with continuous 03 flight legs, and departing before 5 am, and more than 02 days per week.

b) Data sources for monitoring FRMS safety performance may include but are not limited to:
   1) Hazard reporting and investigations - VAR Appendix 4 to 15.063 (a)(1)(i);
   2) Audits and surveys - VAR Appendix 4 to 15.063 (a)(1)(ii);
   3) Reviews and fatigue studies - VAR Appendix 4 to 15.063 (a)(1)(iii);
   4) FRMS safety performance indicators.

c) Responsibilities
   1) Flight crew and Cabin crew division are responsible for measuring indicators listed in 17.4.2.a and monthly report to FSAG;
   2) FSAG monthly review measuring reports of Flight crew and Cabin Crew Division as well as data listed in 17.4.2.b and sum up FRMS performance.

17.4.3 Step 2: Evaluate FRMS performance - VAR 15.063 (c) (5)

a) The aim of Step 2 is to validate the effectiveness of the fatigue controls and mitigations. It involves analyzing the information gathered in Step 1 to check whether:
   1) All specified FRMS safety performance targets are met; and
   2) All specified FRMS safety performance indicators remain in the tolerable region defined in the risk assessment process; and
   3) FRMS meets the safety objectives defined in the FRMS policy; and
   4) FRMS meets all regulatory requirements.

b) When FRMS safety performance targets are not met or when safety performance indicators are not at an acceptable level, the controls and mitigations in use may need to be modified by re-entering the FRM processes at Step 2 or beyond. It may also be appropriate to seek additional information from outside the organization (for example, by looking at fatigue studies); or to undertake a review of compliance of crewmembers and other departments with the recommendations of the FSAG. It may also sometimes be necessary to review the functioning of the Fatigue Safety Action Group itself, to find out why the FRMS is not working as intended.

c) Responsibility for implementation: FSAG

17.4.4 Step 3: Identify emerging hazards

a) Analysis of trends in safety performance indicators may indicate the emergence of fatigue hazards that have not previously been recognized through the FRM processes. For example, changes in one part of the organization may increase workload and fatigue risk in another part of the organization.

b) Identifying emerging fatigue-related risks is an important function of FRMS safety performance processes. Any newly identified fatigue risk, or combination of existing risks for which current controls are ineffective, should be referred back to the FSAG for evaluation and management using FRM processes (risk assessment, design and implementation of effective controls and mitigations).

c) Responsibility for implementation: FSAG presides and cooperates with Flight crew division, Cabin crew division, SQD.

17.4.5 Step 4: Identify changes affecting FRMS

a) In aviation environment, changes are a normal part of flight operations. They may be driven by external factors (for example, new regulatory requirements, changing security requirements, or changes to air traffic control) or by internal factors (for example, management changes, new routes, aircraft, equipment, or procedures). Changes can introduce new fatigue hazards into an operation, which need to be managed. Changes may

also reduce the effectiveness of controls and mitigations that have been implemented to manage existing fatigue hazards. Step 4 of the FRMS safety assurance processes aims to identify when new hazards may be a result of change.

b) FRMS safety assurance processes that provide a formal methodology for the management of change. These must include (but are not limited to):
   1) identification of changes in the operational environment that may affect FRMS - VAR Appendix 4 to 15.063 (a)(2)(i);
   2) identification of changes within the organization that may affect FRMS - VAR Appendix 4 to 15.063 (a)(2)(ii); and
   3) consideration of available tools which could be used to maintain or improve FRMS performance prior to implementing changes - VAR Appendix 4 to 15.063 (a)(2)(iii).

c) Change management process: refer Chapter 15 of this manual.

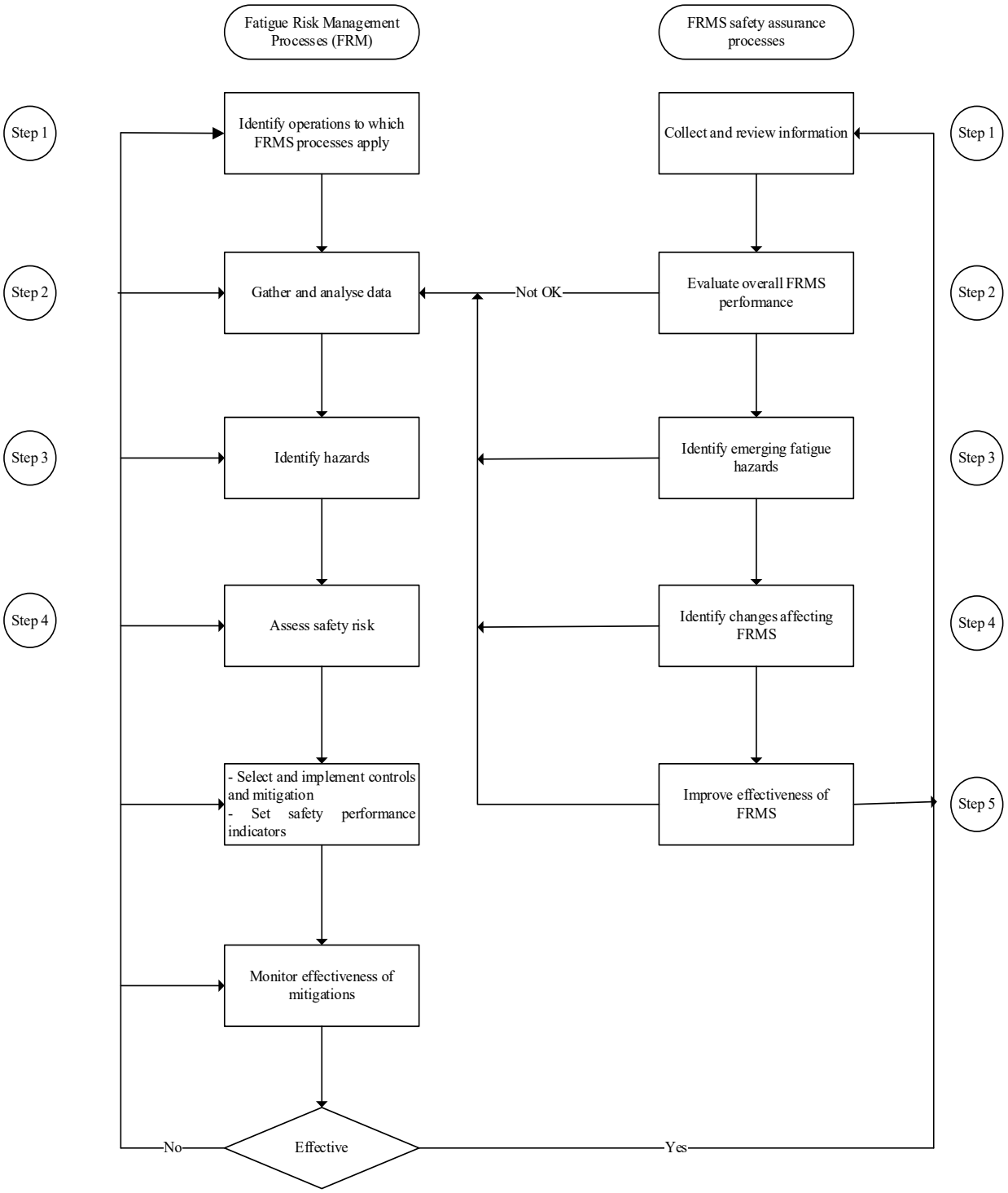
17.4.6 Step 5: Improve effectiveness of FRMS - VAR 15.063 (c) (5)

a) Ongoing evaluation by the FRMS safety assurance processes not only enables the FRMS to be adapted to meet changing operational needs, it also allows the FRMS to continuously improve the management of fatigue risk.
   1) The elimination and/or modification of risk controls that have had unintended consequences or that are no longer needed due to changes in the operational or organizational environment - VAR Appendix 4 to 15.063 (a)(3)(i);
   2) Routine evaluations of facilities, equipment, documentation and procedures - VAR Appendix 4 to 15.063 (a)(3)(ii);
   3) The determination of the need to introduce new processes and procedures to mitigate emerging fatigue-related risks - VAR Appendix 4 to 15.063 (a)(3)(iii).

b) Changes made to the FRMS are documented by the Fatigue Safety Action Group so that they are available for internal and regulatory audit.

c) Responsibility for implementation: FSAG presides and cooperates with Flight crew division, Cabin crew division, SQD.

Interaction between FRM process and FRMS safety assurance



17.5 FRMS promotion processes

17.5.1 Introduction

FRMS promotion processes include training programs and a communication plan. Along with FRMS policy and documentation, FRMS promotion processes support the core operational activities of FRMS (FRM processes and FRMS safety assurance processes).

FRMS training should ensure that all involved personal are trained and competent to undertake their responsibilities in the FRMS,

Like SMS, FRMS relies on effective communication throughout the operator's organization. On the one hand, there needs to be regular communication about the activities and safety performance of the FRMS to all stakeholders On the other hand, crewmembers and other stakeholders need to communicate promptly and clearly about fatigue hazards to the FSAG or other relevant management.

17.5.2 FRMS training program – VAR 14.042, Appendix 2 to 15.063 (e), Appendix 5 to 15.063 (b)(1) & (2)

a) Objects for FRMS training

For an FRMS to be effective, all personnel who contribute to FRMS safety performance need to have appropriate training.

This includes crewmembers, crew schedulers, dispatchers, all members of the FSAG, and personnel involved in overall operational risk assessment. It also includes senior management, in particular the executive accountable for the FRMS and senior leadership in any department managing operations within the FRMS.

Crewmembers, personnel involved in crew scheduling have completed initial and re-current training on the FRMS.

b) Training content

Content of training programs should be adapted according to the knowledge and skills required for each group to play their part effectively in the FRMS. All groups require basic education about the dynamics of sleep loss and recovery, the effects of the daily cycle of the circadian body clock, the influence of workload, the ways in which these factors interact with operational demands to produce fatigue, methods to manage their personal fatigue and sleep issues.

1) Crewmembers

FRMS training for crewmembers could address the following:

i) An overview of the FRMS structure and how it works.

ii) Responsibilities of crewmembers and related personnel, departments in the FRMS.

iii) Causes and consequences of fatigue in the operation(s).

iv) FRM processes, use of fatigue reporting systems and implementing mitigations.

v) The importance of accurate fatigue data (both subjective and objective).

vi) How to identify fatigue in themselves and others.

vii) Personal strategies that they can use to improve their sleep at home and to minimize their own fatigue risk, and that of others, while they are on duty.

viii) Basic information on sleep disorders and their treatment, where to seek help if needed, and any requirements relating to fitness to fly.

2) Crew scheduling

FRMS training for personnel involved in crew scheduling could address the following areas:

i) An overview of the FRMS structure and how it works, including the concepts of shared responsibility and an effective reporting culture.

ii) A robust understanding of how scheduling affects sleep opportunities and can disrupt the circadian biological clock cycle, the fatigue risk that this creates, and how it can be mitigated through scheduling.

iii) Comprehensive training in the use and limitations of any scheduling tools that may be used to predict the levels of crewmember fatigue across schedules and rosters.

iv) Their role in the FRMS in relation to fatigue hazard identification and risk assessment.

v) Processes and procedures for assessing the potential fatigue impact of planned scheduling changes, and for ensuring that the FSAG is engaged early in the planning of changes with significant potential to increase fatigue risk.

vi) Processes and procedures for implementing scheduling changes recommended by the FSAG.

vii) How to identify fatigue in themselves and others.

viii) Personal strategies that they can use to improve their sleep at home and to minimize their own fatigue risk, and that of others, while they are at work.

ix) Basic information on sleep disorders and their treatment, and where to seek help if needed.

3) FSAG

FRMS training for members of FSAG could be address the following areas:

i) A full understanding of all FRMS components and elements (policy and documentation; processes for hazard identification, risk assessment, mitigation, and monitoring; safety assurance processes for monitoring FRMS performance, managing change, and for continuous improvement of FRMS; and FRMS promotion processes, including training and communication).

ii) Responsibilities and accountabilities of different stakeholders in the FRMS.

iii) Linkages between the FRMS and other parts of the operator's overall SMS.

iv) Linkages between the FRMS and other parts of the organization, for example the scheduling, flight operations, medical department, etc.

v) Regulatory requirements for the FRMS.

vi) How to identify fatigue in themselves and others.

vii) Personal strategies that they can use to improve their sleep at home and to minimize their own fatigue risk, and that of others, while they are at work.

viii) Basic information on sleep disorders and their treatment, and where to seek help if needed..

4) Senior management

FRMS training for senior management could be address the following areas:

i) An overall understanding of crewmember fatigue and the safety risk that it represents to the organization.

ii) An overview of the FRMS structure and how it works, including the concepts of shared responsibility and an effective reporting culture, and the role of FSAG.

iii) Responsibilities and accountabilities of different stakeholders in the FRMS, including themselves.

iv) An overview of the types of fatigue mitigation strategies being used by the organization.

v) FRMS safety assurance metrics used by the organization.

vi) Linkages between the FRMS and other parts of SMS.

vii) Linkages between the FRMS and other parts of the organization, for example the scheduling, flight operations, medical department, etc.
viii) Regulatory requirements for the FRMS.
ix) How to identify fatigue in themselves and others..
x) Personal strategies that they can use to improve their sleep at home and to minimize their own fatigue risk, and that of others, while they are at work.
xi) Basic information on sleep disorders and their treatment, and where to seek help if needed.

c) Method and frequency of FRMS training

1) FRMS training can be conducted by the following methods:
   i) On class;
   ii) E-learning;
   iii) Self-study, "Read and sign";
2) FRMS training is conducted at least once in 24 months.

d) FRMS training evaluation

Effectiveness of FRMS training and education programs should be periodically evaluated.

Test at the end of each training course, survey or feedback from trainees/staffs after training which could be recognized through safety audits and safety performance results are used by Vietnam Airlines to recognize and evaluate the effectiveness of safety training.

e) FRMS training documentation

VNA keeps training programs, training requirements and training records in compliance with regulations.

f) FRMS communication - Appendix 5 to 15.063 (b)(2)(i) & (ii)

Like SMS, FRMS related information is disseminate within and outside VNA through the following methods, media:

1) Manual, documentation system;
2) Safety regulation and procedures;
3) Safety meeting, review;
4) Telephone, fax, message, SITA, email system of VNA;
5) Vietnam Airlines safety reporting system;
6) Safety bulletins, internal promotion media of VNA.

17.6 Appendix

a) Appendix 17.1: FRMS policy

APPENDIX

Appendix 4.1 Safety - Quality Policy

Vietnam Airlines

SAFETY - QUALITY POLICY

Safety and Quality are core values of Vietnam Airlines. We believe in delivering these values for our customers and stakeholders and maintaining a safe environment for our employees. The management and employees at Vietnam Airlines understand that customer trust is fundamental to the existence and development of the organization.

We are committed to:

- Promoting safety culture towards a generative level, focusing on a "Just Culture" in which all leaders and employees must be accountable for their actions and, in return, are provided assurance that they will be treated in a fair manner following an incident or safety occurrence through the application of Vietnam Airlines' Behavior Definition and Implementation Guide of Just Culture; enhancing a continuous Learning Culture within Vietnam Airlines;
- Comprehensively applying digital transformation in safety and quality; developing and applying a proactive SMS towards a predictive SMS which is based on statistical data analysis, and supports the open sharing of all safety-related information within the organization, encourages employees to proactively report occurrences, hazards, errors and safety related matters;
- Proactively managing changes, identifying hazards and safety risk management in operations, maintenance and training activities to eliminate and mitigate associated risks;
- Ensuring that each member of Vietnam Airlines shall abide by the safety and quality requirements and regulations to deliver on our promise and ensure continuous improvement of safety for our customers and employees;
- Strictly and effectively applying safety and quality management systems as described in the "Safety Management Manual" and "Quality Manual", striving for the highest degree of safety standards in compliance with all aviation authority requirements and regulations; integrating safety into business strategies, processes and performance measures;
- Providing necessary resources and conditions to implement the policies and achieve the objectives for safety and quality; continuously improving the management system, to create a reliable working environment with the highest level of organizational responsibility to meet customers' demand and expectation.

Safety and quality are the foundation of all activities of Vietnam Airlines

PRESIDENT & CEO
VIETNAM AIRLINES

M.S.D.N: 0100107518-C.T.C.
TỔNG CÔNG TY HÀNG KHÔNG VIỆT NAM CTCP
Q. LONG BIÊN - T.P HÀ NỘI

Lê Hồng Hà

Rev: 05 Date: 01 Jan 2024

Appendix 7.1.4 Organization Safety Culture (OSC)/Organization Risk Profile (ORP) Assessment Checklist

Note.— This OSC/ORP assessment checklist is a conceptual illustration only. The illustrated thirty-seven parameters are not comprehensive and are applicable for an air operator organization. Customization of these parameters for assessment of other service provider types would be necessary. The annotated result scores are purely illustrative. This OSC/ORP assessment should be conducted on a voluntary basis in view of organization culture/profile parameters which are beyond normal regulatory purview. Result column:

Result column: From pull-down menu, select —1‖ (L1), —2‖ (L2), —3‖ (L3) or —N/A‖ according to assessment

Organization name:		**Assessed by/date**			
	Organization risk parameter	**Risk level/profile**			**Result (Level #)**
		Level 3 (least desirable)	**Level 2 (average)**	**Level 1 (most desirable)**	
1	Accountable manager — ownership of safety/quality functions	Safety/quality functions non-existent in accountable manager's TOR	Accountable manager's TOR have negligible or indistinct mention of safety/quality functions	Final accountability for safety and quality matters clearly addressed in the accountable manager's TOR.	
2	Financial state of the organization	TBD	TBD	TBD	
3	Average age of fleet	More than 12 years	8 to less than 12 years	Less than 8 years	
4	SMS performance score	65%-75%	76%-90%	Trên 90%	
5	Active hazard identification and risk assessment (HIRA) programme	No active HIRA programme in place	HIRA programme in place. Completion or review of 1 to 3 risk assessment projects (per 100 operational employees) within the last 12 months.	Have HIRA programme in place for all major operational areas. Completion or review of more than 3 risk assessment projects (per 100 operational employees) for all operational areas within the last 12 months.	
6	Demanding flight crew schedules or timetables (number of flight time limitation incidents?)	TBD	TBD	TBD	
7	Ratio of internal safety plus quality control staff to all operational staff	1: more than 20	1:15 to 20	1: less than 15	
8	Mixed fleet flying (MFF) (percentage of pilots involved in MFF — higher percentage is less desirable)	TBD	TBD	TBD	

Organization name:			Assessed by/date		
	Organization risk parameter	Risk level/profile Level 3 (least desirable)	Level 2 (average)	Level 1 (most desirable)	Result (Level #)
9	EDTO routes (percentage of EDTO sectors operated) (higher percentage is less desirable)	TBD	TBD	TBD	
10	EDTO duration (higher duration is less desirable)	TBD	TBD	TBD	
11	Company experience (years of operation)	Less than 5 years	5 to 10 years	More than 10 years	
12	Combined turnover of the accountable executive, the safety manager and the quality manager over the last 36 months	3 or more	2	1 or nil	
13	Experience and qualifications of the accountable executive (as of the assessment date)	Has less than 3 years of aviation experience and no technical qualification	Has more than 3 years of aviation experience or technical qualifications	Has more than 3 years of aviation experience and aviation technical qualifications	
14	Experience and qualification of the safety manager (SM)	Has less than 5 years of civil aviation safety/quality experience or no aviation technical qualification	Has more than 5 years of civil aviation safety/quality experience and aviation technical qualifications	Has more than 15 years of civil aviation safety/quality experience and aviation technical qualifications	
15	Experience and qualifications of the quality manager	Has less than 5 years of civil aviation QC/QA experience or no civil aviation technical qualifications	Has more than 5 years of civil aviation QC/QA experience and civil aviation technical qualifications	Has more than 15 years of civil aviation QC/QA experience and civil aviation technical qualifications	
16	Multiple portfolio safety/quality management (QM/SM) staff	SM or QM staff holds other simultaneous executive positions within or outside of the organization	SM or QM staff's TOR include other non-direct safety/quality functions, e.g. IT, administration, training	SM or QM staff's does not hold any other simultaneous executive positions within or outside of the organization and their TOR do not include other non-direct quality/safety functions	
17	Multiplicity of aircraft types	More than 4 aircraft types	3 to 4 aircraft types	Less than 3 aircraft types	
18	Combined fleet reportable/ mandatory incident rate (per 1 000 FH) for the last 24 months	TBD	TBD	TBD	
19	Reserved				

Organization name:			Assessed by/date		
	Organization risk parameter	Risk level/profile Level 3 (least desirable)	Level 2 (average)	Level 1 (most desirable)	Result (Level #)
20	Combined fleet engine IFSD rate per 1 000 FH	TBD	TBD	TBD	
21	Average fleet MEL application rate (per 1000 FH)	More than 30 MEL applications per 1000 FH	10 to 30 MEL applications per 1000 FH	Less than 10 MEL applications per 1000 FH	
22	Internal technical concession application rate	3 concessions per aircraft per year	More than 1 concession per aircraft per year	Less than 1 concession per aircraft per year	
23	CAA technical concession application rate.	More than 1 concession per aircraft per year	More than 0.5 concessions per aircraft per year	Less than 0.5 concessions per aircraft per year	
24	Safety accountability structure	Safety management function/ office/manager is accountable or subservient to some operational functions	Safety management function/ office/manager is accountable to senior management and is independent of all operational functions	Safety management function/ office/manager has direct accountability and reporting to the CEO	
25	Quality accountability structure	Quality management function/office/ manager is accountable or subservient to non-quality/safety-related functions	Quality management function/office/ manager is accountable to senior management and is independent of all operational functions	Quality management function/office/ manager has direct accountability and reporting to the CEO	
26	CAA AOC organization audit findings rate (Levels 1 and 2 findings only, observations excluded) for the last 24 months	Any Level 1 finding or more than 5 findings per audit per aircraft	More than 1 finding per audit per aircraft	Less than 1 finding per audit per aircraft	
27	CAA LSI findings rate (Levels 1 and 2 findings only, observations excluded) for the last 24 months	Any Level 1 finding or more than 3 per audit per line station	More than 0.5 findings per audit per line station	Less than 0.5 findings per audit per line station	
28	Component (rotables/LRUs) soft/CM/hard life policy beyond mandatory or MPD requirements	No component life control policy (hard/soft) beyond mandatory or MPD requirements	Active component hard life control policy and procedures. At least 5 to 10% of all (MPD/AMS listed) flight and engine control rotables (beyond mandatory and MPD requirements) have been soft or hard lifed.	Active component hard life control policy and procedures. More than 10% of all (MPD/AMS listed) flight and engine control rotables (beyond mandatory and MPD requirements) have been soft or hard lifed.	
29	Scope of QA investigation and MEDA process	Internal QA investigation process applied to	Internal QA investigation process for all reported incidents	Internal QA investigation process for all reported incidents + MEDA	

Organization name:			Assessed by/date		
	Organization risk parameter	Risk level/profile Level 3 (least desirable)	Level 2 (average)	Level 1 (most desirable)	Result (Level #)
		mandatory incidents only		(or equivalent) process	
30	Availability of environmental protection programme	Non-existent	Isolated participation in an aviation environmental protection programme	Routine programme and regular engagement and participation in an aviation environmental protection programme	
31	Availability of special inspection programme based on non-mandatory OEM service publications	Special inspection programme for AD-related SBs only	Special inspection programme for ADs as well as alert SBs only	Special inspection programme for ADs, alert SBs as well as routine OEM service publications	
32	Control of fleet technical management	Fully contracts out to an external organization (FTM + ITM)	Partially contracts out to an external organization	Internal management by AOC organization	
33	Use of contracted technical staff	More than 15% contracted staff (from another organization) for internal engineering/technical functions	5 to 15% contracted staff (from another organization) for internal engineering/technical functions	Less than 5% contracted staff (from another organization) for internal engineering/technical functions	
34	Pilot, technician or AME transit inspection certification	Practises pilot transit inspection certification in lieu of qualified engineering technician/AME	Practises technician (limited rating) transit inspection certification in lieu of AME	Practises only AME (fully type-rated) transit inspection certification only	
35	Hazard reporting system	None in place	Voluntary hazard reporting system in place	Voluntary hazard reporting system in place. Also procedure for identification of hazards in conjunction with incident investigation process.	
36	Incident reporting, investigation and remedial action procedures	No documented incident reporting, investigation or remedial action procedures	Documented incident reporting, investigation and remedial action procedures	Documented incident reporting, investigation and remedial action procedures and accepted by the CAA	
37	Technical records, technical stores and fleet planning management	Fully contracts out technical records, technical stores and fleet planning management to external organization	Contracts out technical records, technical stores or fleet planning management to external organization	Internal (in-house) technical records, technical stores and fleet planning management	

	Subtotal
Level 3	
Level 2	
Level 1	
N/A	
Total number of questions	

ORP categorization	
Total score	ORP category
35-49	A (desirable)
50-63	B
64-77	C
78-91	D
92-105	E (least desirable)

Assessment result of	
Total points	ORP category

Notes:

1. Risk level criteria descriptions/figures are illustrative only, subject to customization and validation of actual figures to be used.
2. Checklist will need to be customized for AMOs, aerodrome and ATS service providers.
3. Points to be allocated for each parameter assessed — namely 1, 2 or 3 for Levels 1, 2 and 3 respectively.
4. This OSC/ORP checklist assessment may be completed by the assigned inspector/surveyor on a scheduled basis (such as during an organization audit). He may need to liaise with the service provider to obtain some of the data required.
5. This OSC/ORP assessment process may not be mandatory in view of those parameters which are outside of normal regulatory purview, e.g. staff turnover rate. It may be administered on a supplementary/voluntary participation basis.
6. Total points achieved and their corresponding ORP Category (Cat A to E) to be annotated. Results should be provided to the organization assessed.
7. Results of this OSC/ORP assessment may be correlated with other regulatory inspection/ audit programme findings to identify areas (organizations) with greater concern or need as per the requirements of SSP Element 3.3. Otherwise, notification of ORP results to each organization alone may suffice as a mechanism to encourage organizational behaviour (safety culture) towards the desirable category where applicable.

7.4.1 Below expectation behaviour - Unintentional mistakes and system errors

Category	Behaviour	Description of behaviour	Consequences to individuals	Consequences to managers of the individuals
Unintentional mistakes	Human errors	Actions that did not proceed as planned. Mistakes are actions that proceed as planned but do not achieve their desired result.	Coaching on how to spot errors, what influences the occurrence of slips and lapses and the importance of reporting them to aid detection of trends and underlying causes. Competence development/coaching	**Category**
	Personal routine mistakes	Not the first time this type of error of mistake has been made by one person. Other people in similar situations do not make this error.	Assessment of fitness to work (abilities and suitability for the job): If appropriate, further competence development and coaching If not, consider assigning alternative types of work.	Coaching on fitness to work (Ability to evaluate the capabilities to work of employees)
	Group routine mistakes	Not the first time this type of error or mistake has happened.	Whole team to receive coaching on how to spot errors, what influences the occurrence of slips and lapses and the importance of reporting them to aid detection of trends and underlying causes.	Coaching in Error management and competence management. Performance appraisal affected for not addressing clear problems in own area.
System induced errors	Errors from complicated procedures	A rule or procedure is violated because people were not aware of the rule or did not understand it.	Additional training on procedures where applicable.	Coaching on how to ensure procedures are correct, available and understood. Reviewing current related procedures and make necessary changes to ensure they are correct, available and compact.
	Errors from incorrect training or role	An individual or group commit safety errors due to being inappropriately trained or assigned the wrong position.	Assessment of fitness to work (abilities and suitability for the job): If appropriate, further competence development and coaching If not, consider assigning alternative types of work.	Coaching on fitness to work (Ability to evaluate the capabilities to work of employees) Reviewing current recruitment and training process to ensure the situation does not repeat.
	Communication errors	An individual or groups make temporary safety errors due to being misinformed or informed incompletely regarding an issue.	Additional training on procedures where applicable.	Reviewing current communication procedures to make sure the situation does not repeat.

7.4.2 Below expectation behaviour - Intentional violations and reckless behaviour

Category	Behaviour	Description of behaviour	Consequences to individuals	Consequences to managers of the individuals
System Induced Intentional violations	Situational violations	A job cannot be done if rules are followed. Instead of stopping the job, an employee or many do the job anyway and the rule is violated.	Coaching on the need to report when rules cannot be followed and to stop the job until it can be done safely. Mild disciplinary action in line with HR practices and guidelines.	Coaching on exercising related regulations within the organisation. If this type of situation has occurred before, performance appraisal is affected for not demonstrating commitment to rule compliance.
	Organisational-Optimising violation	Employee comitting the violation thought it was better for the company to do it that way. The violation was committed to improve the performance or to please supervisors.	Coaching on the need to report when rules cannot be followed and to stop the job until it can be done safely. Disciplinary action in line with HR practices and guidelines.	Coaching on exercising related regulations within the organisation. Performance appraisal is affected. If this type of violation has occurred before, there should be formal discipline for reckless supervision practices in creating a culture that encourages this behaviour.
	Group Routine Violation	Other people would have done or do it the same way. Checking for this type of violation can be done by using 'substitution test'. Substitution test: would a significant proportion of individuals with the same training and experience have acted in the same way under the same circumstances ?	Whole team to receive coaching in exercising related regulations within the organisation.	Performance appraisal may be affected for not being informed about clear problem area. Coaching in exercising related regulations within the organisation. If this is a repeat violation, performance appraisal is further affected for condoning violation and not taking action.
Intentional Violations	Personal Optimising Violation	Employee thought it was better for them personally to do the job a certain way e.g to get longer work break...	Formal discipline. If this has happened before, formal warning process should be followed. Consider anonymous publication of the violation and its consequences for workers and their managers.	Performance appraisal is affected for not becoming informed about clear problem area. Coaching on exercising related regulations within the organisation.. If this is a repeat violation, performance appraisal is further affected for condoning violation and not taking action. The reason for condoning this behaviour should be investigated.

Category	Behaviour	Description of behaviour	Consequences to individuals	Consequences to managers of the individuals
	Personal routine violation	The individual has a history of violations, disregard for rules and procedures in general, nut just frequent violation of the rules under investigation	Formal discipline. In worst cases, consider dismissal in line with HR policies and guidelines	Coaching on how to recognise individual violators. If this is a repeat violation, performance appraisal is further affected for condoning violation and not taking action. The reason for condoning this behaviour should be investigated.
Reckless behaviour	**Reckless violations or criminal acts**	The person committing the violation did not think or care about the consequences. Gross negligence can be considered part of the type of violations.	Final warning or immediate removal for willful and reckless violations. In worst cases, criminal proceedings may follow.	Coaching on how to recognise and handle such behaviour earlier.

Appendix 8.1 List of Report Forms used on AQD by Vietnam Airlines

Ord	Form	Note
1	Air Traffic Incident report	CAAV Form
2	VNA - CAAV: Occurrence Report	CAAV Form
3	VNA - Bird Strike Reporting	CAAV Form
4	VNA - Supplementary Bird strike Reporting	CAAV Form
5	SQD - Flight Safety eReport	
6	SQD - Cabin Safety eReport	
7	SQD - Ground Safety eRepor	
8	SQD - Maintenance Safety eReport	
9	SQD - Hazard eReport	
10	SQD - FDM Sourced Report	
11	VNA - Air Safety Confidential	
12	VNA - Dangerous Goods Occurrence Report	
13	VNA - Fatigue Report for Crew Member	
14	SQD - Flight Report	
15	SQD - Autoland	

Appendix 8.1.1 Air traffic incident report form

MẪU BÁO CÁO SỰ CỐ HOẠT ĐỘNG BAY
AIR TRAFFIC INCIDENT REPORT

Sử dụng để lập và nhận báo cáo về sự cố hoạt động bay. Những ô tô xám là những mục cần cho việc báo cáo ban đầu qua vô tuyến (radio). /For use when submitting and receiving reports on air traffic incidents. In an initial report by radio, shaded items should be included.

A — NHẬN DẠNG TÀU BAY/AIRCRAFT IDENTIFICATION	B — KIỂU LOẠI SỰ CỐ/TYPE OF INCIDENT
	GẦN VA CHẠM /CHƯỚNG NGẠI VẬT TRÊN ĐƯỜNG CHC/XÂM NHẬP ĐƯỜNG CHC / PHƯƠNG THỨC/THIẾT BỊ* AIRPROX / OBSTRUCTION ON RUNWAY/RUNWAY INCURSION / PROCEDURE / FACILITY*

C — SỰ CỐ/ THE INCIDENT

Khát quát/ General

a) Ngày/ Thời gian xảy ra sự cố Date / time of incident _____ UTC

b) Vị trí/ Position _____

2. Tàu bay liên quan/ Own aircraft

a) Hướng mũi và đường bay / Heading and route _____

b) Tốc độ thật/ True airspeed _____ đo bằng /measured in ( ) kt _____ ( ) km/h _____

c) Mực bay và đặt khí áp/ Level and altimeter setting _____

d) Tàu bay lấy độ cao hoặc giảm độ cao/ Aircraft climbing or descending

( ) Bay bằng/ Level flight ( ) Lấy độ cao/Climbing ( ) Giảm độ cao /Descending

e) Góc nghiêng theo trục dọc/Aircraft bank angle

( ) Mức thăng bằng/ Wings level	( ) Nghiêng ít/ Slight bank	( ) Nghiêng vừa/ Moderate bank
( ) Nghiêng nhiều/ Steep bank	( ) Lộn ngược/ Inverted	( ) Không biết /Unknown

f) Hướng nghiêng của tàu bay/ Aircraft direction of bank

( ) Trái/ Left	( ) Phải/ Right	( ) Không biết/ Unknown

g) Các hạn chế về tầm nhìn (lựa chọn nhiều nhất có thể theo yêu cầu)/ Restrictions to visibility (select as many as required)

( ) Chói do ánh nắng mặt trời/ Sun glare	( ) Rèm/ Windscreen pillar	( ) Kính bị bẩn/ Dirty windscreen
( ) Do cấu tạo của buồng lái/ Other cockpit structure	( ) Không có/ None	

h) Sử dụng đèn tàu bay (lựa chọn nhiều nhất có thể theo yêu cầu)/ Use of aircraft lighting (select as many as required)

( ) Đèn dẫn đường/ Navigation lights	( ) Đèn nhấp nháy/ Strobe lights	( ) Đèn cabin/ Cabin lights
( ) Đèn chống va chạm màu đỏ Red anti-collision lights	( ) Đèn hạ cánh / lăn Landing / taxi lights	( ) Đèn lô gô (đuôi) Logo (tail fin) lights
( ) Đèn khác/ Other	( ) Không có/ None	

i) Tư vấn tránh va chạm của cơ sở ATS/ Traffic avoidance advice issued by ATS

( ) Có, sử dụng hệ thống giámsát ATS Yes, based on radar	( ) Có, dựa vào quan sát bằng mắt Yes, based on visual sighting	( ) Có, dựa vào những tin tức khác Yes, based on other information
( ) Không/ No		

j) Tin tức về hoạt động bay được cung cấp/ Traffic information issued

( ) Có, sử dụng hệ thống giám sát ATS Yes, based on radar	( ) Có, dựa vào việc quan sát bằng mắt Yes, based on visual sighting	( ) Yes, based on other information
( ) Không/ No		

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k) Hệ thống tránh va chạm trên tàu bay — ACAS/ Airborne collision avoidance system — ACAS		
( ) Không được trang bị Not carried	( ) Kiểu loại Type	( ) Tư vấn về hoạt động bay được cung cấp/ Traffic advisory issued
( ) Đưa ra tư vấn giải pháp/ Resolution advisory issued	( ) Không đưa ra tư vấn hoạt động bay hoặc tư vấn giải pháp Traffic advisory or resolution advisory not issued	
l) Nhận dạng bằng hệ thống giám sát ATS/ Radar identification		
( ) Không có hệ thống giám sát ATS/ No radar available	( ) Được nhận dạng Radar identification	( ) No radar identification Không được nhận dạng
m) Được nhìn thấy bởi một tàu bay khác/ Other aircraft sighted		
( ) Có/ Yes	( ) Không/ No	( ) Tàu bay khác nhận diện sai Wrong aircraft sighted
n) Hành động bay tránh được thực hiện / Avoiding action taken		
( ) Có/ Yes	( ) Không/ No	
o) Loại kế hoạch bay/ Type of flight plan	IFR / VFR / không*	
3. Tàu bay khác/ Other aircraft		
a) Kiểu loại và tên gọi thoại / đăng ký (nếu biết) Type and call sign / registration (if known) _____		
b) Nếu không có thông tin như mục a) ở trên, mô tả như dưới đây If a) above not known, describe below		
( ) Loại tàu bay cánh trên/ High wing	( ) Loại tàu bay cánh giữa/ Mid wing	( ) Loại tàu bay cánh dưới/ Low wing
( ) Máy bay trực thăng/ Rotorcraft		
( ) 1 động cơ/ 1 engine	( ) 2 động cơ/ 2 engines	( ) 3 động cơ/ 3 engines
( ) 4 động cơ/ 4 engines	( ) hơn 4 động cơ/More than 4 engines	
Dấu hiệu, màu sắc hoặc các chi tiết khác/ Marking, colour or other available details _____ _____		
c) Tàu bay lấy độ cao hoặc giảm độ cao/ Aircraft climbing or descending		
( ) Bay bằng/ Level flight	( ) Lấy độ cao/ Climbing	( ) Giảm thấp độ cao / Descending
( ) Không biết/ Unknown		
d) Góc nghiêng theo trục dọc/ Aircraft bank angle		
( ) Mức thăng bằng/ Wings level	( ) Nghiêng ít/ Slight bank	( ) Moderate bank/ Nghiêng vừa
( ) Nghiêng nhiều/ Steep bank	( ) Lộn ngược/ Inverted	( ) Unknown/ Không biết
e) Hướng nghiêng của tàu bay/ Aircraft direction of bank		
( ) Trái/ Left	( ) Phải/ Right	( ) Unknown/ Không biết
f) Sử dụng đèn tàu bay (lựa chọn nhiều nhất có thể theo yêu cầu)/ Lights displayed		
( ) Đèn dẫn đường/ Navigation lights	( ) Đèn nhấp nháy/ Strobe lights	( ) Cabin lights/ Đèn ca bin
( ) Đèn chống va chạm màu đỏ Red anti-collision lights	( ) Đèn hạ cánh / lăn Landing / taxi lights	( ) Đèn lô gô (đuôi) Logo (tail fin) lights
( ) Đèn khác/ Other	( ) Không có/ None	( ) Không biết/ Unknown

g) Tư vấn tránh va chạm hoạt động bay của cơ sở ATS/ Traffic avoidance advice issued by ATS		
( ) Có, sử dụng hệ thống giám sát ATS Yes, based on radar	( ) Có, dựa vào quan sát bằng mắt Yes, based on visual sighting	( ) Có, dựa vào những tin tức khác Yes, based on other information
( ) Không/ No	( ) Không biết / Unknown	
h) Tin tức về hoạt động bay được cung cấp/ Traffic information issued		
( ) Có, sử dụng hệ thống giám sát ATS Yes, based on radar	( ) Có, dựa vào việc quan sát bằng mắt Yes, based on visual sighting	( ) Có, dựa vào những tin tức khác Yes, based on other information
( ) Không/ No	( ) Không biết/ Unknown	
i) Hành động bay tránh được thực hiện Avoiding action taken		
( ) Có/ Yes	( ) Không/ No	( ) Không biết/ Unknown

4. Cự ly/ Distance

a) Cự ly gần nhất theo chiều ngang/ Closest horizontal distance

b) Cự ly gần nhất theo chiều thẳng đứng/ Closest vertical distance _____

5. Điều kiện thời tiết của chuyến bay/ Flight weather conditions

a) IMC / VMC*

b) Bên trên / bên dưới* mây / sương / sương mù hoặc giữa các tầng mây
Above / below clouds / fog / haze or between layers*

c) Cự ly theo chiều thẳng đứng từ mây là _____ m / ft* dưới _____ m / ft* trên
Distance vertically from cloud _____ m / ft* below _____ m / ft* above

d) Trong mây / mưa / tuyết / mưa tuyết / sương / sương mù*
In cloud / rain / snow / sleet / fog / haze*

e) Bay vào / ra khỏi* mặt trời
Flying into / out of* sun

f) Tầm nhìn chuyến bay là _____m / km*
Flight visibility _____ m / km*

6. Những tin tức khác được lái trưởng cho là quan trọng/ Any other information considered important by the pilot-in-command

_____

_____

_____

_____

D — NHỮNG TIN TỨC KHÁC/ MISCELLANEOUS

1. Tin tức liên quan đến tàu bay báo cáo/ Information regarding reporting aircraft

a) Đăng ký tàu bay/ Aircraft registration _____

b) Kiểu loại tàu bay/ Aircraft type _____

c) Nhà khai thác / Operator _____

d) Sân bay khởi hành / Aerodrome of departure _____

e) Sân bay hạ cánh đầu tiên/ Aerodrome of first landing _____ destination/ điểm đến_____

f) Được thông báo qua radio hoặc các phương tiện khác tới _____(tên cơ sở ATS) vào lúc _____UTC
Reported by radio or other means to (name of ATS unit) at time UTC

g) Ngày/ thời gian/ địa điểm điền mẫu báo cáo Date/ time / place of completion of form _____

2. Chức vụ, địa chỉ và chữ ký của người lập báo cáo/ Function, address and signature of person submitting report

a) Chức vụ/ Function _____

b) Địa chỉ/ Address _____

c) Chữ ký/ Signature _____

d) Số điện thoại/ Telephone number _____

3. Chức vụ, địa chỉ và chữ ký của người nhận báo cáo/ Function and signature of person receiving report

a) Chức vụ/ Function _____ b) Chữ ký/ Signature

E — TIN TỨC BỔ SUNG TỪ CƠ SỞ ATS LIÊN QUAN/ SUPPLEMENTARY INFORMATION BY ATS UNIT CONCERNED

1. Nhận báo cáo/ Receipt of report

a) Báo cáo nhận được từ AFTN / radio / điện thoại / phương tiện khác (chỉ rõ)*
Report received via AFTN / radio / telephone / other (specify)* _____

b) Báo cáo nhận được từ _____ (tên cơ sở ATS)
Report received by _____ (name of ATS unit)

2. Các chi tiết về hành động của cơ sở ATS/ Details of ATS action

Huấn lệnh, sự cố được quan sát (hệ thống giám sát ATS / bằng mắt, đưa ra cảnh báo, kết quả việc yêu cầu nội bộ, v.v.)
Clearance, incident seen (radar/visually, warning given, result of local enquiry, etc.)

_____

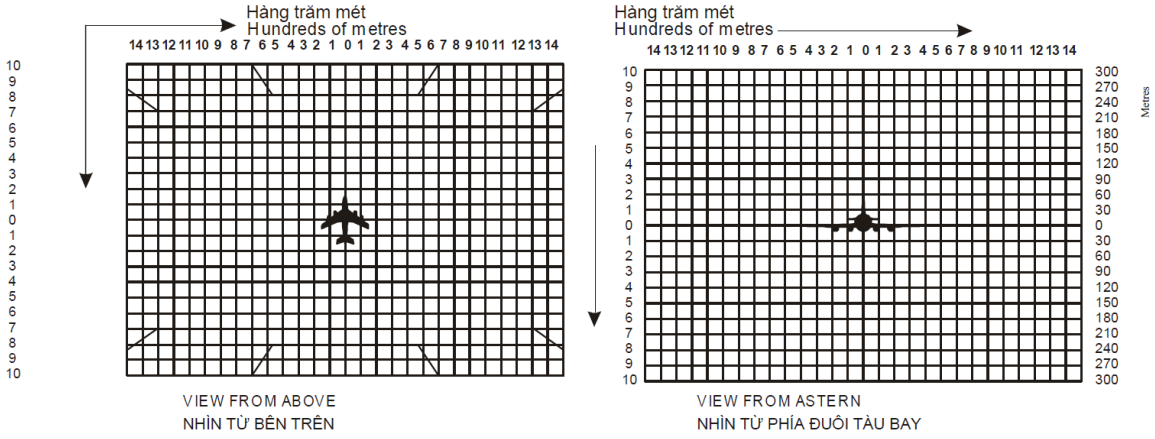
_____

_____

_____

BIỂU ĐỒ CỦA TÀU BAY GẦN VA CHẠM/ DIAGRAMS OF AIRPROX

Đánh dấu đường đi của tàu bay khác liên quan đến mình, trên mặt phẳng ở bên trái và theo độ cao về bên phải, giả sử bạn đang ở giữa biểu đồ này. Bao gồm cự ly nhìn thấy và vượt qua đầu tiên
Mark passage of other aircraft relative to you, in plan on the left and in elevation on the right, assuming YOU are at the centre of each diagram. Include first sighting and passing distance.



* Loại bỏ nếu không cần thiết
* Delete as appropriate

Appendix 8.1.2 CAAV occurrence report - CAAV 14B form

Ministry of Transport
CIVIL AVIATION AUTHORITY OF VIETNAM

OCCURRENCE REPORT

Flight Safety Standard Department
Civil Aviation Authority,
Asica Group,
119 Nguyen Son Str,
Long Bien Dist,
Hanoi,
Vietnam
e-mail: asica@caa.gov.vn
Fax: 04.38271933 Tel: 04.38272291

Please complete and submit this form online or print and send it to the above

CAA Occurrence Number

Are you concerned about the confidentiality of this report and wish to be contacted before it is processed? If so, please ensure you provide us with your contact details.
Confidential? Yes ☐ No ☐

AIRCRAFT TYPE & SERIES	REGISTRATION	DATE (dd/mm/yyyy)	TIME OF EVENT UTC (HH:MM)	DAY ☐ NIGHT ☐ TWILIGHT ☐
			00:00	
OPERATOR	LOCATION/POSITION/RW			

FLIGHT NO.	ROUTE FROM	ROUTE TO	FL ☐ ALT/HT (FT) ☐	IAS (KT)	IFR ☐ VFR ☐	TCAS RA YES ☐ NO ☐	ETOPS YES ☐ NO ☐

NATURE OF FLIGHT	FLIGHT PHASE
Please Select	Please Select

ENVIRONMENTAL DETAILS

WIND DIRN.	WIND SPEED (kt)	CLOUD TYPE	CLOUD HT (ft)	PRECIPITATION	VISIBILITY	OTHER METEOROLOGICAL CONDITIONS ICING	TURBULENCE	OAT (°C)	RUNWAY STATE
				Please Select	KM ☐ NM ☐	None	None		Please Select
				Please Select					CATEGORY Please Select

BRIEF TITLE

DESCRIPTION OF OCCURRENCE

Any procedures, manuals, pubs. (AIC, AD, SB etc.) directly relevant to occurrence and (where appropriate) compliance state of aircraft, equipment or documentation.	

GROUND STAFF REPORT

A/C CONSTRUCTOR'S NO.	ENGINE TYPE/SERIES	ETOPS APPROVED		GROUND PHASE	MAINTENANCE ORGANISATION
		YES ☐	NO ☐	MAINTENANCE ☐ GROUND HANDLING ☐ UNATTENDED ☐	TEL.

COMPONENT/PART	MANUFACTURER	PART NO.	SERIAL NO.

REFERENCES:- MANUAL/ATA/IPC	COMPONENT OH/REPAIR ORGANISATION

ORGANISATION AND APPROVAL REFERENCE	NAME	POSITION

DATE (dd/mm/yyyy)

If report is voluntary (i.e. not subject to mandatory requirements) can the information be published in the interests of safety?	YES ☐ NO ☐	Address and tel.no. (if reporter wishes to be contacted privately).	NOTE 1:If additional information, as below, is available, please provide. NOTE 2:If the occurrence is related to a design or manufacturing deficiency, the manufacturer should also be advised promptly. NOTE 3:Where applicable, a report of this incident should be forwarded directly to other agencies involved, e.g. Aerodrome Authority, ATC agency.

REPORTING ORGANISATION - REPORT

ORGANISATION COMMENTS - ASSESSMENT/ACTION TAKEN/SUGGESTIONS TO PREVENT

UTILISATION - AIRCRAFT				UTILISATION - ENGINE/COMPONENT				MANUFACTURER ADVISED	
	TOTAL	SINCE OH/REPAIR	SINCE INSPECTION		TOTAL	SINCE OH/REPAIR	SINCE INSPECTION	YES	NO
HOURS				HOURS				☐	☐
CYCLES				CYCLES					
LANDINGS				LANDINGS					

REPORTING ORGANISATION	TEL.	REPORTER'S REF	REPORT		REPORTER'S INVESTIGATION			FDR DATA RETAINED	
			NEW	SUPPL	NIL	CLOSED	OPEN	YES	NO
E-MAIL	FAX		☐	☐	☐	☐	☐	☐	☐

NAME	POSITION	TEL

E-MAIL	DATE (dd/mm/yyyy)

Submit Form

8.1.3 Bird Strike reporting forms

Vietnam Airlines

BIRD STRIKE REPORTING FORM
BÁO CÁO SỰ CỐ CHIM VA VÀO TÀU BAY

Send to: .....
Gửi tới:

Operator 01/02
Người khai thác tàu bay .....
Aircraft Make/ Model 03/04
Nhà sản xuất tàu bay/ mẫu mã .....
Engine Make/ Model 05/06
Nhà sản xuất động cơ/ mẫu .....
Aircraft Registration 07
Số đăng ký tàu bay .....
Flight number .....
Số hiệu chuyến bay
Date *Day* ..... *Month* ..... *Year* 08
Ngày *Ngày* ..... *Tháng* ..... *Năm* .....
Route from
Điểm khởi hành
Route to
Điểm đến
Local time: 09
Giờ địa phương:
Dawn ☐ A Day ☐ B Dusk ☐ C Night ☐ D 10
Bình minh *Ban ngày* *Chạng vạng* *Đêm*
Aerodrome Name 11/12
Tên sân bay
Runway used 13
Đường CHC sử dụng
Location if Enroute 14
Vị trí trên đường bay
Height AGL 15
Độ cao (AGL)
Speed IAS 16
Tốc độ IAS
Phase of Flight 17
Giai đoạn của chuyến bay

Park	☐ A	Enroute	☐ E
Đỗ		*Đang bay*	
Taxi	☐ B	Descent	☐ F
Lăn		*Hạ độ cao*	
Take-off run	☐ C	Approach	☐ G
Chạy đà cất cánh		*Tiếp cận*	
Climb	☐ D	Landing roll	☐ H
Lấy độ cao		*Chạy hãm đà*	

Effect on Flight:
Ảnh hưởng tới chuyến bay
None ☐ 32
Không
Aborted take-off ☐ 33
Hủy cất cánh
Precautionary landing ☐ 34
Hạ cánh phòng bất trắc
Engine shut down ☐ 35
Động cơ tắt
Other (Specify) ☐ 36
Khác (nêu rõ)

Sky Condition 37
Điều kiện bầu trời
No cloud ☐ A
Không mây
Some cloud ☐ B
Có mây
Overcast ☐ C
U ám

Precipitation
Lượng giáng thủy
Fog ☐ 38
Sương mù
Rain ☐ 39
Mưa
Snow ☐ 40
Tuyết

VNA-SMS-RF09 Rev 01, 09 Sep 2019

BIRD STRIKE REPORTING FORM
BÁO CÁO SỰ CỐ CHIM VA VÀO TÀU BAY

Part(s) of Aircraft
Phần (các phần) của tàu bay

	Struck *Va chạm*		Damaged *Hư hại*
Radome *Chóp rađa*	☐	18	☐
Windshield *Kính chắn gió*	☐	19	☐
Nose (excluding above) *Mũi (ngoại trừ phần trên)*	☐	20	☐
Engine no. *Động cơ số*			
1	☐	21	☐
2	☐	22	☐
3	☐	23	☐
4	☐	24	☐
Propeller *Cánh quạt*	☐	25	☐
Wing/ Rotor *Cánh tàu bay*	☐	26	☐
Fuselage *Thân*	☐	27	☐
Landing gear *Càng*	☐	28	☐
Tail *Đuôi*	☐	29	☐
Lights *Đèn*	☐	30	☐
Other (specify) *Khác (nêu rõ)*	☐	31	☐

Reported by .....
Báo cáo bởi .....
(Name, Signature)
(Tên, Chữ ký)

Bird Species* 41
Loài chim
Number of Birds:
Số lượng chim

	Seen 42 *Nhìn thấy*	Struck 43 *Va chạm*
1	☐ A	☐ A
2-10	☐ B	☐ B
11-100	☐ C	☐ C
More *Nhiều hơn*	☐ D	☐ D

Size of Birds 44
Kích thước của chim

Small *Nhỏ*	☐ S
Medium *Trung bình*	☐ M
Large *To*	☐ L

Pilot warned of Birds 45
Phi công có được cảnh báo về chim:

Yes *Có*	☐ Y
No *Không*	☐ N

Remarks (describe damage, injuries and other pertinent information) 46/47
Bình luận (mô tả mức độ hư hại, mức độ tổn thương và các thông tin thích hợp)
.....
.....
.....
.....
.....

*Send the picture of the birdstrike
**Gửi ảnh của sự cố chim va chạm vào tàu bay*

VNA-SMS-RF09 Rev 01, 09 Sep 2019

Vietnam Airlines

SUPPLEMENTARY BIRD STRIKE REPORTING FORM
OPERATOR COSTS AND ENGINE DAMAGE INFORMATION
BÁO CÁO SỰ CỐ CHIM VA CHẠM VÀO TÀU BAY BỔ SUNG
THÔNG TIN VỀ CHI PHÍ KHAI THÁC VÀ HƯ HẠI ĐỘNG CƠ

A. BASIC DATA
A. THÔNG TIN CƠ BẢN

Operator 01/02
Người khai thác
Aircraft Make/ Model 03/04
Nhà sản xuất tàu bay/ mẫu mã
Engine Make/ Model: 05/06
Nhà sản xuất động cơ/ mẫu mã
Aircraft registration: 07
Số đăng ký tàu bay
Date of strike: day ..... month ..... year 08
Ngày xảy ra sự cố va chạm *ngày ..... tháng ..... năm .....*
Aerodrome/ Location if known 11/12/13
Sân bay/ vị trí nếu biết

B. COST INFORMATION:
B. THÔNG TIN CHI PHÍ

Aircraft time out of service: ..... hour(s) 52
Thời gian tàu bay không phục vụ bay ..... Giờ
Estimated cost of repairs or replacement: U.S $ 53
Chi phí ước tính cho việc sửa chữa hoặc thay thế:
Estimated other costs U.S $ 54
Chi phí ước tính khác:

C. SPECIAL INFORMATION ON ENGINE DAMAGE STRIKES
C. CÁC THÔNG TIN ĐẶC BIỆT VỀ HƯ HẠI ĐỘNG CƠ DO SỰ CỐ VA CHẠM

Engine position number	1	2	3	4
Ví trí của động cơ				
Reason for failure/ shutdown				
Lý do hỏng/ tắt máy				
Uncontained failure	55 ☐A	56 ☐A	57 ☐A	58 ☐A
Bị văng ra không kiểm soát				
Fire	☐B	☐B	☐B	☐B

VNA-SMS-RF10 Rev 01, 09 Sep 2019

SUPPLEMENTARY BIRD STRIKE REPORTING FORM
OPERATOR COSTS AND ENGINE DAMAGE INFORMATION
BÁO CÁO SỰ CỐ CHIM VA CHẠM VÀO TÀU BAY BỔ SUNG
THÔNG TIN VỀ CHI PHÍ KHAI THÁC VÀ HƯ HẠI ĐỘNG CƠ

Cháy				
Shutdown – Vibration	☐C	☐C	☐C	☐C
Tắt - Rung				
Shutdown – Temperature	☐D	☐D	☐D	☐D
Tắt – Nhiệt độ				
Shutdown – Fire warning	☐E	☐E	☐E	☐E
Tắt – Cảnh báo cháy				
Shutdown – Other (specify)	☐Y	☐Y	☐Y	☐Y
Tắt – Khác (nêu rõ)				
Shutdown – unknown	☐Z	☐Z	☐Z	☐Z
Tắt – Không biết				
Estimated percentage of thrust loss*	59	60	61	62
Phần trăm ước tính giảm lực đẩy				
Estimated number of birds ingested	63	64	65	66
Số lượng chim ước tính bị cuốn vào động cơ				

Bird species 41
Loài chim

*These may be dificult to determine but even estimates are useful
**Việc nhận diện được các loại chim có thể khó nhưng cần thiết ngay cả khi chỉ là ước lượng*

Send the pictures of the birdstrike
Gửi ảnh của sự cố chim va chạm vào tàu bay

Reported by .....
Báo cáo bởi .....
(Name, Signature)
(Tên, Chữ ký)

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Appendix 8.2 List of Incident to be reported to CAAV

Appendix 8.2.1 List of Serious Incidents (level B)

a) Near collisions requiring an avoidance manoeuvre to avoid a collision or an unsafe situation or when an avoidance action would have been appropriate; actual distance between the aircrafts is less than 50% of the required minimum separation.
b) Airplanes collide with or collide with vehicles, equipment, or obstacles but are not accidental.
c) Controlled flight into terrain only marginally avoided.
d) Aborted take-offs on a closed or engaged runway, on a taxiway or unassigned runway.
đ) Take-offs from a closed or engaged runway, from a taxiway or unassignedrunway.
e) Landings or attempted landings on a closed or engaged runway, on a taxiway, unassigned runway or unintended landing locations such as roadways.
g) Landings exceed the landing distance or overrun from the runway surface;
h) (Gross failures to achieve predicted performance during take-off or initial climb.
i) Fires and/or smoke in the cockpit, in the passenger compartment, in cargo compartments or engine fires, even though such fires were extinguished by the use of extinguishing agents.
k) Events requiring the emergency use of oxygen by the flight crew.
l) Aircraft structural failures or engine disintegrations, including uncontained turbine engine failures, not classified as an accident.
m) Multiple malfunctions of one or more aircraft systems seriously affecting the operation of the aircraft.
n) Flight crew member incapacitation in flight.
   1) for single pilot operations;
   2) for multi-pilot operations for which flight safety was compromised because of a significant increase in workload for the remaining crew.
o) Fuel quantity level or distribution situations requiring the declaration of an emergency by the pilot, such as insufficient fuel, fuel exhaustion, fuel starvation, or inability to use all usable fuel on board.
p) Near collisions with another aicraft or equipment or people on the runway.
q) System failures, weather phenomena, operations outside the approved flight envelope or other occurrences which could have caused difficulties controlling the aircraft.
r) Retraction of a landing gear leg or wheels-up landing not classified as an accident.
s) (r) Dragging during landing of a wing tip, an engine pod or any other part of the aircraft, when not classified as an accident
t) Other incidents must be investigated according to the risk-based assessment of the CAAV.

Appendix 8.2.2 List of Aviation Incidents and Occurrences to be reported

8.2.2.1 Mandatory Reports: Aircraft Operations.

(a) Occurrences during operations of an aircraft that involve:

(1) Avoidance manoeuvres:

(i) Risk of collision with another aircraft, terrain or other object or an unsafe situation when avoidance action would have been appropriate;

(ii) An avoidance manoeuvre required to avoid a collision with another aircraft, terrain or other object;

(iii) An avoidance manoeuvre to avoid other unsafe situations.

(2) Take-off or landing incidents, including precautionary or forced landings. Incidents such as:

(i) Under-shooting, overrunning or running off the side of runways

(ii) Take-offs, rejected take-offs, landings or attempted landings on a closed, occupied or incorrect runway; and

(iii) Runway incursions.

(3) Inability to achieve predicted performance during take-off or initial climb.

(4) Critically low fuel quantity or inability to transfer fuel or use total quantity of usable fuel.

(5) Loss of control (including partial or temporary) regardless of cause.

(6) Occurrences close to or above V1 resulting from or producing a hazardous or potentially hazardous situation (e.g. rejected take-off, tail strike, engine-power loss etc.).

(7) Go around producing a hazardous or potentially hazardous situation.

(8) Unintentional significant deviation from airspeed, intended track or altitude (more than 300 ft) regardless of cause.

(9) Descent below decision height/altitude or minimum descent height/altitude without the required visual reference.

(10) Loss of position awareness relative to actual position or to other aircraft.

(11) Breakdown in communication betwe en flight crew “CRM" (crew resource management) or between flight crew and other parties (cabin crew, ATC [air traffic control] engineering).

(12) Heavy landing - a landing deemed to require a "heavy landing check".

(13) Exceedance of fuel imbalance limits.

(14) Incorrect setting of an "SSR" (secondary surveillance radar) code or of an altimeter sub-scale.

(15) Incorrect programming of, or erroneous entries into, equipment used for navigation or performance calculations, or use of incorrect data.

(16) Incorrect receipt or interpretation of radio-telephony messages.

(17) Fuel system malfunctions or defects, which had an effect on fuel supply and/or distribution.

(18) Aircraft unintentionally departing from a paved surface.

(19) Collision between an aircraft and any other aircraft, vehicle or other ground object.

(20) Inadvertent and/or incorrect operation of any controls.

(21) Inability to achieve the intended aircraft configuration for any flight phase (e.g. landing gear and gear doors, flaps, stabilisers, slats etc.).

(22) A hazard or potential hazard which arises as a consequence of any deliberate simulation of failure conditions for training, system checks or training purposes.

(23) Abnormal vibration.

(24) Operation of any primary warning system associated with manoeuvring the aircraft, such as a configuration warning, stall warning (stick shaker), over-speed warning etc. unless:

(i) The crew conclusively established that the indication was false and provided that the false warning did not result in difficulty or hazard arising from the crew response to the warning; or

(ii) Operated for training or test purposes.

(25) "GPWS" (ground proximity warning system)/"TAWS" (terrain awareness and warning system) "warning" when:

(i) The aircraft comes into closer proximity to the ground than had been planned or anticipated; or

(ii) The warning is experienced in instrument meteorological conditions or at night and is established as having been triggered by a high rate of descent (mode 1); or

(iii) The warning results from failure to select landing gear or landing flaps by the appropriate point on the approach (mode 4); or

(iv) Any difficulty or hazard arises or might have arisen as a result of crew response to the "warning" e.g. possible reduced separation from other traffic. This could include warning of any mode or type i.e. genuine, nuisance or false.

(26) GPWS/TAWS "alert" when any difficulty or hazard arises or might have arisen as a result of crew response to the "alert".

(27) “ACAS" (air collision advisory system) "RA"s (resolution advisories).

(28) Jet or prop blast incidents resulting in significant damage or serious injury.

(29) Landing at the wrong aerodrome.

(b) Occurrences resulting in emergencies, including:

(1) Fire, explosion, smoke or toxic or noxio us fumes, even though fires were extinguished.

(2) The use of any non-standard procedure by the flight or cabin crew to deal with an emergency when:

(i) The procedure exists but is not used;

(ii) The procedure does not exist;

(iii) The procedure exists but is incomplete or inappropriate;

(iv) The procedure is incorrect;

(v) The incorrect procedure is used.

(3) Inadequacy of any procedures designed to be used in an emergency, including when being used for maintenance, training or test purposes.

(4) An event leading to an emergency evacuation.

(5) Depressurization.

(6) The use of any emergency equipment or prescribed emergency procedures in order to deal with a situation.

(7) An event leading to the declaration of an emergency ("Mayday" or "PAN").

(8) Failure of any emergency system or equipmen t, including all exit doors and lighting, to perform satisfactorily, including when being used for maintenance, training or test purposes.

(9) Events requiring any use of emergency oxygen by any crew member.

(c) Occurrences involving crew incapacitation, including:

(1) Incapacitation of any member of the flight crew, including that which occurs prior to departure if it is considered that it could have resulted in incapacitation after take-off.

(2) Incapacitation of any member of the cabin crew which renders them unable to perform essential emergency duties.

(d) Occurrences involving Injury, including any occurrences which have or could have led to significant injury to passengers or crew but which are not considered reportable as an accident.

(e) Occurrences related to meteorology, including–

(1) A lightning strike which resulted in damage to the aircraft or loss or malfunction of any essential service.

(2) A hail strike which resulted in damage to the aircraft or loss or malfunction of any essential service.

(3) Severe turbulence encounter, an encounter resulting in injury to occupants or deemed to require a "turbulence check" of the aircraft.

(4) A windshear encounter.

(5) Icing encounter resulting in handling difficulties, damage to the aircraft or loss or malfunction of any essential service.

(g) Security occurrences, including:

(1) Unlawful interference with the aircraft including a bomb threat or hijack.

(2) Difficulty in controlling intoxicated, violent or unruly passengers.

(3) Discovery of a stowaway.

(h) Other occurrences, including:

(1) Repetitive instances of a specific type of occurrence which in isolation would not be considered "reportable" but which due to the frequency with which they arise, form a potential hazard.

(2) A bird strike which resulted in damage to the aircraft or loss or malfunction of any essential service

(3) Wake-turbulence encounters.

(4) Any other occurrence of any type considered to have endangered or which might have endangered the aircraft or its occupants on board the aircraft or persons on the ground.

8.2.2.2 Mandatory Reports: Aircraft Technical

(a) Structural occurrences, including:

(1) Damage to a "PSE" (principal structural element) that has not been designated as amage-tolerant (life - limited element). PSEs are those which contribute significantly to carrying flight, ground, and pressurization loads, and the ailure of which could result in a catastrophic failure of the aircraft;

(2) Defect or damage exceeding admissible damages to a PSE that has been designated as damage-tolerant;

(3) Damage to or defect exceeding allowed tolerances of a structural element, the failure of which could reduce the structural stiffness to such an extent that the required flutter, divergence or control reversal margins are no longer achieved;

(4) Damage to or defect of a structural element, which could result in the liberation of items of mass that may injure occupants of the aircraft;

(5) Damage to or defect of a structural element, which could jeopardise proper operation of systems.

(6) Loss of any part of the aircraft structure in flight.

(b) Aircraft systems occurrences, including:

(1) Loss, significant malfunction or defect of any system, subsystem or set of equipment when standard operating procedures, drills etc. could not be satisfactorily accomplished;

(2) Inability of the crew to control the system, including:

(i) Uncommanded actions,

(ii) Incorrect and/or incomplete response, including limitation of movement or stiffness,

(iii) Runaway,

(iv) Mechanical disconnection or failure;

(3) Failure or malfunction of the exclusive function(s) of the system (one system could integrate several functions);

(4) Interference within or between systems;

(5) Failure or malfunction of the protection device or emergency system associated with the system;

(6) Loss of redundancy of the system;

(7) Any occurrence resulting from unforeseen behaviour of a system.

(8) For aircraft types with single main systems, subsystems or sets of equipment, loss, significant malfunction or defect in any main system, subsystem or set of equipment.

(9) For aircraft types with multiple independent main systems, subsystems or sets of equipment, the loss, significant malfunction or defect of more than one main system, subsystem or set of equipment.

(10) Operation of any primary warning system associated with aircraft systems or equipment unless the crew conclusively established that the indication was false, provided that the false warning did not result in difficulty or hazard arising from the crew response to the warning;

(11) Leakage of hydraulic fluids, fuel, oil or other fluids which resulted in a fire hazard or possible hazardous contamination of aircraft structure, systems or equipment, or risk to occupants;

(12) Malfunction or defect of any indication system when this results in the possibility of misleading indications to the crew;

(13) Any failure, malfunction or defect if it occurs at a critical phase of the flight and is relevant to the system operation;

(14) Significant shortfall of the actual performances compared to the approved performance which resulted in a hazardous situation (taking into account the accuracy of the performance- calculation method) including braking action, fuel consumption etc.;

(15) Asymmetry of flight controls; e.g. flaps, slats, spoilers etc.

(c) Propulsion (including engines, propellers and rotor systems) and APUs (auxiliary power units):

(1) Flameout, shutdown or malfunction of any engine.

(2) Overspeed or inability to control the speed of any high-speed rotating component (for example: APU, air starter, air cycle machine, air turbine motor, propeller or rotor).

(3) Failure or malfunction of any part of an engine or powerplant resulting in any one or more of the following:

(i) Non-containment of components/debris;

(ii) Uncontrolled internal or external fire, or hot gas breakout;

(iii) Thrust in a direction different from that demanded by the pilot;

(iv) Thrust-reversing system failing to operate or operating inadvertently;

(v) Inability to control power, thrust or revolutions per minute;

(vi) Failure of the engine mount structure;

(vii) Partial or complete loss of a major part of the powerplant;

(viii) Dense visible fumes or concen tration s of toxic products sufficient to incapacitate crew or passengers;

(ix) Inability, by use of normal procedures, to shutdown an engine;

(x) Inability to restart a serviceable engine.

(4) An uncommanded thrust/power loss, change or oscillation which is classified as a "LOTC" (loss of thrust or power control):

(i) For a single-engine aircraft; or

(ii) Where it is considered excessive for the application; or

(iii) Aircraft, particularly in the case of a twin-engine aircraft; or

(iv) For a multi-engine aircraft where the same, or similar, engine type is used in an application where the event would be considered hazardous or critical.

(5) Any defect in a life-controlled part causing its withdrawal before completion of its full life.

(6) Defects of common origin which could cause an in-flight shut-down rate so high that there is the possibility of more than one engine being shut down on the same flight.

(7) An engine limiter or control device failing to operate when required or operating inadvertently.

(8) Exceedance of engine parameters.

(9) "FOD" (foreign objects damage) affect to propellers and transmission

(d) Occurrences involving rotors and transmissions, including:

(1) Failure or malfunction of any part of a propeller or powerplant resulting in any one or more of the following:

(i) An overspeed of the propeller;

(ii) The development of excessive drag;

(iii) A thrust in the opposite direction to that commanded by the pilot;

(iv) A release of the propeller or any major portion of the propeller;

(v) A failure that results in excessive imbalance;

(vi) The unintended movement of the propeller blades below the established minimum in- flight low-pitch position;

(vii) An inability to feather the propeller;

(viii) An inability to change propeller pitch;

(ix) An uncommanded change in pitch;

(x) An uncontrollable torque or speed fluctuation;

(xi) The release of low-energy parts.

(2) Damage or defect of main rotor gearbox/attachment which could lead to in-flight separation of the rotor assembly and/or malfunctions of the rotor control.

(3) Damage to tail rotor, transmission and equivalent systems.

(e) Occurrences involving APUs, including:

(1) Shut down or failure when the APU is required to be available by operational requirements, e.g. ETOPS, "MEL" (minimum equipment list).

(2) Inability to shut down the APU.

(3) Overspeed.

(4) Inability to start the APU when needed for operational reasons.

(f) Human factors occurrences, including any incident where any feature or inadequacy of the aircraft design could have led to an error of use that could contribute to a hazardous or catastrophic effect.

(g) Other aircraft technical occurrences, including:

(1) Any incident where any feature or inadequacy of the aircraft design could have led to an error of use that could contribute to a hazardous or catastrophic effect.

(2) An occurrence not normally considered as reportable (e.g., furnishing and cabin equipment, water systems), where the circumstances resulted in endangering the aircraft or its occupants.

(3) A fire, explosion, smoke or toxic or noxious fumes.

(4) Any other event which could endanger the aircraft, or affect the safety of the occupants of the aircraft, or people or property in the vicinity of the aircraft or on the ground.

(5) Failure or defect of passenger address system resulting in loss of, or inaudible, passenger address system.

(6) Loss of pilot seat control during flight.

8.2.2.3 Mandatory Reports: Aircraft Maintenance

(a) Incorrect assembly of parts or components of the aircraft found during an inspection or test procedure not intended for that specific purpose.

(b) Hot-air leakage causes aircraft structure damage

(c) Any defect in a life-controlled part causing retirement before completion of its full life

(d) Damage and deterioration (e.g. fractures, cracks, corrosion, delamination, disbonding etc.) resulting from any cause (e.g. as flutter, loss of stiffness or structural failure) to:

(1) a primary structure or a "PSE" (principal structure element) (as defined in the manufacturers' Repair Manual) where such damage or deterioration exceeds allowable limits specified in the Repair Manual and requires a repair or complete or partial replacement.

(2) a secondary structure which consequently has or may have endangered the aircraft

(3) the engine, propeller or rotorcraft rotor system

(e) Any failure, malfunction or defect of any system or equipment, or damage or deterioration thereof found as a result of compliance with an airworthiness directive or other mandatory instruction issued by a regulatory authority, when:

(1) It is detected for the first time by the reporting organization implementing compliance

(2) On any subsequent compliance, it exceeds the permissible limits quoted in the instruction and/or published repair/rectification procedures are not available.

(f) Failure of any emergency system or equipment, including all exit doors and lighting, to perform satisfactorily, including when being used for maintenance or test purposes

(g) Non-compliance or significant errors in compliance with required maintenance procedures.

(h) Aircraft product (aircraft, engine, and propeller), parts, equipment or materials are not clear or suspected of origin.

(i) Misleading, incorrect or insufficient maintenance data or procedures that could lead to maintenance errors.

(j) Any failure, malfunction or defect of ground equipment used for testing or checking of aircraft systems and equipment when the required routine inspection and test procedures did not clearly identify the problem, where this results in a hazardous situation.

8.2.2.4 Mandatory Reports: Air navigation and Ground operation occurrences.

(a) Near collision incidents (encompassing specific situations where one aircraft and another aircraft/the ground/a vehicle/person or object are perceived to be too close to each other):

(1) Separation minima infringement;

(2) Inadequate separation;

(3) "Near-CFIT" (near-controlled flight into terrain);

(4) Runway incursion where avoiding action was necessary.

(b) Potential for collision or near collision (encompassing specific situations having the potential to be an accident or a near collision, if another aircraft is in the vicinity):

(1) Runway incursion where no avoiding action is necessary;

(2) Runway excursion;

(3) Aircraft deviation from ATC clearance;

(4) Aircraft deviation from applicable "ATM" (air traffic management) regulation:

(i) Aircraft deviation from applicable published ATM procedures;

(ii) Unauthorized penetration of airspace;

(iii) Deviation from aircraft ATM-related equipment carriage and operations, as mandated by applicable regulation(s).

(c) ATM-specific occurrences (encompassing those situations where the ability to provide safe ATM services is affected, including situations where, by chance, the safe operation of aircraft has not been jeopardised. This shall

include the following occurrences:

(1) Inability to provide ATM services:

(i) inability to provide air traffic services;

(ii) inability to provide airspace management services;

(iii) inability to provide air traffic flow management services;

(2) Failure of Communication function;

(3) Failure of Surveillance function;

(4) Failure of Data Processing and Distribution function;

(5) Failure of Navigation function

(6) ATM system security.

(7) Examples of include:

(i) Provision of significantly incorrect, inadequate or misleading information from any ground sources, e.g. ATC, "ATIS" (automatic terminal information service), meteorological services, navigation databases, maps, charts, manuals, etc.

(ii) Provision of less than prescribed terrain clearance.

(iii) Provision of incorrect pressure reference data (i.e. altimeter setting).

(iv) Incorrect transmission, receiptor interpretation of significant messages when this results in a hazardous situation.

(v) Separation minima infringement.

(vi) Unauthorized penetration of airspace.

(vii) Unlawful radio communication transmission.

(viii) Failure of ANS ground or satellite facilities.

(ix) Major ATC/ATM failure or significant deterioration of aerodrome infrastructure.

(x) Aerodrome movement areas obstructed by aircraft, vehicles, animals or foreign objects, resulting in a hazardous or potentially hazardous situation.

(xi) Errors or inadequacies in marking of obstructions or hazards on aerodrome movement areas resulting in a hazardous situation.

(xii) Failure, significant malfunction or unavailability of aerodrome lighting.

(d) "ATC" (air traffic control) Navigation and Communications - significant malfunction or deterioration of service.

(e) An aircraft was or could have been endangered by impairment of any member of ground staff (e.g. ATC, "FD" (flight dispatchers), Maintenance, etc.).

(f) ATC overload.

(g) Failure or unplanned shutdown of a major operational ATC computer system, requiring reversion to manual back-up and resulting in disruption to the normal flow of air traffic.

(h) Significant spillage during fuelling operations.

(i) Loading of incorrect fuel quantities likely to have a significant effect on aircraft endurance, performance, balance or structural strength.

(j) Unsatisfactory ground de-icing/anti-icing.

(k) Significant contamination of aircraft structure, systems and equipment arising from the carriage of baggage or cargo.

(l) Incorrect loading of passengers, baggage or cargo, likely to have a significant effect on aircraft mass and/or balance.

(m) Incorrect stowage of baggage or cargo (including hand baggage) likely in any way to endanger the aircraft, its equipment or occupants or to impede emergency evacuation.

(n) Inadequate stowage of cargo containers or other substantial items of cargo.

(o) Loading goods in unsafe way against the regulations x

(p) Failure, malfunction or defect of ground equipment used for the testing or checking of aircraft systems and equipment when the required routine inspection and test procedures did not clearly identify the problem, where this results in a hazardous situation.

(q) Non-compliance or significant errors in compliance with required servicing procedures.

(r) Loading of contaminated or incorrect type of fuel or other essential fluids (including oxygen and potable water).

Appendix 8.2.3 Classification of Aviation Accident, Incident and Occurrence

Level	Classification
A	**1. Aircraft accidents** Are incidents related to the aircraft operation in the period from any person on board the aircraft to perform flight until the last person leaves the aircraft that occurs one of the following cases: a. There are dead or seriously injured by being in the aircraft or due to direct impact of any part of the aircraft, including parts separated from the aircraft or due to direct impact of the jet air flowed out of the aircraft engines, excluding injuries due to natural causes or self-inflicted or caused by other people and injuries of illegal passengers hiding outside the areas reserved for passengers or the crew. b. Damaged aircrafts or damaged aircraft structures negatively affect the reliability of structure, flight characteristics of aircrafts, which requires overhaul or replacement of damaged components, except failures or malfunctions of aircraft engines which only affect the aircraft engines, device casings or equipment of aircraft engines or failures which only affect aircraft rotors, antennas, tires, brakes, aerodynamic aircraft fairings or only dimples, small hole in the shell of the aircrafts. c. Missing or completely inaccessible aircrafts. ** Note 1: to unify in statistical work, injuries leading to death within 30 days from the date of the incident is considered fatal injuries.* *** Note 2: aircrafts is considered to be missing when the official search has ended without indentifying the location of the aircrafts' debris.*
B	**2. Serious incidents** a. The incidents occur in which situations revealing that the accident almost happens. b. These serious incidents are listed in Appendix 8.2.1 of this manual.
C	**3. High risk incidents** Are incidents listed in Appendix 8.2.2 of this manual with the following conditions: ***a. In operation and maintenance of aircrafts:*** i. To reduce the necessary ability of the crew and system to handle adverse situations, which causes severely reduction in safety level and work ability of some key functions; or

Level	Classification
C	ii. To significantly increase the workload of the crew to handle situations, which degrades the work efficiency of the crew, causing panic, fear for the crew, passengers or causing minor injuries; or iii. To cause great damage to the aircraft or heavy pollution to the environment but not yet considered serious incidents; or iv. The cause of the incidents or consequential damage to aircrafts, systems and equipment due to the incidents are unidentified or fail to overcome by operation, maintenance, repair procedures in the operation, maintenance, repair manual approved by Vietnam Aviation Department, leading to the stop of operation for more than 96 hours (excluding the cases of material replacement waiting) or similar failures on the same devices, systems leading to the second application of similar emergency state during 7 days of continuous operation. ***b. In flight operation:*** i. To significantly impact on flight operation and flight safety, leading to nearly collision with other aircrafts but not yet considered serious incidents; or ii. The actual distance between the aircrafts and the ground or obstacles is violated but greater than or equal to 50% and 80% smaller than the safety distance; or iii. Separation between aircrafts (not tend to confront) is violated but greater than or equal to 50% and 80% smaller than the safety separation; or iv. The cause of the incidents requires inspection, verification and remedial measures and safety enhancement (reference of incidents which require inspection, verification in Appendix IX of the Regulation on safety reporting.) ***c. In aerodromes:*** To cause infrastructural damage of the aerodromes, equipment, vehicles involved in flight zone or to cause unsafe for people, vehicles in flight zone, which directly affects aircraft operation safety.
D	**4. Low risk incidents** Are listed in Appendix 8.2.2 of this manual with the following conditions: ***a. In operation and maintenance of aircrafts:*** i. Affect the flight safety but not to the extent of high endangering the safety; all handling actions are within the ability of the crew; or ii. To reduce the flight safety or ability to function of some functions and increase (not much) the workload of the crew such as flight planning changer or flight method change; or

Level	Classification
D	iii. To cause discomfort for the crew, passengers or minor damage to the aircraft. However, after the incidents, consequential damage to aircrafts, systems and equipment are overcome by operation, maintenance, repair procedures in the operation, maintenance, repair manual approved by Vietnam Aviation Department, leading to further normal operation of the aircraft; or ***b. In flight operation:*** i. The actual distance between the aircraft and the ground or obstacles is violated but greater than or equal to 80% of the safety distance; or ii. Separation between aircrafts (not tend to confront) is violated but greater than or equal to 80% of the safety separation; or iii. To affect flight operations and flight safety but not to the extent of level C, all handling actions are within the ability of the crew. Flight operations, flight control are carried out normally but require risk assessment; ***c. In aerodromes:*** Collisions between vehicles and others, between vehicles and people cause infrastructural damage of the aerodromes, equipment, which is able to affect aircraft operation safety.
E	**5. Occurrence** Are those not directly threatening the safety and listed in Appendix 8.2.2 of this manual, with the following characteristics: a. To not directly impact on flight safety or cause any difficulty for the crew during the next flight after the incidents. After the incidents, consequential damage to aircrafts, systems and equipment are overcome by operation, maintenance, repair procedures in the operation, maintenance, repair manual approved by Vietnam Aviation Department, leading to further normal operation of the aircraft; b. To impact on flight operation and not yet on flight safety or after assessment the level of incidents in considered level D; c. To impact on the aviation service provision at aerodromes but to not impact on flight safety. The report of those incidents is considered a means of providing statistical information for the purpose of assessing potential risks, making safety preventive recommendations.

Appendix 8.3 List of occurrences types to be investigated

1) Risk of collision with an aircraft, when avoidance manoeuvre has been implemented to avoid unsafe situations.
2) Collision between an aircraft and any other aircraft, vehicle or other ground object.
3) Reject take-offs at the end of runway or overrunning or running off the side of runways.
4) Take-offs at the end of the runway or beside the runway
5) Landing or intend to land at the end of runway or beside the runway
6) Aircraft touch down early or running off the side of runway
7) Inability to achieve predicted performance during take-off or initial climb.
8) Fire, explosion, smoke on board, cargo compartment or engine even though fires were extinguished.
9) Events requiring any emergency use of oxygen by any crew member
10) The loss, significant malfunctions or defects of one system or more than one system that seriously affects the aircraft operations.
11) Incapacitation of any member of the flight crew in flight.
12) Fuel problems lead flight crew declared the emergency situation.
13) System failures, abnormal significant weather or over limit operation situations that is difficult for aircraft control.
14) Malfunction/damage of aircraft structure or engine mount is splitted but it is not an accident.
15) Loss several systems in which on system that required redundancy for navigation.
16) The other occurrences must be investigated by ICAO.

Appendix 8.4 Report contents of fleet team management – Appendix 1 to VAR 12.075

1) Total actual operating hours of each aircraft;
2) The total number of planned maintenance task (Scheduled) and the total number of actual days of aircraft on ground to perform maintenance tasks on each aircraft that is on operation;
3) The total number of unplanned maintenance task (Unscheduled) and the total number of actual days of aircraft on ground to perform maintenance tasks on each aircraft that is on operation;
4) The total times and total days the aircraft is AOG for technical reasons on each aircraft;
5) Number of concessions extended maintenance period (Variation) applies to each aircraft that is in operation and equipment installed on that aircraft.

Appendix 9.7.1 Form SMS-F09-01 Hazard Report

Hazard Report

Hazard ID	H3-18	**Date Identified**	28 Thg2 2018
Department	Safety – Quality Department	**Entered by**	Pham Tien Dung-SQD
Category	Airports	**Last Review**	07 Thg3 2018
Location	Airport	**Next Review**	
Hazard Title	Vật ngoại lai		
Hazard Statement	Vật ngoại lai trên sân đường		

Hazard Accepted		**Date**	
Prepared By		**Date**	
Approved By		**Date**	

Appendix 9.7.2 Form SMS-F09-02 Risk Assessment Report

- Risk Assessment

Risk Title	Làm hư hỏng trang thiết bị tàu bay		
Risk ID	R4-18	**Date Identified**	28 Thg2 2018
Department	Safety – Quality Department	**Entered by**	Tran Thi Hong Khanh - SQD
Category		**Next Review**	28 Thg3 2018
Risk Type		**Risk Owner**	
Existing Defences / Controls			
Risk Trend			
Description	hàng hóa nguy hiểm không khai báo. Làm hư hỏng trang thiết bị tàu bay, hàng hóa khác khi bị rò rỉ		

Current Risk

Department	Severity	Likelihood	Rating
Safety – Quality Department			Not specified (Not specified)

Target Risk

Department	Severity	Likelihood	Rating
Safety – Quality Department			Not specified (Not specified)

Risk Accepted		Date	

Appendix 10.1 Safety Indicators on Aircraft operations

(State Safety Program - SSP)

No.	Indicators	Definition	Data source	In charged
1.	Aircraft accident (Level A)	Number of accidents per 10000 Circles	Accident Report	SQD
2.	Serious incidents (level B)	Number of serious incidents per 10000 Circles	Incident Report	SQD
3.	High risk incidents (level C)	Number of major incidents per 10000 Circles	Incident Report	SQD
4.	Low risk incidents (level D)	Number of critical incidents to be reported per 10000 Circles	Occurrence report	SQD
5.	Occurrence (level E)	Number of events to be reported per 10000 circles	Occurrence report	SQD
6.	In-flight Engine Shutdown	Number of In-flight Engine Shutdown per 10000 Circles	Incident Report	SQD
7.	Collision between Aircraft and GSE or vehicles	Number of occurrences per 10000 departures	Incident Report	SQD
8.	Staff injured when onduty	Number of occurrences per 100 people per year	Incident Report	SQD
9.	Security Violation	Number of occurrences per 10000 Circle	Security Report	SQD
10.	Unstabilized Approaches	Number of events per 10000 Circles	FDA	SQD
11.	Findings	Number of findings per 01 audit	Audit Report	SQD

Appendix 10.2: Safety indicators and Safety performance indicators

I. Safety indicators:

- Accepted by Civil Aviation Authority of Vietnam.
- The measurement result of safety indicators shall be reported monthly, quarterly and annually by Vietnam Airlines.
- Reviewed at the safety review meeting of SRB

No.	Indicator	Definition	Data source	In charged
1.	Safety indicators in Appendix 10.1			
2.	Bird Strike	Number of bird strikes impact on aircraft in the operation per 10000 flights.	Incident report	SAG 1
3.	Lightning strike	Number of lightning strike occurrences in the operation per 10000 flights.	Incident report	SAG 1
4.	RWY/TWY Incursions	Number of RWY/TWY incursion occurrences without permission per 10000 flights	Incident report	SAG 1
5.	RWY/TWY Excursions.	Number of RWY/TWY excursion occurrences per 10000 flights	Incident report	SAG 1
6.	Rejected Take-Off	Number of rejected take-off occurrences per 10000 flights.	Incident report	SAG 1
7.	ATC Related	Number of occurrences related to ATC clearance or discrepancy per 10000 flights.	Incident report	SAG 1
8.	TCAS-RA	Number of flights with TCAS-RA warning per 10000 flights.	Incident report	SAG 1
9.	Mandatory occurrence report for aircraft technical and maintenance (MOR)	Number of mandatory occurrence reports for technical and maintenance per 10000 flights.	Mandatory occurrence report	SAG 2

10.	Mandatory occurrence report (MOR)	Number of mandatory occurrence reports per 10000 flights must be reported to CAAV following as Safety Air Report Regulation.	Mandatory occurrence report.	SQD
11.	FOD damaged fuselage and engine	Number of FOD occurrences affected fuselage and engine occurred in the operation per 10000 flights	Mandatory occurrence report; Technical Incident report	SAG 2
12.	Aircraft to GSE	Number of collisions between aircraft and GSE in the operation at the apron.	Incident report	SAG 3
13.	Unsafe transport of dangerous goods	Number of safety occurrences related to the transport of dangerous goods during operations, including issues with dangerous goods documentation as required by regulations, based on over 10,000 dangerous goods consignments	Incident report	SAG 3
14.	Unsafe occurrences for loading baggage, cargo, weight and balance	- Number of occurrences occurred and rate of appearance per 1.000 flights - Analysis based on the cause	Incident report	SAG 3
15.	Flight data analysis	Rate of flights is analyzed by AGS/LOMS that compared with total number of flights in the operation.	FDA	SAG 2
16.	Occurrences ralated to Human Factors	Number of occurrences related to human factors per 10000 flights.	Occurrence reports	SAG 1 SAG 2 SAG 3
17	Safety – Quality Reports	Quantity of Safety – Quality Reports imported into AQD	Safety – Quality Reports	SQD

II. Safety performance indicators

2.1. Flight Operation (SAG 1)			
a. Included: Indicators: 1, 2, 3, 4, 5, 7, 8 Appendix 10.1 and Indicators: 2, 3, 4, 5, 6, 7, 8, 10, 15, 16 Item I Appendix 10.2.			
b. Cockpit Safety Management			
(1)	Event level 3/10000 flights	- Number of events level 3 per analized 10000 flights - Analyse for each type of aircraft	FDA
(2)	Event level 2/10000 flights	- Number of events level 2 per analized 10000 flights - Analyse for each type of aircraft	FDA
(3)	Event level 1/10000 flights	- Number of events level 1 per analized 10000 flights - Analyse for each type of aircraft	FDA
c. Cabin Safety management			
(1)	Cabin crew in-flight audit findings	Number of findings rate per flights	LOSA
(2)	Aircraft door opened improperly by Cabin Crew	Cabin crew open aircraft door improperly rate /10000 flights	CCD report
(3)	Aircraft door opened improperly by pax due to cabin crew fault.	Pax open aircraft door improperly due to cabin crew fault rate /10000 flights.	CCD report
d. Safety management in the operational control			
(1)	Divert flights due to weather	Divert flights due to weather rate per 10000 flights.	Aves System
(2)	Electronic flight bag software error	Electronic flight bag software error	Captain's Report
(3)	Updating electronic flight bag error	Updating electronic flight bag error rate per 100 flights	Captain's Report
(4)	Discrepency flight operations error: alternate airport decision, minimum fuel requirement, maximum flight time to alternate airport when operate ETOPS	Discrepency flight operations error	AVES System

(5)	Flight schedule over FDP error	Flight schedule over FDP error	Captain's Report
(6)	Limited experience, age flight crew rostering	Limited experience, age flight crew rostering	Captain's Report
(7)	Missing information flight plan (weather, Notam, meteology, changing route, takeoff/ landing time)	Missing information flight plan (weather, Notam, meteology, changing route, takeoff/ landing time) rate /10000 flights	Captain's Report
(8)	Fatigue management in > 10h FDP night flight (night duties)	≤ 3 nights	Aves System
2.2 Aircraft Maintenance (SAG 2)			
(1) Included: Indicators 1- 6, 8, 9 Appendix 10.1 and Indicators 9, 15, 16 Item I Appendix 10.2.			
(2)	Concession in maintenance	Number of concessions and rate of concession per 10000 flights	Concessions records
(3)	Aircraft Tire cut overlimited by FOD	Number of tire cut occurrences occurred during flight and rate of appearance per 10000 flights	Technical report
(4)	PDA	Occcurences and rate of PDA per 1000 flights.	Technical report
(5)	Operational intermittent due to technical malfunctions	Number and rate of operational intermittent due to technical malfunctions per 10000 flights.	Technical report
2.3. Ground operation and cargo (SAG 3)			
(1) **Included:** Indicators 1, 2, 3, 4, 5, 8 Appendix 10.1 and Indicators: 10, 12, 13, 14, 16 Item I Appendix 10.2.			
(2)	Refueling occurrences for aircraft	Number of occurrences occurred and rate of appearance per 10,000 flights	Incident report

Note:

a) All indicators are measured monthly, quarterly and annually.

b) Report of safety indicators and safety performance indicators will be presented within 13 months. Example: report of Feb 2012 will reckon up data from the beginning of Feb 2011 to the end of Feb 2012. Please see appendix 10.3.

c) Safety indicators is accepted by CAAV, Vietnam Airlines shall report to CAAV monthly, quarterly and annually.

d) Safety performance indicators is not required report to CAAV. However, report of safety performance indicators shall be reported to SAGs, SRB monthly, quarterly and annually.

Appendix 10.3: Safety indicators report form

Reporting period: MM/YYYY

Code	ALS	Target	Feb, 2011	Mar,2011	Apr,2011	May,2011	Jun,2011	Jul,2011	Aug,2011	Sep,2011	Oct,2011	Nov,2011	Dec,2011	Jan,2012	Feb,2012	Warning

Appendix 11.1 Factual information and evidences

To achieve consistency, but also to provide a check-list for the investigation team, it is proposed to use the ICAO Annex 13 format to collect the information. When a section does not need to be addressed, it can be erased or the mention N/A (not applicable) can be used.

1. History of the flight

The history of the flight describes the significant events which preceded the event, in chronological order when this is practicable. The information is usually obtained from sources such as flight records, flight recorders, air traffic services records and recordings, and witness accounts. The information should be correlated to local time, or UTC if the flight involved more than one time zone. The information presented in this section of the report should be based on established facts. Usually the flight number, the type of operator and operation, the crew briefing and flight planning, the departure point and time of departure, and the point of intended landing will be given, followed by a description of the events leading to the event, including navigational details and relevant radio communications. It is important to give a description of the flight and the pertinent events as they occurred, including a reconstruction of the significant portion of the flight path, if appropriate. Evidence which facilitated the reconstruction of the sequence of events, such as witness accounts, recorders and air traffic services transcripts, should be mentioned.

In the history of the flight section, the objective is to enable the reader to understand how the event happened but to avoid any analysis of why the accident occurred.

With regard to the location of the occurrence, include:

a) the latitude and longitude, as well as a geographical reference to a well-known location (such as 75 km south of XYZ);
b) the elevation of the accident site;
c) time of the occurrence in local time (and UTC if the flight crossed time zones); and
d) whether it was day, dawn, dusk or night.

2. Injuries to persons

Note: It will be very rare to deal with events causing injuries or fatalities. The description of the information in this section is just given for reference.

Fatal injuries include all deaths determined to be a direct result of injuries sustained in the accident. Serious injury is defined in Chapter 1 of Annex 13. For statistical purposes, ICAO classifies a fatal injury as an injury which results in death within thirty days of the accident. The heading "Others" in the table refers to persons outside the aircraft who were injured in the accident. When the accident involves a collision between two aircraft, a separate table should be used for each aircraft.

3. Damage to aircraft

This section should contain a brief statement of the damage sustained by the aircraft in the accident (destroyed, substantially damaged, slightly damaged, or no damage). A detailed description of damage to relevant aircraft components and systems should be included in Section 12 — Wreckage and impact information.

4. Other damage

Make a brief statement of damage sustained by objects other than the aircraft, such as buildings, vehicles, navigation facilities, aerodrome structures and installations, and any significant damage to the environment.

5. Personnel information

Provide a brief description of the qualifications, experience and history for each flight crew member (pilot, co-pilot and flight engineer) including age, gender, type and validity of licences and ratings; flying experience (total hours), types flown and hours on the type; hours flown in the last 24 hours, 7 days and 90 days prior to the accident; results of recent training and mandatory and periodic checks; experience on route and aerodrome involved in the event; relevant information on duty time and rest periods in the 48 hours prior to the accident; significant medical history and medical checks. Also, state the position occupied by each flight crew member and identify who was flying the aircraft (this can also appear in the History of the flight).

When relevant, give a brief statement of the duties and responsibilities of the cabin crew, as well as their qualifications, experience and training. For example, these details would be relevant if the event involved an evacuation of the aircraft.

When relevant, information on maintenance personnel and other personnel involved should include qualifications, experience, time on duty, shift work rosters, workload and the time of the day.

6. Aircraft information

If needed, provide a brief statement of the airworthiness and maintenance of the aircraft including the following information:

a) General information: Aircraft manufacturer and model, serial number and year of manufacture; nationality and registration marks, validity of the Certificate of Registration; name of the owner and the operator; and validity of the Certificate of Airworthiness;

b) Aircraft history: Total flying hours since manufacture, since overhaul, and since last periodic inspection. Include relevant information on maintenance log and maintenance documentation, compliance (or otherwise) with airworthiness directives, manufacturer service bulletins and aircraft modification status;

c) Engines and propellers: Engine manufacturer and model, position on the aircraft and engine or engine module serial numbers; engine overhaul period if an engine failure occurred; and total hours, hours since overhaul and hours since last inspection, for each engine. If relevant, provide the same information for the propellers;

d) Fuel: Type of fuel used and type of fuel authorized. Also, state the amount of fuel on board and how it was determined, its specific gravity and its distribution in the fuel tanks;

e) Accessories: In respect of any component which failed, give details of the manufacturer, type, model, part and serial number, certificated time and cycle limits, and operating time since manufacture and since overhaul;

f) Defects: List any technical defects in the aircraft, engine or accessories which were discovered during the investigation or recorded in the appropriate log and not cleared. Indicate whether the defects were recurring and whether the flight was permissible under the aircraft master minimum equipment list. If there were no defects, make a statement to that effect;

g) Aircraft load: The maximum certificated take-off mass and landing mass, actual take-off mass, and mass at the time of the occurrence should be given. Also, state the certificated limits for the centre of gravity of the aircraft, and the centre of gravity at take-off and at the time of the occurrence. Include a description of the operator's loading control system, the load distribution and its security, and how the details of the aircraft mass and centre of gravity were established.

Describe any aircraft part or system which had a bearing on the event. Similarly, describe operational procedures, performance limitations and other aircraft related circumstances which played a role. The objective is to enable the reader to fully understand how the event happened.

The availability, serviceability and use of transponder, airborne collision avoidance system (ACAS) and traffic alert and collision avoidance system (TCAS), ground proximity warning system (GPWS) and terrain awareness warning system (TAWS), should be stated. The relevant systems should be discussed in detail for near collisions, mid-air collisions, approach and landing type events and near controlled flight into terrain.

7. Meteorological information

Provide a brief statement on the relevant meteorological conditions, including the forecast and actual weather, together with an appreciation of the weather in retrospect. When relevant to the occurrence, the following information should be included:

a) Describe when, where and how the pilot obtained weather information;

b) Weather forecast: Route and aerodrome forecasts available to the pilot, and details of any weather briefing obtained by the pilot prior to departure or received en route;

c) Weather observations at the time and place of the occurrence including precipitation, ceiling, visibility, runway visual range, wind speed and direction, temperature and dew-point;

d) Actual weather on the route of the flight, including weather observations, SIGMETs, pilot reports and witness accounts;

e) A general view of the weather situation (synoptic weather);

f) Weather radar recordings, satellite photos, low-level wind shear alert system (LLWSAS) data, and other recorded meteorological information; and

g) Natural light conditions at the time of the accident, such as day (sunlight or overcast), twilight (dawn or dusk; when relevant, the time of sunrise or sunset at the applicable altitude should be included), night (dark or moonlight) and when relevant, the position of the sun relative to the direction of the flight.

The amount of meteorological information to be included in this section depends on the significance of the meteorological factors in the occurrence. A detailed description of the forecast and weather observations is appropriate for a weather-related occurrence whereas a brief summary of the weather is appropriate when the weather was not a factor.

8. Aids to navigation

Include relevant information on navigation and landing aids available, such as global navigation satellite system (GNSS), non-directional radio beacon (NDB), very high frequency omni-directional radio range (VOR), distance measuring equipment (DME), instrument landing system (ILS), and visual ground aids, as well as their serviceability at the time of the accident.

When relevant, include pertinent information on equipment on board the aircraft, such as autoflight system, flight management system (FMS), global positioning system (GPS), and inertial navigation system (INS), including their serviceability. Relevant maps, charts, approach plates and radar recordings should also be discussed and included in, or attached to, the report.

9. Communications

Describe the communication facilities available to the flight crew and their effectiveness. Describe the communications with the air traffic services and other communications relevant to the flight, including reference to communication logs and transcripts of recordings. When essential to the analysis and understanding of the occurrence, pertinent extracts from the transcripts of air traffic services communications recordings should be included in this section or attached to the report.

10. Aerodrome information

When the occurrence took place during takeoff or landing, include information concerning the aerodrome and its facilities. When relevant, include the following information:

a) Name of aerodrome, location indicator, reference point (latitude/longitude) and elevation;

b) Runway identification, runway markings, runway length and slope, length of overrun, and obstructions;

c) Runway conditions, such as pavement texture and grooving, rubber deposits, presence of water, slush, snow, ice, friction coefficient and braking action;

d) Lighting, such as runway, taxiway and stopway lighting; and visual aids, such as visual approach slope indicator system (VASIS) and precision approach path indicator (PAPI);

e) Runway inspection programmes and inspections carried out; and

f) Bird and wildlife programmes.

If the aircraft was taking off from, or landing on, an area other than an aerodrome, relevant information on the take-off or landing area should be given.

This section should be divided into departure aerodrome information and destination aerodrome information, if both aerodromes were pertinent to the occurrence.

11. Flight recorders

Note: this section applies mainly in case of accident or serious incident when there is an official investigation. Though, some internal investigation will use on a regular basis, some recorded information, mainly the data from the Flight data monitoring.

Provide the particulars for each flight recorder, such as manufacturer, model, numbers of parameters recorded, recording medium and duration of the recording.

The recorders would include flight data recorders (FDR), cockpit voice recorders (CVR), quick access recorders (QAR), engine parameter recorders, video recorders, non-volatile memory chips in aircraft systems, and other on-board or ground-based recorders.

In this section, provide information recorded by the flight recorders. Because of the length of a flight data recording read-out report, include here or in an appendix to the Final Report only those parts of the readout reports which are pertinent to the analysis and findings.

Transcripts from the cockpit voice recordings should be included in the Final Report or its appendices only when essential to the analysis and understanding of the occurrence. Parts of the recordings not essential to the analysis shall not be disclosed. ICAO Chapter 5, Annex 13 contains provisions pertinent to transcribed voice recordings and should be taken into account when it is considered necessary to include such transcripts in the Final Report or its appendices.

12. Wreckage and impact information

Note: the following mainly apply to accidents. Though, when an incident ended up with damages, a description on how these damages were produced may be useful.

Provide a general description of the site of the accident and the distribution pattern of the wreckage, including the final portion of the flight path, the impact path, the impact sequence and the location of impact impressions on the ground,

trees, buildings and other objects. The impact heading, aircraft attitude (pitch, roll and yaw) and aircraft configuration at impact should be given. When relevant, the terrain surrounding the site should be described. Relevant wreckage distribution diagrams, charts and photographs should be included in this section or appended to the report. The location and the state of the major parts of the wreckage should be presented. In case of an in-flight break up of the aircraft, a detailed description of the wreckage distribution should be provided.

It might be necessary to present the examination of the wreckage and the technical investigations under appropriate sub-headings in this section, such as structures, power plants, instruments, flight controls and systems. The descriptions under each sub-heading should embrace the significant facts determined by the group which was responsible for the detailed investigation. Under appropriate sub-headings also include the relevant results of special technical investigations, examinations and laboratory tests, and the significance of the results obtained (see also Section 16 - Tests and research). When relevant, the technical laboratory and test reports should be appended to the Final Report.

It is important to include all pertinent material failures and component malfunctions, and to indicate whether they occurred prior to or at impact. It is essential that failed or malfunctioning components which are deemed to be significant to the accident be described. A detailed description of all wreckage components is not necessary; describe only components considered to be relevant or which required examination and analysis. The inclusion of drawings of components and photographs of specific failures will enhance the Final Report. Such drawings and photographs could be presented together with the appropriate text or as an appendix.

13. Medical and pathological information

Describe the results of the medical and pathological investigations of the flight crew. Medical information related to flight crew licences should be included under Section 5 - Personnel information. When relevant to the event (in case of cabin decompression for example), the medical investigation may also concern the cabin crew members, passengers and ground personnel.

The results of the pathological and toxicological examinations concerning injuries, detection of disease and factors which impaired human performance, such as carbon monoxide, oxygen deficiency, alcohol and other drugs, should be stated. If alcohol and drugs are detected, their effects on human performance as determined by medical experts should be presented in this section.

Describe the pathological evidence of significance to the survival investigation such as the relationship of injuries and pathological evidence to the deceleration forces, aircraft attitude at impact, seat design and attachments, seat belts (see also Section 15 - Survival aspects), break-up of the aircraft structure, smoke inhalation, decompression and any evidence of preparation for an emergency situation, such as forced landing, ditching and unlawful interference.

Given the provisions of ICAO Annex 13, Chapter 5 with regard to medical and private records, particular care should be taken that such information is disclosed in the Final Report only when pertinent to the analysis and conclusions of the accident.

If the medical examinations indicate that the performance of flight crew members was not degraded, a sentence along the following lines may be used: "There was no evidence that physiological factors or incapacitation affected the performance of flight crew members."

14. Fire

If a fire or an explosion occurred, give a brief description of whether the fire started in flight or after ground impact. For in-flight fires, describe the effectiveness of the aircraft fire warning systems and the aircraft fire extinguishing systems. The determination of the origin of a fire, source of ignition, fuel source, duration, severity and effects on the aircraft structure and the occupants usually requires an analysis of the facts and indications, and should therefore be dealt with in the analysis part of the Final Report. This section should describe the factual information which was established in the investigation related to the fire and which should then be discussed and analysed in the analysis part.

For fires on the ground, describe the propagation and the extent of the fire damage. The response time of the rescue fire service, access to the accident site by the rescue fire service vehicles, the type of fire fighting equipment used, the type of extinguishing agent and the amount that was used and its effectiveness should also be described.

The effect of the fire on the evacuation and survivability of the occupants should be described in

15. Survival aspects

Give a brief description of the search and rescue activities. When applicable, include information regarding the serviceability and effectiveness of the emergency locator transmitters.

The location of crew members and passengers in relation to injuries sustained should be stated. The failure of structures, such as seats, seat belts and overhead bins should be described. Also, the use and effectiveness of safety equipment should be reported. Aspects pertinent to the crashworthiness of the aircraft should be addressed, as well as occupant survivability in relation to impact forces and fire.

If an evacuation was conducted, a description of the following information is usually included:

a) first notification of an accident to the emergency services and the response time;
b) emergency lighting in the aircraft (installation, activation, functioning and failures);
c) communications;
d) passenger behaviour and carry-on baggage;
e) emergency exits (types of exits and their use);
f) evacuation slides (types of slides, activation and their use);
g) injuries sustained in the evacuation; and
h) post-evacuation events.

16. Tests and research

Describe the results of any tests and research undertaken in connection with the investigation. Flight tests, simulator tests and computer modelling of aircraft performance are examples of the type of information that should be included in this section. Relevant details of research that is used to support the analysis should also be included.

The results of examinations of aircraft and engine parts may alternatively be included in Sections 6 - Aircraft information, Section 12 - Wreckage and impact information or Section 16 of the report.

17. Organizational and management information

Provide pertinent information on any organization and its management whose activities may have directly or indirectly influenced the operation of the aircraft. The organizations to be addressed in this section could include:

a) operator;
b) maintenance organizations;
c) air traffic services;
d) aerodrome administration;
e) meteorological services;
f) aircraft manufacturer;
g) certification and licensing authority; and
h) regulatory authority.

Provide the necessary excerpts of manuals, like operating manual, training manual, maintenance manual, etc.

This section should also look on how the SMS dealt with thus type of event. Was it foreseen with HIRA? Which mitigation of the risk was implemented? Why did it not work?

When deficiencies in the organizational structure and functions had a bearing on the accident, the information could include, but need not be limited to, the following factors:

a) safety culture;
b) resources and financial viability;
c) management policies and practices;
d) internal and external communications; and
e) certification, safety oversight and regulatory framework.

When relevant, provide pertinent information concerning the operator, such as types of operations authorized, types and number of aircraft authorized for use, and authorized areas of operation and routes. Also, include information concerning any deficiencies found in the operator's company operations manual and other operator documentation.

18. Additional information

Give relevant information and facts, not already included in Sections 1 to 17, which are essential to the development of the analysis and conclusions parts of the Final Report.

Note — Ensure that the factual information part of the Final Report contains all the technical data which is essential to the analysis and conclusions parts of the report.

Witnesses statement or interview transcript should be given in this section.

Appendix 11.2 The SHELL model and guidance in use of this model of SHELL during investigation

1. Analyse the occurrence by using the SHELL model

The ADREP 2000, is based on an Human Factor model, the SHELL model. This model **(figure 1)** describes a system as the interaction of humans with four elements: Software, Hardware, Environment and Liveware. Each element of the model includes a list of items based on a tree description.

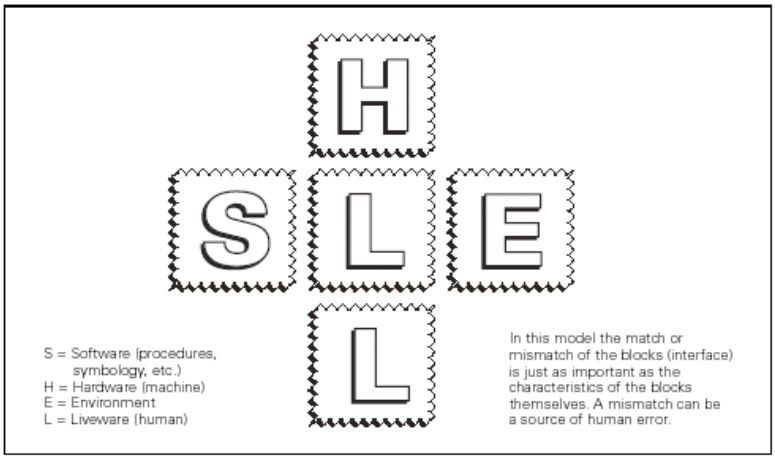


Figure 1: The SHELL model as modified by Hawkins, 1987

The SHELL model graphic representation could be used as a check-list for accidents and incidents investigations by running through the various interfaces that make it up (ICAO,1993).

ICAO's taxonomy breaks down an occurrence into a sequence of events since accidents are typically a combination of several different causes. When each cause is viewed alone, it may often appear insignificant, but in combination with other causes it can complete a sequence of seemingly unrelated events that result in an accident. Accident prevention therefore involves identifying and eliminating these causes before the chain of events is complete.

ADREP aims to break down each event into descriptive and explanatory factors. **Figure 2** illustrates this concept based on a tree description. In ADREP 2000, there is no limit in the number of events and factors.

Occurrence

Events/Phases of flight

Descriptive Factor Subject + Modifier(s)

Organization/Person + Explanatory Factor subject (SHELL) + Modifier

Figure 2 : Events and factors in ADREP 2000

The explanatory factor subjects are arranged in a hierarchical structure based on the SHELL model (**Figure 1**). They generally refer to the causes while descriptive factors cover the circumstances of the occurrence. The events and factors tree summarizes the results of an investigation.

The objective is to create a framework to collect and disseminate harmonized safety information that could assist prevention measures. Another consequence is that it will allow to proceed to enhanced statistical studies that will provide the SMS with the necessary data it needs to work properly. This has to be done in a consistent manner by selecting the appropriate descriptive and explanatory factors.

This is why the following method is recommended to build up the analysis of an investigation. The use of a taxonomy already incorporating a Human Factor model should not prevent investigators from using other human error models such as the Skill Rule Knowledge (SRK) model (Rasmussen, 1986). These models are available when a deeper analysis of the occurrence is needed to understand its underlying mechanisms.

Furthermore, the aim is not only to have an enhanced encoding tool but to develop a possible analytical method for all aspects of an occurrence. In addition to a common taxonomy and a common software, it is vital to have consistent data. To move towards this goal, a method is needed to give investigators a similar structure for occurrence analysis and common criteria to select encoding keywords in the SHELL taxonomy.

ICAO's recommendations about structuring an analysis around the formulation of a causal chain and the identification of safety hazards. This description of the chronology of events can be followed by other hazards that were non-contributory but which nevertheless warrant safety action (ICAO, 1993).

Events and phases of flight

The first step, common to the two series of cases, consisted of determining the sequence of events which led to the occurrence. Each event is associated to a phase of flight. This is obtained through appendix 11.1 (section 1 - history of flight) and (section 2 - analysis) of the report when it is published and/or after the presentation of facts by the investigator in charge for an ongoing investigation nearing completion. The second case appears more fruitful in identifying the main sequence and possible failures in the successive events. At this point in time, the analysis has not yet been written and the encoding carried out following the presentation of the factual report can be used to assist in the construction and development of the analysis.

In both cases, factual information can be derived from:

a) Data from the CVR/FDR,QAR,

b) Radar and GPS data,
c) Radio communications,
d) Corroborating witness statements,
e) Examination of wreckage distribution, etc.

Each piece of information is used to elaborate a timeline of the flight, which depends on the accident scenario, where actions, decisions, exchanges, briefing, etc. are identified. It takes into account events, actions or decisions that could interfere positively or negatively with the flight. The resulting sequence of events is then attributed to the respective phases of flight as defined within ADREP.

The main difficulty of this step is to put together clear validated data (measures, records,...) and more subjective facts (like witness statements that can be conflicting) in order to produce a clear timeline with a minimum loss of information. The collective approach of the working group can be very positive in preventing any loss of crucial information, since it tries to cover all aspects of the investigation.

Descriptive factors

Descriptive factors follow the determination of the events, associated to their phases of flight. The selection of descriptive factors, with the modifiers that are chosen and encoded according to ADREP 2000, completes this step. They help set the context, describe decisions made by actors and also describe technical factors in the occurrences (e.g. aircraft systems, etc.). In the layout of descriptive factors in the ADREP encoding, environmental descriptive factors should be placed first, before decisions, actions or technical factors. For each descriptive factor subject, at least one modifier is required, though more can be added. For example in actions related to aircraft handling, a modifier which evaluates the action (improper, inadequate etc) could be used first, followed by another one giving details (excessive, etc.).

Explanatory factors

The choice of explanatory factors using the boxes in the SHELL model represents the last step of this first attempt at encoding. Only one modifier may be used per explanatory factor whereas descriptive factors require at least one modifier (they come from the same list). Three ways of exploring the model are foreseen:

- a search by keywords using the software search engine. This method can be adapted when the investigator already has evidence leading to the choice of

keywords, but should be considered carefully as it is subject to individual bias;

- a systematic check of all items in the model (check-list) to prevent missing any critical factor. This method is adopted when the investigator has a blurry idea of the factors he is looking for and/or wants to have a thorough approach. The central L component is first checked for the state of the front line operator (e.g. pilot, controller, engineer), then the L-L component for verbal exchanges, cooperation, ATC exchange, etc. The L-H interface follows for aspects related to ergonomics, man-machine interactions, etc. then the L-S interface for training, procedures, documentation and finally the L-E (e.g. external pressures) more related to a systemic approach and environmental influence;

- in case of limited information (e.g. wreckage inaccessible, no recorded data), it is still possible to keep the upper level of the tree description that characterizes the SHELL model.

Up to now, the occurrences selected for the development of the method have been analyzed with the systematic check method.

The description of these events, presented in chronological order, will form the framework of the accident scenario. Active and latent failures are identified with the help of the SHELL model. Then, each failure (SHELL subject) is related to a person or an organization (e.g. pilots, airline, authorities, etc.). The presentation of these explanatory factors can be ordered following the Reason model sequence.

Non-contributory factors

The analysis in a report also mentions factors that did not directly contribute to occurrences but lead to chance of safety improvement (ICAO, 1993). Some elements from the investigation can trigger safety recommendations (supported by the analysis) from non-contributory factors. These hazards must also be encoded in order to prevent any loss of safety information.

Creation of a table linking factors to factual elements

A table can subsequently be created to summarize this step in order to link selected SHELL explanatory factors to factual information. An example of such a table is presented in **figure 3.**

Event, phase of flight Descriptive factors	**Explanatory causal factors**	**Factual elements justifying the coding**
Conduct of flight during descent		
Inappropriate decision by the crew on the choice of the approach procedure	Strong time pressure (crew) (L-E)	The procedure chosen reduced the flight time (and thus the cost of the rental)
	Psycho-social factors (crew) (L)	*Type of trip undertaken (AG for a trip of a professional nature)*
Deviation from approach procedure		
Conduct of flight during approach, non standard	Violation (crew) (L)	*The airplane track did not correspond to the published track, no passage over IAF (radar track)*
	View of the cockpit from the pilot's seat, poor (L)	*The pilot was seated on the right. Not all the instruments are present on the right side and surveillance of them is difficult.*
Incorrect interpretation of the published approach procedure	Inadequate pre-flight preparation (crew) (L)	*The inbound track used corresponds to the outbound track in the procedure, an error on the crew's part.*
Choice of an excessive approach speed	Strong time pressure (crew) (L-E)	*Time pressure, reduction in flight time.*
Conduct of the flight during final approach		
Incorrect judgment by the crew during landing	Visual illusions (L)	*The airplane lined up in landing configuration parallel to a line of lampposts (testimony, radar tracks, examination of wreckage).*
Collision with ground object during final approach		

Figure 3 : Example of a table linking factors to factual elements

For investigations in progress, this table is a useful tool for writing the analysis of the occurences. Factual elements are thus articulated in the best sequence through the most likely scenario of the occurrence.

Drafting the analysis of the report

The last step is to draft the analysis of the investigation report with two possible sections: the scenario and the discussion of systemic issues. Obviously, this task is more productive and effective if it is performed by a working group composed of those persons directly involved in the investigation.

Figure 4 summarizes the overall process for analyzing an occurrence. It is important to note that the process is iterative. The first attempt at analyzing represents a sound base for improvements in data and report quality. Different iterations help to converge towards a consensus for the most likely scenario. The depth and size of the encoded tree illustrates the depth of the investigation carried out.

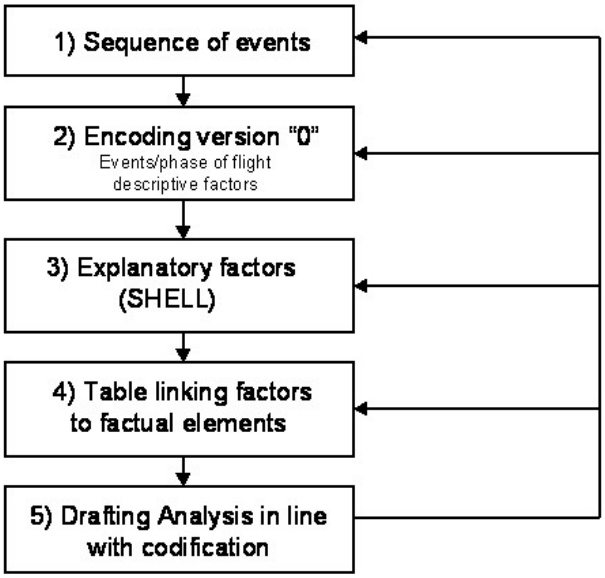


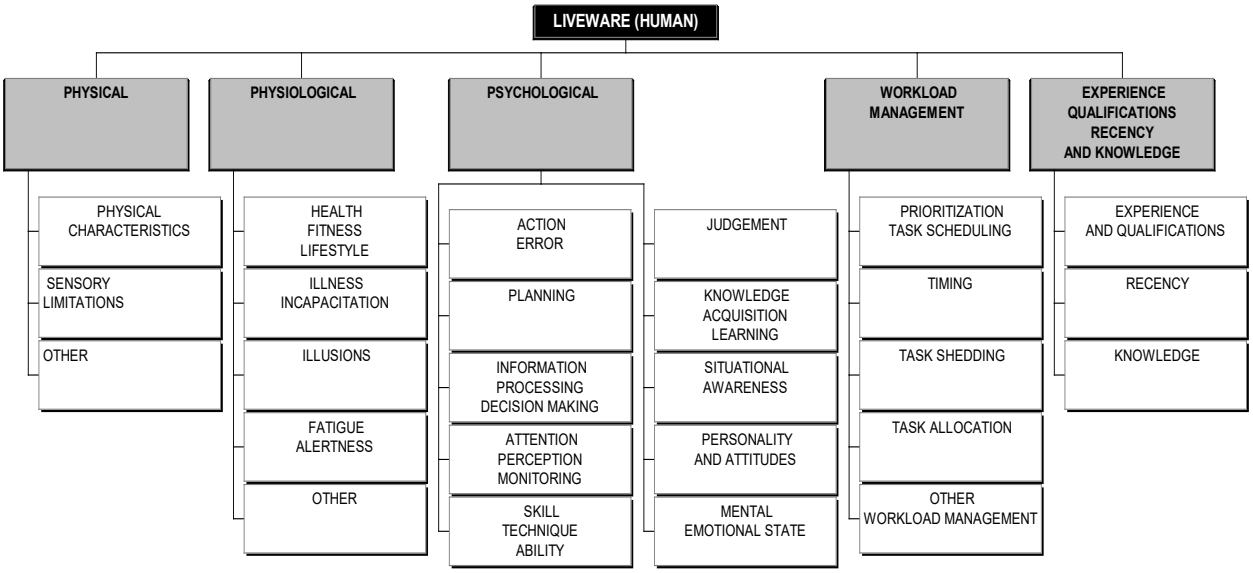
Figure 4: Encoding and analytical process

2. Guidance in use of the SHELL Model

The previous chapter described that to perform the analysis, it is in necessary to know and use the SHELL model. The following gives a brief description of the five main elements of this model. The detailed elements must be used to address correctly the different issues.

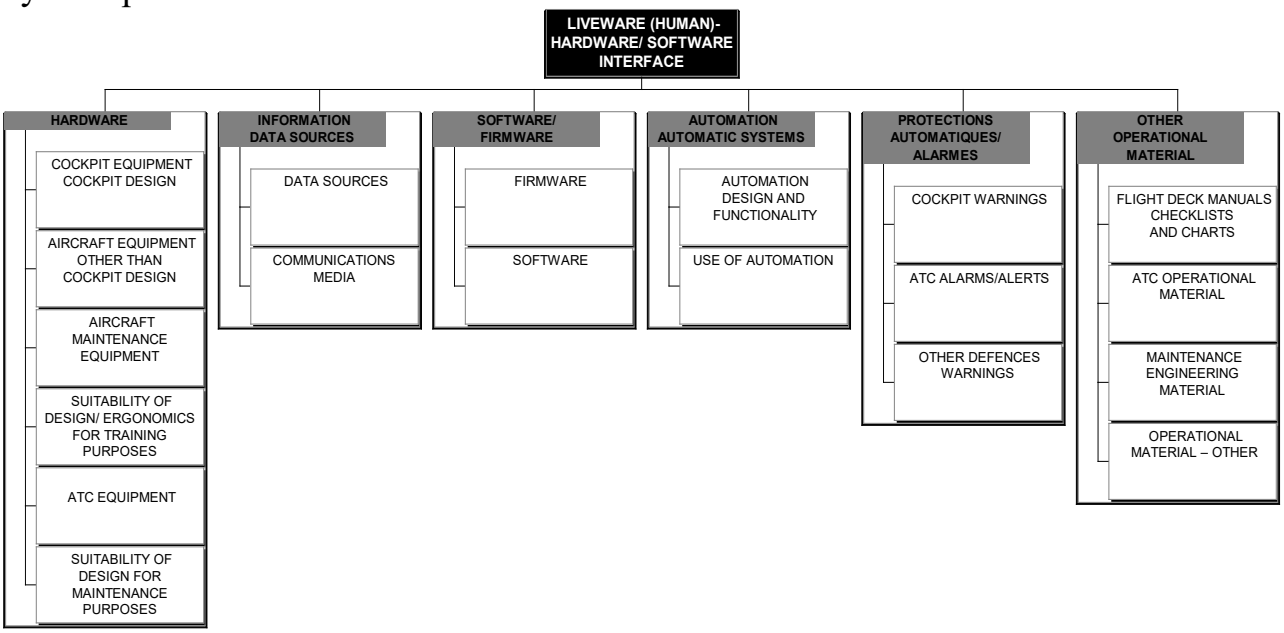
2.1 Liveware

The first one is the liveware. It encompasses all the possible human errors and failures. It should be used to describe the real time failures of the front line actors (e.g. mindslip, illusion, etc.)



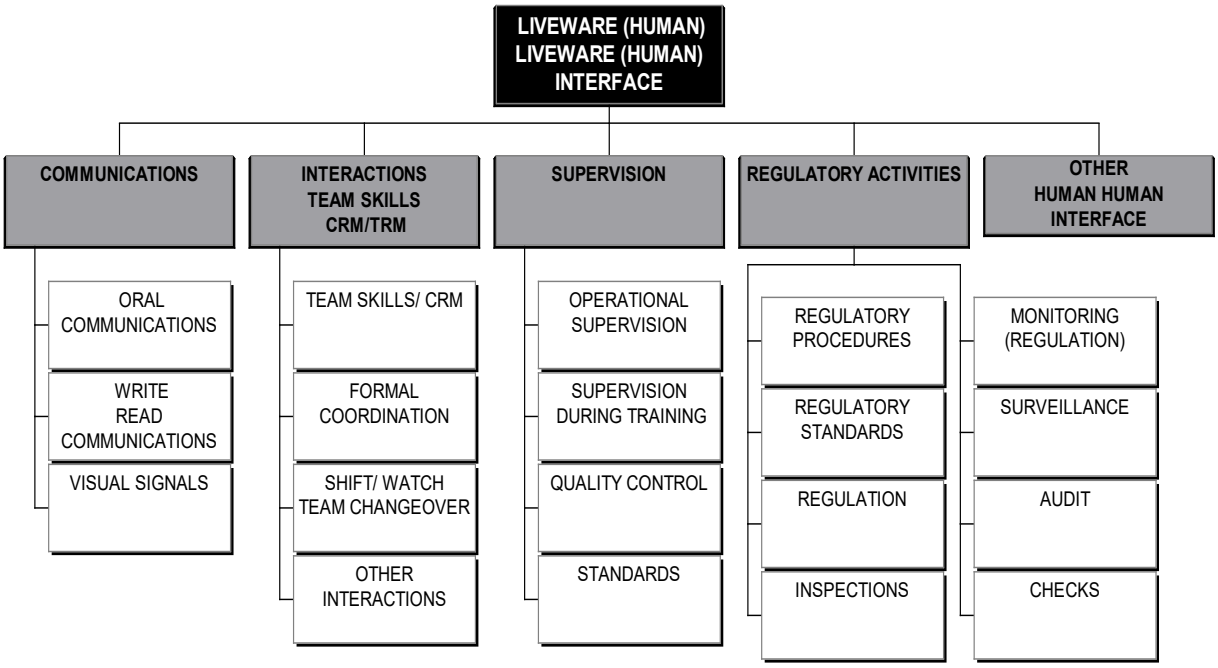
2.2 Liveware – Hardware

This interface describes the different mishaps that can be caused by the design of the working station or tools, the automatisms, and equipments handled by the operator.



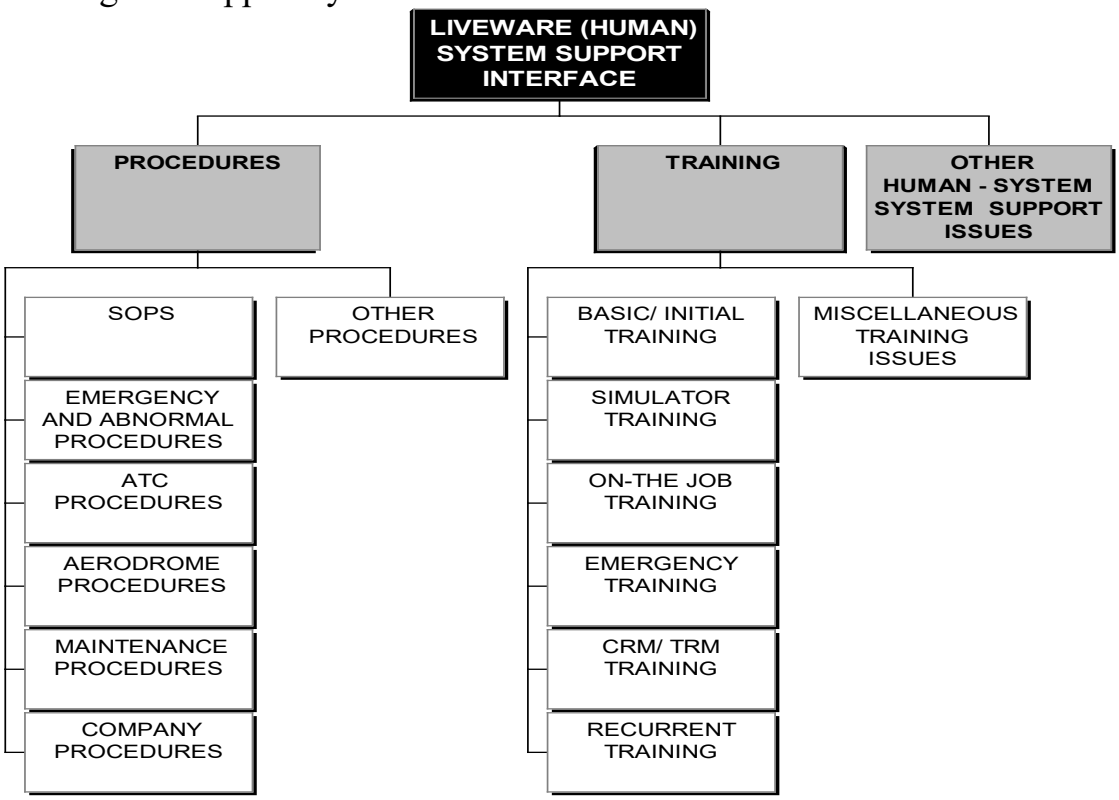
2.3 Liveware – Liveware

This interface is used when there is a problem of communications between two individuals (inside the crew, between the crew and ATC, etc.)



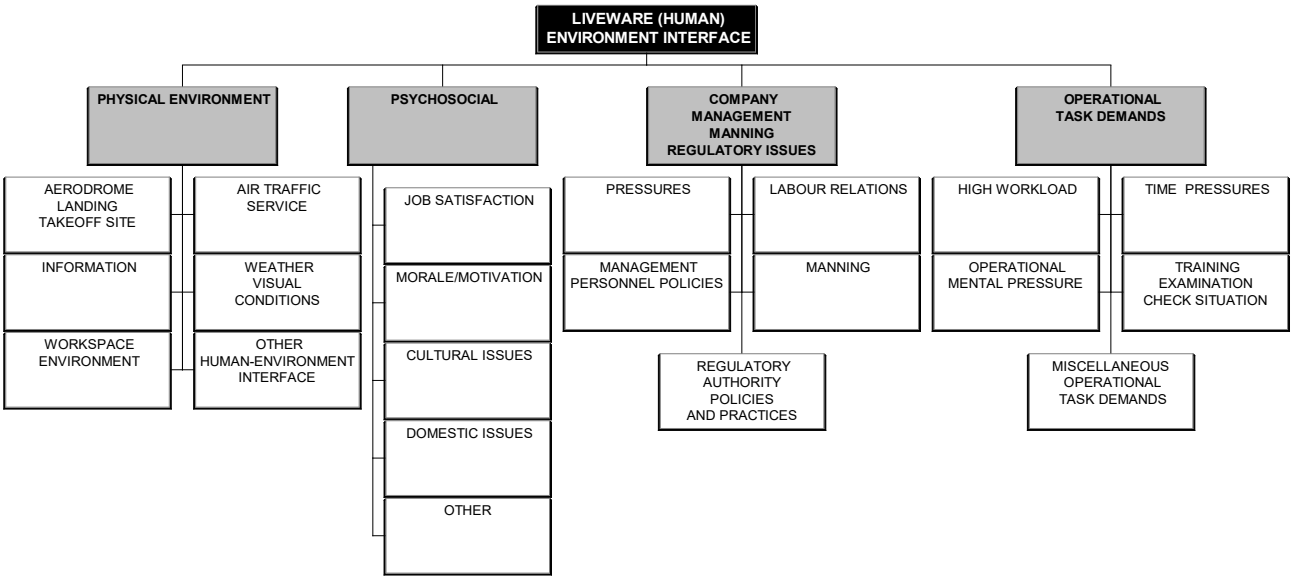
2.4 Liveware – Software

This applies for explanatory factors linked to procedures, documentation, training and support systems.



2.5 Liveware - Environment

Explanatory factors related to organizations, regulation, physical and economical environment.



Appendix 12.1 Safety Traning

1. PURPOSE OF PROCESS

- This process is intended to provide steps to conduct safety training and interfaces between Departments/ Divisions during the safe training process.
- The safety training process aims to instruct departments/ divisions to ensure that employees are trained in safety relevant to the job position.

2. SCOPE AND APPLICABILITY

- This process is applied throughout the VNA

3. RESPONSIBILITY

- Heads of Departments/ Divisions are responsible for implementing this process.

4. REFERENCE DOCUMENTS

a) ICAO Doc. 9859
b) Decree 75/2007/ND-CP dated 09/05/2017 of Vietnam Government.
c) VAR; AC 01-003

5. MAIN CONTENTS OF PROCESS

5.1 Training Planning

a) Based on actual training needs, the number of SMS trainings shall be set up by Deparments/ Divisions.

b) Based on the training demand, the heads of Departments/ Divisions shall approve the training plan or submit it to HRD for approval.

5.2 Organizing and implementing

a) Based on the approved training plan, the Head of Human Resource Department / Heads of Departments/ Divisions will organize the trainings classes according to the hierarchy.

b) Organizing classes with full materials, curricula/ syllabus, relugations and equipments for training such as: projector, computer, laser point pen, board, whiteboard pen ...

c) During organizing classes, the participants and especially the number of students absent for no reason must be conducted and controlled.

d) After the course, attendees will check their understanding by paper test.

5.3 Adjusted and unexpected training plan

- In cases where it is necessary to organize classes outside the plan or to adjust the class in comparison with the approved plan, the head of the Human Resource Department or Head of the Departments/ Divisions shall

adjust plan, or supplement the unscheduled classes submitted to competent authorities for approval.

5.4 E-learning training

a) Based on the approved E-learning training plan, Head of Human Resource Department or Heads of Departments/ Divisions shall take initiative in implementing.

b) Implementation of E-learning training including digitized lectures, links to the library, teachers and learners will be decentralized and supervised by administrators.

5.5 Training results

- The results of the training will be kept at the Human Resource Department or other Departments/ divisions.

6. RECORDS

Item	Contents	Type of record	Place of recording	Duration of recording
1	Mark result sheet		Human Resource Dept; Dept/ Division	5 years
2	Paper test		Human Resource Dept; Dept/ Division	5 years
3	List of candidates		Human Resource Dept; Dept/ Division	5 years

Appendix 12.1.5

SURVEY FOR SAFETY MANAGEMENT SYSTEM TRAINING OF SERVICE PROVIDERS

MẪU KHẢO SÁT VỀ HUẤN LUYỆN HỆ THỐNG QUẢN LÝ AN TOÀN ĐỐI VỚI NHÀ CUNG CẤP DỊCH VỤ THUÊ NGOÀI

Please answer the following questions by ticking (✓) the suitable box.
Vui lòng trả lời các câu hỏi dưới đây bằng cách tick vào ô Có /Không.

Ord	Questions / Câu hỏi	Yes	No
A.	**Safety Management System (SMS)/ Hệ thống Quản lý an toàn/**		
1.	Have you got SMS? *(Note: If the answer is "Yes", Please answer the following questions)* Đơn vị của anh/ chị có xây dựng hệ thống quản lý an toàn? *(Note: Nếu câu trả lời "Có", Hãy tiếp tục trả lời các câu tiếp theo)*	☐	☐
2.	Is your SMS documented? Đơn vị anh/ chị có tài liệu hệ thống quản lý an toàn?	☐	☐
3.	Is your SMSM approved by CAA? Tài liệu SMS của đơn vị có được Cục HK phê chuẩn?	☐	☐
B.	**SMS training / Công tác huấn luyện đào tạo**		
1.	Have you got a SMS training program? Đơn vị của anh/ chị có chương trình huấn luyện về hệ thống SMS?	☐	☐
2.	Are your staffs servicing VNA Operation trained about SMS? Đơn vị của anh/ chị có huấn luyện về hệ thống SMS cho CBCNV phục vụ cho VNA?	☐	☐
C.	**Contents of SMS training / Nội dung huấn luyện về SMS**		
1.	Is SMS training program for your staffs servicing VNA Operations included with the following contents: Đơn vị anh/ chị huấn luyện SMS cho CBCNV phục vụ cho VNA với các nội dung nào dưới đây:	☐	☐
	a) Organizational safety policies, goals and objectives. Chính sách, mục tiêu an toàn.	☐	☐
	b) Organizational safety roles and responsibilities related to safety. Vai trò, trách nhiệm của tổ chức đối với vấn đề an toàn.	☐	☐
	c) Basic safety risk management principles. Nguyên lý cơ bản về quản lý rủi ro an toàn.	☐	☐
	d) Safety reporting system Hệ thống báo cáo an toàn.	☐	☐
	e) Safety management support (including evaluation and audit programs) Hỗ trợ quản lý an toàn (bao gồm cả chương trình đánh giá và kiểm định).	☐	☐

Ord	Questions / Câu hỏi	Yes	No
	f) Lines of communication for dissemination of safety information. Vấn đề truyền thông và phổ biến thông tin an toàn.	☐	☐
	g) A validation process that measures the effectiveness of training. Quy trình đánh giá về cách đo lường hiệu quả huấn luyện đào tạo.	☐	☐
	h) Initial indoctrination and, when applicable, recurrent training requirements. Huấn luyện đào tạo ban đầu, và yêu cầu đối với huấn luyện định kỳ. - Initial indoctrination/ Huấn luyện ban đầu - Recurrent training / Huấn luyện định kỳ + 12 months / 12 tháng + 24 months / 24 tháng + 36 months / 36 tháng + 48 months / 48 tháng	☐ ☐ ☐ ☐ ☐ ☐	☐ ☐ ☐ ☐ ☐ ☐
2.	Methods of SMS training / Cách thức huấn luyện, đào tạo của đơn vị		
	a) In-class / Tổ chức lớp	☐	☐
	b) E-Learning / Đào tạo từ xa	☐	☐
	c) Read and Sign / Đọc và ký xác nhận/	☐	☐
	d) Web/ Email, Website / Qua thư điện từ, trang Web.	☐	☐
	e) Others / Khác	☐	☐
3.	Duration of SMS training / Thời gian huấn luyện, đào tạo		
	a) ≤ 1 days / ≤ 1 ngày	☐	☐
	b) ≥ 1 - 2 days / ≥ 1 - 2 ngày	☐	☐
	c) ≥ 2 - 3 days / ≥ 2 - 3 ngày	☐	☐
	d) ≥ 3 days / ≥ 3 ngày	☐	☐
4.	After the training, is a test of employees' understanding of the SMS system taken by trainees? Sau khóa huấn luyện, đơn vị có tổ chức thực hiện bài kiểm tra độ hiểu biết của nhân viên về hệ thống SMS?	☐	☐
	- Methods of testing / Phương thức kiểm tra + Written in paper / Làm bài thi trên giấy + Interview / Vấn đáp + Writing an essay / Viết bài thu hoạch + Others / Hình thức khác - Passing point / Điểm đạt	☐ ☐ ☐ ☐ ☐	☐ ☐ ☐ ☐ ☐

Ord	Questions / Câu hỏi	Yes	No
	+ 75% + 80% + 85% + 90%	☐ ☐ ☐ ☐	☐ ☐ ☐ ☐

I assure that the above information is completely true and agree to let VNA check the information mentioned above. If the statement is not honest, I take full responsibility.
Tôi xin cam đoan những thông tin nêu trên là hoàn toàn đúng sự thật và đồng ý để kiểm tra các thông tin đã nêu trên. Nếu lời khai không trung thực, tôi xin hoàn toàn chịu trách nhiệm.

Ngày/ Date: ……

Ký/ Signature: ……..

Tên đầy đủ/ Full Name: ……

Chức vụ/ Position: ……...

Tên Nhà cung cấp dịch vụ/Name of Service Provider : . . . . . .

Appendix 15.1. Operational variation safety risk management procedure

15.1 VNA conduct safety risk assessment for operational variations to the following requirements:

a) Alternate airport selection;
b) Minimum fuel requirements;
c) Extended Diversion Time Operations (EDTO) diversion requirements;
d) Use of HUD (or equivalent), EVS, SVS or CVS;

The results of assessment which demonstrates how an equivalent level of safety will be maintained when application for operational variations is submitted to CAAV– VAR 12.047 (a)

15.2 Procedure of operational variation safety risk management is as follows: - Appendices 1,2,3 to VAR 12.047

15.2.1Identify operational variations

a) Flight operations
   1) Variations when selecting alternate airports (take-off, enroute, landing)
   2) Variations when calculating fuel planning
b) Technical area
c) Ground operations
   1) Variation of passenger handling at airport, including check-in, boarding lounge, baggage handling, security assurance;
   2) Variation of capability of providing supplementary catering;
   3) Variation of capability of recalculating weigh and balance for flights;
   4) Variation of ensuring cargo, DG for flights
   5) Variation of capability of fuel provision: type of fuel, fueling equipment...
   6) Variation of capability of ramp handling;
   7) De-anti icing service for aircraft...

15.2.2 Describe system (before and after application to operational variations)

15.2.3 Apply HIRA program for identifying new hazards and assessing safety risks *(at least the following content should be assessed)*

15.2.3.1 Alternate airport selection- Appendix 1 to VAR12.047

a) Capabilities of VNA: facility, training, operation control, flight monitoring, risk management.
b) Capability of aircraft and its system
c) Available airport technologies, capabilities and infrastructure

Technologies	Risk
GPS, WAAS, GBAS, RNAV, RNAV-LP, RNP...	Loss of concentration, situation judment because there is technologies equipped at airport while there is not procedure of technologies use established by operator.

d) Quality and reliability of meteorological information

Wrong forecast	Risk
Tropical storm, temperature, windshear, ...	- Error when flight planning - In-flight replanning - Use of reserve fuel - Out of reserve fuel - Unscheduled diversion - Emergency landing - Injuries

e) Identify hazards and safety risks associated with each alternate airport variation.

15.2.3.2 Minimum fuel requirements - Appendix 2 to VAR12.047

a) Flight fuel calculations: taxi fuel, trip fuel, contingency fuel, destination alternate fuel, final reserve fuel, additional fuel, extre fuel.

b) Capabilities of VNA:

1) A data-driven method that includes a fuel consumption monitoring program: FIMS

2) The advanced use of alternate airport: GPS, WAAS, GBAS, RNAV, RNAV-LP, RNP...

15.2.3.3 EDTO diversion requirements – Appendix 3 to VAR12.047

a) Capabilities of VNA

b) Facility, training, operation control, flight monitoring, risk management.

c) Overall reliability of aircraft

d) Reliability of each time limited system

e) Relevant information from aircraft manufacturer.

15.2.4 Develop specific mitigation measures to mitigate safety risks to acceptable level.

15.2.5 Deploy the operational variations if the safety risks are in the tolerable region and after getting approval of operational variations from CAAV

15.2.6 Measure safety performance indicators and assess impact of the operational variations after application.

15.2.7 Perform again from step 15.2.3 to 15.2.6.

Appendix 17.1 Fatigue risk management policy - VAR 15.010 (a), VAR Appendix 1 to 15.063 (a) (2), (b) (1) - (3), (b) (6) – (9), VAR Appendix 2 to 15.063 (a)

FATIGUE RISK MANAGEMENT POLICY

As a commitment to the continuous improvement of safety, VNA develops and operates Fatigue Risk Management System (FRMS) to manage fatigue-related risks.
This FRMS applies to the operations as defined in Flight Operations Manual (FOM) and Cabin Crew Operations Manual (CCOM). All other operations will operate under the prescriptive flight and duty time regulations.
The FRMS Manual describes the processes used for identifying fatigue hazards, assessing the associated risks, and developing, implementing, and monitoring controls and mitigations. The FRMS Manual also describes the safety assurance processes used to ensure that the FRMS meets its safety objectives, and how the FRMS is integrated with our industry-leading SMS programs. Under this policy:

1. Management is responsible for:

1.1 Providing adequate resources for the FRMS.
1.2 Creating an environment that promotes open and honest reporting of fatigue related hazards and incidents.
1.3 Providing fatigue risk management training to flight, cabin crew and other FRMS support staff.
1.4 Demonstrating continuous improvement and providing annual review of the FRMS.

2. Flight and cabin crew are required to:

2.1 Make appropriate use of their rest periods (between shifts or periods of duty) to obtain sleep.
2.2 Participate in fatigue risk management education and training.
2.3 Report fatigue-related hazards and incidents as described in the FRMS Manual.
2.4 Comply with the Fatigue Risk Management Policy.
2.5 Inform their manager or supervisor immediately prior to or during work if:
a) They know or suspect they or another crew member are suffering from unacceptable levels of fatigue; or
b) They have any doubt about their or another crew member's capability to accomplish their duties.

PRESIDENT & CEO
VIETNAM AIRLINES JSC