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STATE SAFETY PROGRAMME

INDIA

SECOND EDITION

JUNE 2021

STATE SAFETY PROGRAMME
INDIA

EDITION 2

JUNE 2021

Directorate General of Civil Aviation
Ministry of Civil Aviation, New Delhi,
India

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Abbreviations

AAI	Airports Authority of India
AAIB	Aircraft Accident Investigation Bureau
AIC	Aeronautical Information Circular
AIP	Aeronautical Information Publication
ACs	Advisory Circulars
ALoSP	Acceptable Level of Safety Performance
AMOs	Aeronautical Meteorological offices
AMSs	Aeronautical Meteorological Stations
ANSP	Air Navigation Service Provider
APRAST	Asia Pacific Regional Aviation Safety Team
AP-RASP	Asia Pacific Regional Aviation Safety Plan
ARAP	Aviation Regulatory Advisory Panel
ATO	Approved Training Organization
BFAS	Board for Aviation Safety
CAPs	Civil Aviation Procedures
CAR	Civil Aviation Requirements
COSCAP-SA	Co-operative Development of Operational Safety and Continuing Airworthiness Programme – South Asia
DGCA	Directorate General of Civil Aviation
ECCAIRS	European Co-ordination Centre for Accident and Incident Reporting Systems
FDAP	Flight Data Analysis Programme
FIR	Flight Information Region
FUA	Flexible Use of Airspace
GANP	Global Air Navigation Plan
GASP	Global Aviation Safety Plan
ICAO	International Civil Aviation Organization
IMD	India Metrological Department
ISRR	Indian Search and Rescue Region
MoCA	Ministry of Civil Aviation
MoES	Ministry of Earth Sciences
MSRs	Mandatory Safety Reports
MSRS	Mandatory Safety Reporting System

MWOs	Meteorological Watch Office
NASAR Plan	National Aeronautical Search and Rescue Plan
NASARCC	National Aeronautical Search and Rescue Coordination Committee
NASP	National Aviation Safety Plan
NAST	National Aviation Safety Team
NMSARCA	National Maritime SAR Coordinating Authority
NOTAM	Notice to Airmen
RASG-APAC	Regional Aviation Safety Group-Asia Pacific
RCC	Rescue Co-ordination Centers
SAR	Search and Rescue
SAAQ	State Aviation Activity Questionnaire
SARAST	South Asia Regional Aviation Safety Team
SARPs	Standards and Recommended Practices
SDCPS	Safety Data Collection and Processing System
SEIs	Safety Enhancement Initiatives
SMS	Safety Management System
SOFA	Surveillance of Foreign Aircraft
SPI	Safety Performance Indicator
SPT	Safety Performance Target
SRBS	Safety Risk Based Surveillance
SRM	Safety Risk Management
SSP	State Safety Programme
VSRs	Voluntary Safety Reports
VSRS	Voluntary Safety Reporting System

Foreword

Aviation in India is on high growth trajectory and encompasses all areas of operations, design and manufacturing of aviation products. The goal of "Make in India" and to provide connectivity to tier-2 & 3 cities in the country under "UDAN scheme" has assumed priority. UDAN is a regional airport development and "Regional Connectivity Scheme" of Government of India, with the objective of "letting the common citizen of the country fly. These goals are likely to further increase the complexity of aviation activity in India.

In compliance with the SSP/SMS related Standards and Recommended Practices (SARPs) spread over various ICAO Annexes, DGCA initiated the process for adopting a risk based management of safety in the year 2010. This is when the first edition of SSP India came into existence and necessary rules/regulations and organization structure for the management of SSP was put in place.

This document remained a guide for the DGCA, other aviation entities and industry at large to move forward in the risk based approach for managing safety and building up State Aviation System.

To capture the changes in Civil Aviation System in India, primary aviation legislation, specific operating regulations, SARPs contained in ICAO Annex 19 and to maintain constant thrust in the direction of risk based management of safety, DGCA is bringing out Edition II of SSP India.

This document identifies Acceptable Level of Safety Performance (ALoSP) in India. It mandates establishment of National Aviation Safety Plan containing safety priorities, safety performance indicators, targets and measurement of safety performance.

State Safety Programme requires a cohesive approach by all stake holders to identify safety hazards and apply suitable mitigation measures to achieve the State Acceptable Level of Safety Performance.

(Arun Kumar)
Director General of Civil Aviation

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India Safety Policy

Government of India ensures highest level of safety in its aviation system by incorporating ICAO SARPs, best international practices and outcome of Safety Risk Management in its regulatory framework.

India implements reactive, proactive and as far as possible predictive strategies for ensuring that India has safe, efficient, competitive aviation industry. It encourages all stakeholders / service providers to understand the benefits of a safety culture and a reporting culture free from fear.

India will foster and assist stakeholders / service providers in developing comprehensive Safety Management Systems (SMS) based on the principle of hazard identification and risk management.

Government of India is committed to:

• Promote positive safety culture across aviation industry that recognizes the importance and value of effective aviation safety management system;

• Develop general rulemaking and specific operational policies that build upon safety management principles;

• Ensure that the organizations entrusted with safety responsibilities have sufficient resources including financial and human resources for implementation, establishment and maintenance of SSP and that personnel have appropriate skills and are trained for discharging their safety oversight and management responsibilities effectively;

• Conduct both performance-based and compliance-oriented activities, supported by analyses and prioritized resource allocation based on safety risks levels;

• Ensure that an Acceptable Level of Safety Performance is established and safety performance is measured in terms of state's and service provider's safety performance indicators with respect to set safety performance targets;

• Ensure that aviation agencies and service providers interact effectively and work closely for the mitigation of identified safety hazards and their associated risk;

• Ensure that operators and service providers establish and maintain the Safety Management System (SMS) in their operation;

• Support the management of safety through an effective safety reporting and communication system;

• Establish provisions for the protection of safety data, collection and processing systems, so that people are encouraged to provide essential safety-related information on hazards, and there is a continuous flow and exchange of safety management data between DGCA and service providers;

• Promulgate an enforcement policy that ensures that no information derived from any safety data, collection and processing systems, established under the SMS will be used as the basis for enforcement action, except in the case of gross negligence or wilful deviation; and

• Achieve the highest levels of safety standards and performance in aviation operations.

This policy must be understood, implemented and observed by all staff involved in activities related to the State Safety Programme.

(Pradeep Singh Kharola)
Secretary
Ministry of Civil Aviation

1. Introduction

ICAO Standards and Recommended Practices (SARPs) contained in Annex 19 to the Convention requires States to establish and maintain a State Safety Programme (SSP) commensurate with the size and complexity of the State's civil aviation system. ICAO describes SSP as "an integrated set of regulations and activities aimed at improving safety."

India SSP is broad in scope & includes many safety activities aimed at fulfilling the programme's objectives of civil aviation.

The requirement for SSP recognizes that States as well as service providers have safety responsibilities, and provides a framework within which service providers are required to establish SMS.

The SARPs contained in ICAO Annex 19 require the following service providers to implement Safety Management System:

- Approved Training Organizations that are exposed to safety risks related to aircraft operations during the provision of their services
- Operators of aeroplanes or helicopters
- Approved maintenance organizations
- Organizations responsible for the type design or manufacture of aircraft, engines or propellers
- Air Traffic Services providers
- Operators of certified aerodromes.

ICAO Standards explicitly require States to establish the Acceptable Level of Safety Performance (ALoSP) to be achieved through their SSP.

The first edition of SSP was issued in the year 2010. This edition has been developed using the ICAO framework and guidance material, including the ICAO SSP gap analysis document, ICAO's Global Aviation Safety Plan (GASP), Global Air Navigation Plan (GANP) and international best practices.

1.1 Purpose

The purpose of this document is to communicate the SSP for Civil Aviation in India to all stakeholders. It focuses on roles and responsibilities of all stakeholders, as well as actions taken by the Directorate General of Civil Aviation (DGCA), as the responsible organization for Safety in Civil Aviation.

1.2 Definitions

Acceptable Level of Safety Performance (ALoSP): The level of safety performance agreed by State authorities to be achieved for the civil aviation system in a State, as defined in its State Safety Programme, expressed in terms of safety performance targets and safety performance indicators.

Hazard: A condition or an object with the potential to cause or contribute to an aircraft incident or accident.

Risk Mitigation: Measures or controls put in place to either eradicate the hazard, or to reduce the severity or likelihood of the assessed risks.

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.

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.

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

Safety Management System (SMS): A systematic approach to managing safety, including the necessary organizational structures, accountability, responsibilities, policies and procedures.

Safety oversight: A function performed by a State to ensure that individuals and organizations performing an aviation activity comply with safety-related national laws and regulations.

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

Safety Performance Indicator: A data-based parameter used for monitoring and assessing safety performance.

Safety Performance Target: The State or service provider's planned or intended target for a safety performance indicator over a given period that aligns with the safety objectives.

Safety Risk: The predicted probability and severity of the consequences or outcomes of a hazard.

State Safety Programme (SSP): An integrated set of regulations and activities aimed at improving safety.

Surveillance: The State activities through which the State proactively verifies through inspections and audits that aviation licence, certificate, authorization or approval holders continue to meet the established requirements and function at the level of competency and safety required by the State.

1.3 Document Control

The SSP document will be made available to all the organizations responsible for the management of SSP and to all the directorates of DGCA having safety oversight responsibilities. The document shall also be placed on DGCA website *(http://dgca.gov.in/).*

Changes to this document will be achieved by a re-issue of the entire document rather than by the amendment of individual pages.

The SSP document will be reviewed and updated at least every five years by the Director General, Civil Aviation in consultation with stakeholders.

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2. Safety Policy, Objectives and Resources

2.1 Indian Aviation Legislative Framework

The Parliament of India has enacted laws for aviation safety. All aviation legislations and regulations are available on DGCA website.

India ratified the Convention on International Civil Aviation (the Chicago Convention, 1944) on 1st March, 1947.

For carrying out the ICAO Convention, 1944 (including any Annex thereto relating to international standards and recommended practices) and for the management of aviation safety in India, a comprehensive regulatory framework has been laid down. This legal structure assigns responsibilities and gives the authority to Central Government, DGCA and AAIB to ensure implementation of ICAO safety standards and recommended practices. Each of these organizations are accountable for the effective implementation of these responsibilities.

2.1.1 Primary Aviation Legislation

The Aircraft Act, 1934 (the Act) is the primary aviation legislation that empowers and provides authority to Central Government, DGCA, BCAS and AAIB, to implement the provisions of said Act and Rules made thereunder. It contains provision for the control of the manufacture, possession, use, operation, sale, import and export of aircraft and for securing the safety of aircraft operations in India.

Section 4 of the Act empowers Central Government to make rules to implement the Chicago Convention, 1944. Section 4A of the Act empowers the Directorate General of Civil Aviation to carry out safety oversight and regulatory functions in respect of matter specified in the Act or the Rules made thereunder.

Section 4C of the Act empowers the Aircraft Accidents Investigation Bureau (AAIB) to carry out the functions in respect of matters relating to investigation of aircraft accidents or incidents and Section 7 of the Act empowers Central Government to make Rules for investigation of any accident or incident.

Section 5 of the Aircraft Act, 1934 empowers Central Government to make Rules for enabling person performing safety oversight function to have access to the aircraft, operations, facilities, personnel and associated records, as applicable, of individuals and organizations involved in aviation activity. Accordingly, Rule 156 of the Aircraft Rules, 1937 has been made under this section for such purposes.

The Aircraft Act, 1934 provides provisions for enforcement actions under sections 10, 10A, 10B, 11, 11A, 11B and 12 of the Act. DGCA, by virtue of these provisions, is empowered to impose financial penalties as well as suspend or cancel the licence, certificate or approval issued to such person and to initiate judicial action in case of contraventions of the provisions of Act and rules made thereunder.

2.1.2 **Specific Operating Regulations**

The Aircraft Rules, 1937, the Aircraft (Demolition of Obstruction caused by Buildings and Trees etc.) Rules, 1994, the Aircraft (Carriage of Dangerous Goods) Rules, 2003, the Aircraft (Investigation of Accident and Incidents) Rules, 2017 and Unmanned Aircraft System Rules, 2021 are the specific operating regulations.

The Indian Aviation legislative system also includes specific operating regulations in the form of the Civil Aviation Requirements (CAR), Aeronautical Information Circular (AIC) and Aeronautical Information Publication (AIP). These are supported by guidance and advisory material.

For carrying out the Chicago Convention, 1944 (including any Annex thereto relating to international standards and recommended practices), India has three layers of legislation, refer Figure 1.

The Central Government has also promulgated Rule 29C of the Aircraft Rules, 1937, regarding "Adoption of the Convention and Annexes" which states that the Director General may lay down standards, procedures and regulatory provisions not inconsistent with the Aircraft Act, 1934 and the rules made there under to carry out the Convention and any Annex thereto. Rule 133A of the Aircraft Rules, 1937 empowers DGCA to issue Civil Aviation Requirements for adopting ICAO SARPs as required.

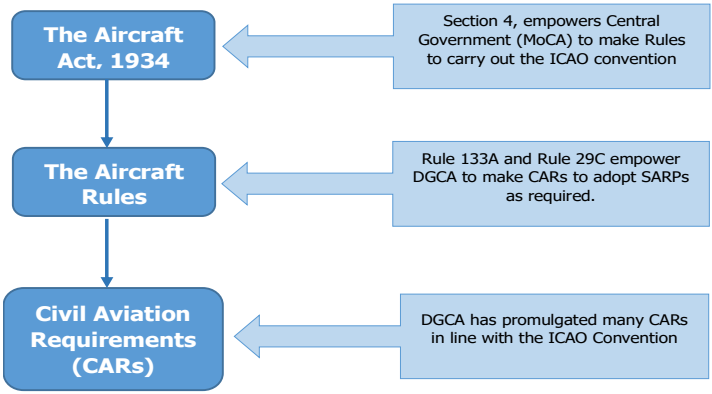


Figure 1: The Regulatory Legislative Framework in India

The CARs provide the detailed requirements to be met that form a means of compliance with ICAO SARPs and is consistent with the legislation in force. Although CARs provide the comprehensive requirements, there is a need to promulgate adequate information which may not be appropriate for inclusion in the CARs. Such information and guidance material for compliance with Rules and Regulations is included in Advisory Circulars (ACs).

The regulatory legislative framework enables the fulfilment of the obligations of India under the Chicago Convention, 1944, within the State.

The regulatory legislative framework provides consistency and compliance with the Annexes to the Convention, 1944, wherever practicable. Differences, if any, to Standards and Recommended Practices (SARPs) of the Annexes, are filed to ICAO as per Article 38 of the Convention.

2.1.3 Enforcement Policy

The India enforcement policy outlines the obligations of the stakeholders, the enforcement actions to be used, the impartiality of

enforcement actions, proportionality of responses, natural justice and accountability. The Aircraft Rules confers on the DGCA and its officers the power of enforcement. Breach of the regulations is an offence carrying a penalty which depends on the nature and circumstances of the breach.

Board for Aviation Safety (BFAS) has been set up to resolve Level I surveillance findings and their monitoring. Level I findings in the de-identified form are displayed on the DGCA website to promote safety information exchange.

DGCA is vested with the powers to take administrative action under rules 19, 19A, 30, 39A, 49D, 55, 61, 83, 95, 109, 132, 133B, 133BA, 134A, 134B, 155A etc. of the Aircraft Rules, 1937. Nevertheless, judicial action may be taken under the provisions of the Aircraft Act, 1934 and Rule 161 read with Schedule VIA of the Aircraft Rules, 1937 in cases where the violations are of such a serious nature as to warrant initiation of judicial action. In addition, monetary penalty may be imposed by the designated officers under Rule 162 read with Schedule VIB of the Aircraft Rules, 1937 where there is no other punishment provided under the Aircraft Act, 1934 and the Aircraft Rules, 1937.

The Enforcement Policy and Procedures Manual provides details and guidance to DGCA officers/inspectors about the statutory provisions to be complied with by the industry and the procedure to be followed for their enforcement. In this connection, it is vital to keep in mind the difference between compliance and enforcement. Compliance consists of all regulations and safety standards being met. When compliance exists, there is no need for enforcement. Enforcement is the action necessary when compliance is not present. Enforcement requires legal or administrative action.

The DGCA promulgates an Enforcement Policy which establishes the conditions that:

a) allow DGCA to define the conditions (events involving gross negligence and wilful deviations) under which it can deal with safety deviations through established enforcement procedures;
b) allow service providers to deal with and resolve, events involving certain safety deviations internally, within the context of the service provider SMS and to the satisfaction of the DGCA.

2.1.4 Monitoring and review of Legislative Framework and Specific Operating Regulations

India continues to review, develop and promulgate a legislative framework and specific operating regulations in compliance with international standards. Changes required in legislation to ensure the effectiveness of the oversight system are determined through ongoing safety analysis:

a) The oversight of the regulatory framework: The regulatory framework is monitored continuously by DGCA in the course of its usual regulatory business.
b) Maintenance of the regulatory framework: The DGCA is responsible for the administration necessary to maintain the regulatory framework. The DGCA has suitable procedures and is adequately resourced (staffed, funded etc.) for the longer term to fulfil this task.
c) The system of monitoring release of amendments to ICAO Annexes has been institutionalized wherein these are monitored on a continuous basis for timely inclusion in the regulations.
d) The DGCA has set up standing Aviation Regulatory Advisory Panel (ARAP) for the review of current regulations in light of best international practices and globally harmonized standards to keep the regulations current and dynamic.
e) DGCA will work closely with the international aviation community to help develop future global and regional regulatory priorities.

2.2 State System and Functions

2.2.1 Responsibilities, Obligations and Functions

The responsibility of managing Civil Aviation safety in India has been entrusted to

a) Ministry of Civil Aviation (MoCA)
b) Directorate General of Civil Aviation (DGCA)
c) Aircraft Accident Investigation Bureau (AAIB)
d) Airports Authority of India (AAI)
e) India Metrological Department (IMD)

The organizations mentioned from (b) to (d) are part of the Ministry of Civil Aviation and IMD is a part of Ministry of Earth Sciences.

Indian State Safety Programme constituent organizations Chart and relation to ICAO is given at **Appendix-A**.

An overview of the responsibilities, obligations and functions of the organizations is given below:

a) **Ministry of Civil Aviation**

The Ministry of Civil Aviation (MoCA), Government of India, is responsible for civil aviation in India and for upholding India's compliance with the Chicago Convention. The Ministry of Civil Aviation (MoCA) is the nodal Ministry responsible for policy formulation and regulation of civil aviation in India. The Ministry also overlooks the planning and implementation of schemes for the growth and expansion of civil air transport, airport facilities, air traffic services and carriage of passengers and goods by air.

The Minister of Civil Aviation (MoCA) is responsible for the overall policy direction in the field of civil aviation and the executive head of the MoCA is responsible to the Parliament for all civil aviation matters.

The MoCA is responsible for developing and amending primary aviation legislation (The Aircraft Act, 1934). MoCA after consultation with the other concerned Ministries and Ministry of Law, puts up the proposal to the Cabinet for approval. After a Cabinet approval, a Bill is moved in Parliament and is passed in both Houses. The Bill becomes an Act after the President gives his assent to it. In the event of Parliament not being in session and the amendment is considered urgent, the Government can get an Ordinance issued by the President, which has the same force of law as an Act.

The MoCA is responsible for allocation of resources to DGCA and AAIB.

Provisions contained in sections 4, 5, and 7 of the Aircraft Act, 1934 empower Central Government to make Rules to implement the Chicago Convention, 1944 (including any annex thereto relating to international standards and recommended practices and amended from time to time) by notification in the Official Gazette.

b) **Directorate General of Civil Aviation (DGCA)**

The Directorate General of Civil Aviation has been constituted under Section 4A (1) of the Aircraft Act, 1934. The DGCA is responsible for carrying out safety oversight and regulatory functions in respect of matters specified in the Aircraft Act, 1934 or Rules made thereunder.

The Director-General has special powers vested under Section 5A of the Act to issue directions for securing the safety of aircraft operations.

The Aircraft Rules, 1937 along with statuary orders provides a number of functions to DGCA relating to the issuance of licences, certificates, approvals, authorization and permits. The detailed requirements for grant of licences, certificates, approval or permission are contained in regulations termed as the Civil Aviation Requirements (CARs) issued by DGCA under Rule 133A. Rule 29C of the Aircraft Rules, 1937, provides the power to the Director General to lay down standards and procedures to carry out the Convention and any Annex thereto.

Rule 156 of the Aircraft Rules, 1937 empowers persons authorized by DGCA to enter, inspect and search any aircraft or any aviation facility, including air navigation services, and also inspect any personnel, document and records for the purpose of securing compliance with any of the rules or the provisions of the Aircraft Act, 1934.

The DGCA is also responsible for the safety oversight of foreign aircraft while operating in India.

Rule 13(1) of Aircraft (Investigation of Accidents and Incidents) Rules 2017 empowers the DGCA to institute investigation into incidents and incase of serious incidents wherein the aircraft AUW is below 2250 kg and is not a turbo-jet aircraft, and appoint a competent and duly qualified person as investigator in-charge for the purpose of carrying out such investigation.

Primary responsibility for the India SSP rests with the DGCA. The Director General is responsible for overseeing the implementation of SSP and to coordinate as appropriate, the activities of the various state aviation organizations encompassed under SSP. DGCA is responsible to promote positive safety culture within DGCA and among the service providers. DGCA will foster and assist stakeholders / service providers

in developing comprehensive Safety Management Systems (SMS) based on the principle of hazard identification and risk management.

The DGCA shall make the endeavor to ensure that it's financial and human resources are adequate for implementation, establishment and maintenance of SSP. The requirement of qualified personnel is determined on routine basic taking into consideration the guidance provided by ICAO.

The DGCA has developed and is responsible for implementation of State Safety Policy.

c) Aircraft Accident Investigation Bureau (AAIB)

Aircraft Accident Investigation Bureau (AAIB) has been constituted under Section 4C (1) of the Aircraft Act 1934. The Aircraft (Investigation of Accidents and Incidents) Rules 2012 were promulgated in May, 2012 and AAIB was established. The Rules have since been revised and notified as the Aircraft (Investigation of Accidents and Incidents) Rules 2017.

AAIB processes the obligation of the Indian Government under Annex 13 to the Convention on International Civil Aviation as mandated in the Aircraft (Investigation of Accidents and Incidents) Rules 2017, which includes following functions: -

i) Classification of "safety occurrences" involving aircraft operating in the Indian airspace into accidents, serious incidents and incidents.
ii) Institute investigation in all accidents occurring to aircraft in Indian airspace and Indian registered aircraft in any state/place where no state has jurisdiction.
iii) Institute investigation in serious incidents involving aircraft with AUW more than 2250 Kgs occurring to aircraft in Indian airspace and Indian registered aircraft in any state/place where no state has jurisdiction.
iv) In addition to para (iii), AAIB may institute investigation in any serious incident where it deems fit.
v) Participate in investigation instituted by other states.

d) **Airports Authority of India (AAI)**

AAI is responsible for providing Air Navigation Services over entire Indian airspace and related airside services to the Indian aviation industry. The airspace under the jurisdiction of AAI has been divided into four FIRs and five Regions.

Airports Authority of India (AAI) has been established by an Act of Parliament in 1995. AAI, an organization under the Ministry of Civil Aviation, operates under the Airport Authority of India Act 1994. The top management of AAI consists of Chairman and five whole time Board Members.

e) **India Metrological Department (IMD)**

IMD under the Ministry of Earth Sciences (MoES) is the designated authority for providing the aeronautical meteorological services at national and international civil airports in India**.** IMD has established 17 Aeronautical Meteorological Offices (AMOs) including 4 Meteorological Watch Offices (MWOs) and 72 Aeronautical Meteorological Stations (AMSs). Meteorological Offices provides the meteorological information to ATS personnel in ICAO format.

2.2.2 Coordination within Indian Aviation System

There are a number of coordination committee/groups which involve various agencies responsible for aviation policy, regulation and service provision. These groups ensure cooperation and coordination across the agencies on aviation safety, efficiency and capacity issues.

a) **SSP Steering Committee**

India has setup the SSP steering committee which is the highest level body with following functions:

i) Formulation of SSP and oversee its implementation.
ii) Periodic review of state safety policy and objectives to ensure they remain appropriate.
iii) Strategic safety decisions on national safety risks.
iv) Responsibility for promotion of SSP in applicable service providers

v) Responsibility to promote SSP and communicate SSP related issues within the respective organization constituting SSP Steering Committee.
vi) Supporting resolution of issues related to SSP.

The composition of SSP Steering Committee is given at **Appendix B**.

b) **Civil Military Cooperation**

In India, the model of side-by-side operations is being used as the airspace is demarcated between the civil and military authorities and the Air Traffic Services are provided separately by the civil and military authorities in their respective airspaces. The military authorities have been exclusively using the airspace specially allocated to them for carrying out their own flying activities.

In the flexible use of airspace (FUA), the airspace available with both military and civil users is effectively utilized on sharing basis to gain optimum usage thereby enhancing its capacity and derive economic benefits to flights operating within a nation's airspace. In this model a co-ordination procedure between the civil and the military authorities is required for sharing of the airspace for meeting the operational requirement of the military as well as demand of the civil aircraft operation.

c) **Coordination within the DGCA**

In order to manage the SSP and ensure implementation of requirements of SMS by stakeholders, India has established a SSP/SMS Division which is attached to the Air Safety Directorate. The SSP/SMS Division is under overall Chairmanship of the Director General and for carrying out its functions/responsibilities is headed by Joint Director General in-charge of Air Safety.

The SSP/SMS Division has the following functions and responsibilities:

i) To assist the Steering Committee in the preparation and implementation of SSP,
ii) Coordination, monitoring and review of implementation of SSP,

iii) Coordination, monitoring and review of implementation of SMS,
iv) Any other work relating to SSP/SMS as assigned by Director General and Steering Committee.

d) **National Aviation Safety Team**

To take appropriate implementation action on Safety Enhancement Initiatives (SEIs) developed by RASG-APAC/APRAST/SARAST and resolve national safety issues, National Aviation Safety Team (NAST) has been constituted in line with the COSCAP-SA Steering Committee decision. The NAST comprises of officials from DGCA and aviation industry.

2.2.3 India's Aviation Safety Policy and Safety Objectives

The vision of DGCA is to "Endeavour to promote safe and efficient air transportation through regulation and proactive safety oversight system". The objective of India's State Safety Programme (SSP) is to achieve the vision and set out an approach to be followed for achieving aviation safety and lower the risks so as to keep the aviation system of India safest in the world.

a) The **India's Aviation Safety Policy** imbibes this vision and is placed at page vi-vii**.** The Safety Policy is also placed on the website of SSP constituent organizations.

To achieve this, India is committed to:

i) Continuously improving aviation safety through collaborative working, including with international partners.
ii) Achieving the State Safety Objectives.

b) **Safety Objectives**

Safety objective shall be a mix of both process-oriented and outcome-oriented objectives to provide enough coverage and direction for the SPIs and SPTs.

Quantitative data and information shall be used periodically to identify highest safety risks or the key safety priorities. Based on the analysis

of the safety data, identified highest safety risks, safety trend information, regional and global safety objectives; safety objectives shall be defined for each aviation sector. This would also involve participation by the service providers. The analysis will also support the identification of emerging issues.

Necessary resources would be made available for obtaining the desired outcome of safety objectives. To meet the safety objectives, State's SPIs and SPTs shall be established and will form part of the National Aviation Safety Plan. An approach consisting of using a combination of quantitative and qualitative SPIs will be adopted. Safety objectives work together as a package with SPIs and SPTs shall enable India to monitor and measure its safety performance.

2.3 Qualified Technical Personnel

Directorate General of Civil Aviation (DGCA) as the safety regulatory body has established minimum qualification requirements for the technical personnel performing safety related functions to ensure the competency of its workforce.

DGCA is committed to provide training or take other actions to reach the established level of competency, and evaluate the effectiveness of these actions. DGCA has laid down its Training Policy which provides an overview of various training requirements of DGCA officers at all levels. The training as envisaged enables the officers to understand the context, duties and responsibilities, relevant regulatory provisions and make them familiar with the relevant ICAO documents including oversight of SMS. DGCA ensures that SSP and SMS training is provided to its officers and briefings familiarization training on SSP, SMS, Safety Policy, objectives and ALoSP for its senior management.

There is a procedure in place to determine the required strength of technical personnel to cater for the regulatory work requirements as per the ICAO guidance.

The qualification, experience, training requirements and procedure for maintenance of training records of personnel in each technical domain is laid down in the procedure manual of respective technical Directorate. It also contains procedure for determining the required number of technical personnel.

2.4 Technical Guidance, tools and provision of safety critical information

Maintaining and enhancing aviation safety performance is of paramount importance to Indian aviation organizations. To achieve this objective, necessary technical guidance material is developed and published to assist technical experts in implementing national regulations, procedures and practices for issue of licence, rating, certificate or approval and surveillance. This technical guidance material is provided in the Departmental Procedure Manuals, Technical Circulars, CAPs covering certification and other procedures and is available on DGCA website. The Departmental Procedure Manuals also provide guidance to personnel performing safety oversight functions on addressing ethics, personal conduct and the avoidance of actual or perceived conflicts of interest in the performance of official duties.

Technical officers are provided with adequate tools to enable them for effective accomplishment of their tasks. The specific tools including checklist, job aids required for technical areas are documented in the respective Procedure Manual.

The technical officers can access safety critical information such as NOTAM, AIP, Airworthiness Directives, etc. from DGCA and AAI website.

These documents are also available for guidance and use by the service providers and aviation personnel for ensuring compliance of national regulations.

2.5 State Emergency Response Plan

Search and Rescue services, over entire Indian Territory including territorial waters, are provided on 24-hour basis, to ensure that assistance is rendered to aircraft and persons in distress. Assistance to aircraft in distress and assistance to survivors of aircraft accidents is provided regardless of the nationality of such aircraft or survivors.

The National Aeronautical Search and Rescue Coordination Committee (NASARCC) is responsible for Aeronautical Search and Rescue services in the Indian Search and Rescue Region (ISRR) over land area.

NASARCC is responsible for formulation and promulgation of National Aeronautical Search and Rescue Plan (NASAR Plan). The NASAR Plan enumerates the policies and actions required by the various National Agencies and State Authorities expected to provide SAR operations during exigencies. This plan provides, by inter-ministerial agreement, for the effective use of all available facilities in all types of SAR missions.

The National Aeronautical SAR Response Committee (NASARRC) is the functional arm of NASARCC and is responsible for implementing the NASAR Plan and as well as various policies and procedures approved by NASARCC.

Search and Rescue Services over Indian Airspace excluding the oceanic areas are coordinated by Rescue Co-ordination Centers (RCC) of Airports Authority of India with the resource agencies like Indian Armed Forces, State Administration and other resource agencies.

Search and Rescue services over oceanic areas which form part of Kolkata, Mumbai and Chennai FIRs are provided by Indian Coast Guard. Indian Coast Guard is responsible for executing/coordinating Search and Rescue (SAR) missions in the Indian Maritime Search and Rescue Region (ISSR). Director General Indian Coast Guard is the National Maritime SAR Coordinating Authority (NMSARCA). To discharge their responsibilities, the Airports Authority of India has established four Rescue Coordination Centers at Delhi, Mumbai, Kolkata and Chennai, and Indian Coast Guard has established three Maritime Rescue Coordination Centers at Mumbai, Chennai and Port Blair.

The effectiveness of NASAR Plan is reviewed through exercises conducted on regular basis.

3. Safety Risk Management

This section sets out the proactive measures to be implemented in the Indian aviation, intended to identify and mitigate risks prior to their effects. Specifically, it includes the elements of rulemaking and prioritization of surveillance activities based on risk assessment; the policy of hazard identification, risk mitigation and interface risk management contained within the Civil Aviation Requirements on Safety Management System.

It aims to move to a performance-based safety management process in India, with each applicable service provider taking proactive responsibility for the management of safety, with the DGCA providing oversight and regulatory control.

The relationships between the State SSP and the service providers SMS and ongoing operations are shown in the figure 2. Both compliance and performance measurement have been put in place.

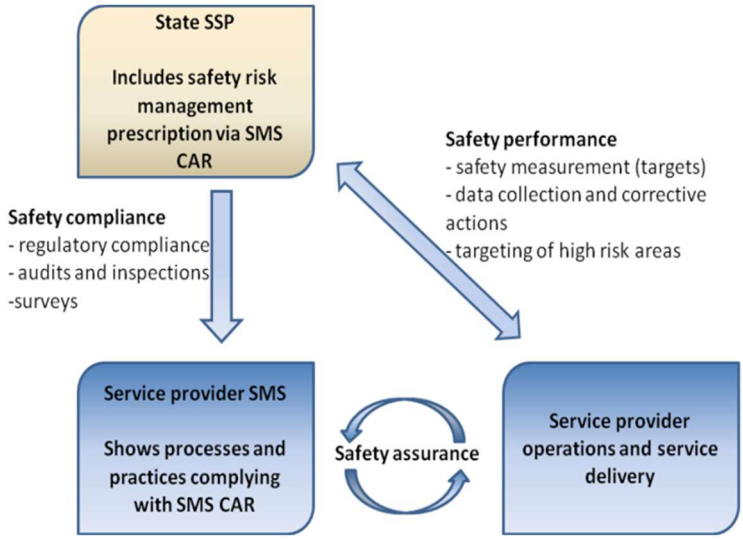


Figure 2: The relationships between the State SSP and the Service Providers SMS

The identification and management of aviation safety risk across the aviation industry is carried out based on analysis of aggregate safety data drawn from the data bases maintained by DGCA and stakeholders. From this process, DGCA develops the National Aviation Safety Plan (NASP) with guidance provided in Global Aviation Safety Plan (GASP) and the Asia Pacific Regional Aviation Safety Plan (AP-RASP). The plan contains National safety goals, targets, operation safety risks expressed in terms of key safety priorities & Safety Performance Indicators (SPIs), other safety issues and safety action plans. The key safety priorities cover all the aviation sectors. The plan is regularly reviewed to ensure that current safety risks are captured. Further the risk management process shall cover the following:

- Sector profile risk management
- Industry profile risk management

3.1 Licensing, certification, authorization and approval obligations

Licensing, certification, authorization and approval obligations are important contents of State Safety Risk Management. The rules, regulations, procedures and organization structure are in place for meeting these obligations.

a) In compliance with ICAO Annex 1 and relevant Rules, licensing of Pilots, Aircraft Maintenance Engineers, Air Traffic Controllers, Flight Engineers including approval of Flight Dispatchers and Training Organizations is carried out. The standards for licensing of Pilots and Air Traffic Controllers are contained in Schedule-II and Schedule-III of the Aircraft Rules 1937 respectively. Detailed procedures for licensing of flight crew and approval of flight dispatchers are provided in Section 7 of Civil Aviation Requirements. CAR 66 and CAR Section 2 contains standards for licensing of Aircraft Maintenance personnel and Flight Engineers respectively. Figure 3 gives the organization set up for personnel licensing.

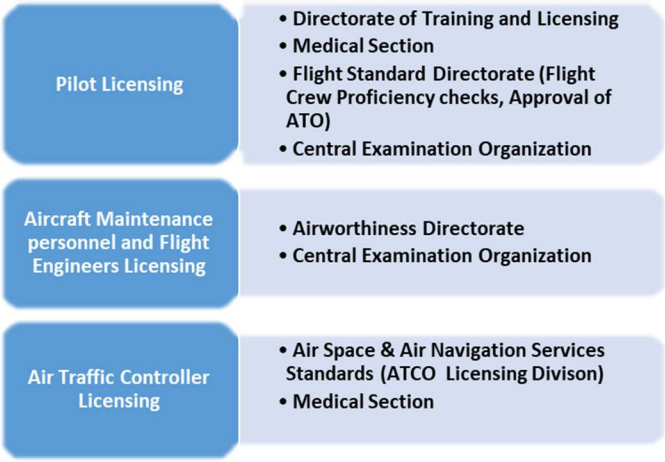


Figure 3: Personnel Licensing Organization

b) In compliance with ICAO Annex 6, certification of Air Operator is carried out. The detailed procedures are available in relevant CARs and guidance is available in CAPs.
In compliance with ICAO Annex 8, approval of Design organization, Manufacturing organization and Maintenance Repair Organizations including issuance of type certificate is carried out. The detailed procedures are available in relevant CARs and guidance is available in CAPs.

c) In compliance with ICAO Annex 14 and DOC 9774, certification of Aerodromes is carried out. The licensing and renewal requirements are contained in Part XI of the Aircraft Rules, 1937. Detailed procedures for design and operations are provided in Section 4 of Civil Aviation Requirements.

3.2 Safety Management System Obligations

Rule 29D of the Aircraft Rules 1937 requires that each applicable service provider including International General Aviation operators conducting operations of large or turbojet aeroplanes as required in ICAO Annex 19 shall establish and maintain a Safety Management System. Rule 29D exceeds ICAO Annex 19 requirements and also includes service providers involved in domestic operations. Civil Aviation Requirements Section 1 Series C Part I issued under Rule

133A and Rule 29D of the Aircraft Rule 1937, sets out operational regulations and implementation policies for the applicable service providers to implement their SMS as part of their certification process. It lays down the safety-related processes, procedures and activities for the establishment of an SMS acceptable to the DGCA. Specifically, it lays out the phased approach for the development and acceptance of service provider's SMS. Detailed guidance for SMS implementation in Air Operators under General Aviation and acceptance is provided in SSP Circular 03 of 2017.

In addition, the Civil Aviation Requirements governing each technical area has requirement for the implementation of Safety Management System in accordance with CAR Section 1 Series C Part I. The applicable regulations in various technical areas are in Table 1.

The DGCA oversee the implementation of the SMS through review of organization's SMS Manual and oversight visits. The responsibility for the implementation of SMS remains with the organization. As part of their SMS service providers, based on analysis of the safety data are required to establish Safety Performance Indicators (SPIs) and expected level of performance to be achieved. Oversight would include agreement between DGCA and service provider on these SPIs, expected level of performance to be achieved and their periodic review.

Table 1	
Purpose	**Reference**
To require **commercial air transport operators (Scheduled or Non-Scheduled Operator's Permit issued under rule 134 or 134A)** to implement a safety management system acceptable to the DGCA	CAR Section 8 Series 'O' Part II – Operational of Commercial Air Transport – Aeroplanes CAR Section 8 Series 'O' Part IV – Operational of Commercial Air Transport – Helicopters

To require **operators conducting operations of large or turbojet aeroplanes for general aviation** to implement a safety management system acceptable to the DGCA	CAR Section 8 Series 'O' Part III – Operational of General Aviation Aeroplanes
To require **air traffic service providers** to implement a safety management system acceptable to the DGCA	CAR Section 9 Series 'E' Part I – Air Traffic Services
To require **civil aerodromes** to implement a safety management system acceptable to the DGCA	CAR Section 4 Series 'B' or F Part I – Aerodrome Design and Operations Requirement for issue of Aerodrome Licence
To require **design organizations engaged in type design of aircraft** to implement a safety management system acceptable to the DGCA.	Subpart JA of CAR 21 - Design Organization Approval- Products or Change to Products
To require **organizations engaged in manufacture of aircraft** to implement a safety management system acceptable to the DGCA	Subpart G of CAR 21 – Production Organization Approval for Products, Parts and Appliances
To require **training organizations approved under Rule 41B** to implement a safety management system acceptable to the DGCA	CAR Section 7 Series D Part I Approval, Renewal and Inspection/ Surveillance/ Audit of flying training organization
To require **maintenance organization approved under rule 133B** to implement a safety management system acceptable to the DGCA	CAR 145 Approval of Maintenance Organizations

The SMS requirements and guidance material are periodically reviewed taking into consideration ICAO SARPs and guidance material, the industry feedback and state safety risk profile.

3.3 Accident and Incident Investigation

3.3.1 Compliance of ICAO Annex 13

In accordance with the ICAO SARPs contained in ICAO Annex 13 as mandated in Aircraft (Investigation of Accidents and Incidents) Rule 2017, Aircraft Accident Investigation Bureau (AAIB) notifies safety occurrences to ICAO and other applicable states. It carries out independent investigation of accidents and serious incidents of civil aircraft in India and participates in investigation of accidents and other safety occurrence involving Indian aircrafts in other states. AAIB is the member of AIG-Asia Pacific Working Group for providing mutual assistance in the conduct of investigations, provision of investigator expertise and technical facilities.

The sole objective of the investigation of an accident/serious incident is prevention of accidents and incidents and not to apportion blame or liability. The AAIB reports are made public and also shared with DGCA and other applicable authorities for taking appropriate action on the safety issues/hazards identified and safety recommendations made in the investigation report. The AAIB accident investigation reports since the year 2012 are available on its website (http://aaib.gov.in/).

3.3.2 Safety investigations of incidents

a) DGCA carries out investigation under the provision of Rule 13 (1) of the Aircraft (Investigation of Accidents and Incidents) Rule 2017 as they provide useful safety information to support safety performance improvement. The investigation reports are made public and hosted on DGCA website. DGCA website also host accidents and serious incidents reports of occurrences prior to year 2012.
b) The recommendations and hazards identified in the investigation report are followed up with concerned agency/service provider for appropriate remedial action.

c) DGCA shares safety significant information arising out of MSRs and investigation reports with the concerned state.

3.3.3 Service provider safety investigations

Service providers carry out safety investigations under the provisions of CAR Section 5 Series C Part I to support hazard identification and risk management process.

3.3.4 Statistical review of Accident/Incident Data

DGCA publishes the Annual Safety Review which besides other safety information, contains statistical analysis of previous year accidents, incidents occurring to Indian registered aircraft and worldwide accident data. This report is available on the DGCA website.

3.4 Hazard Identification and Safety Risk Assessment

One of the most important element in the safety management system is timely and accurate identification of hazards and emerging trends across the aviation system. This is achieved by analysis of safety data aggregated from multiple sources. An adequate knowledge about emerging trends helps in resolutions of recurring issues and measurement of risks within the system for appropriate response.

DGCA has established Safety Data Collection and Processing Systems (SDCPS) to capture, store, aggregate, enable the analysis of safety data and safety information to support its safety risk management, safety performance measurement, safety assurance and safety communication activities. There is a process in place for online collection of the safety data. The information generated from SDCPS also supports fine tuning of Safety Policy and Objectives. Figure 4 depicts this process. Detailed description of safety data and safety information which are required to be maintained by responsible stakeholders for future analysis and decision making either by State or by organization to enhance aviation safety, are included in the Civil Aviation Requirements, SSP Circular 2/2020 and SSP/SMS Division Procedure Manual. The safety data contained in SDCPS enables the comprehensive understanding and identification of potential hazard as well as corresponding consequences, safety risks and measure safety

performance. This helps in determining and prioritizing any actions required to enhance safety at a State level. The process for hazard identification from SDCPS and assessment of safety risk associated with identified hazard is documented in SSP/SMS Division Procedure Manual.

Necessary rules/regulations in compliance with ICAO Annex 19 are in place for providing protection to safety data, safety information and other related sources.

3.4.1 **Data storage**

In the context of safety data collection and analysis, the term safety database may include the following type of data or information which can be used to support safety data analysis:

- Accident and Serious Incidents investigation data
- Incident investigation data
- Voluntary reporting data
- Service provider operational data
- Safety risk assessment data
- Data from audit and surveillance findings
- Data from safety studies/ review
- Safety data from other States, Regional Safety Organizations

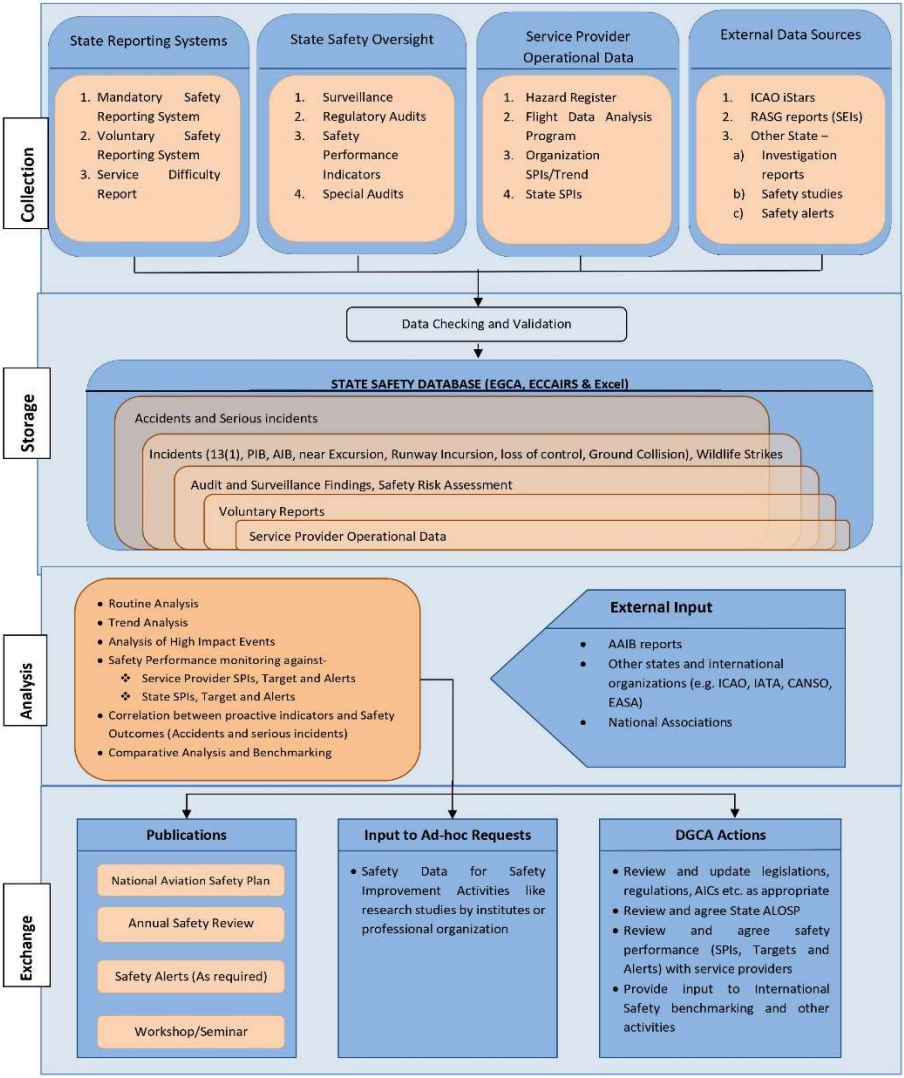


Figure 4: SDCPS

3.4.2 Rules/Regulations for Collection and Protection of Safety Data

a) Rule 18 of Aircraft (Investigation of Accident and Incident) Rules 2017 requires DGCA to establish a Mandatory Safety Reporting System to facilitate collection of information on actual or potential safety deficiencies. Civil Aviation Requirement Section 5 Series C Part I is issued under the provisions of Rule 133A of the Aircraft Rules, 1937 and Rule 4, Rule 5 (1) (c) & Rule 18 of Aircraft (Investigation of Accidents and Incidents) Rules, 2017. It prescribes the manner in which the occurrences are to be reported and investigated and the responsibilities of various organizations like the operators and other departments/ agencies at the airport etc. in providing assistance with regard to investigation.

b) Rule 19 of Aircraft (Investigation of Accident and Incident) Rules 2017 requires DGCA to establish a Voluntary Safety Reporting System to facilitate collection of information on actual or potential safety deficiencies that may not be captured by the Mandatory Safety Reporting System established under rule 18. The voluntary safety reporting system established under Rule 19 is non- punitive and afford protection to the sources of the information. The Rule also provides that the information collected under Voluntary Safety Reporting System is to be handled in a manner so as to prevent its use for purposes other than safety. The detailed process of Voluntary Safety Reporting System is included in AIC on the subject, Air Safety Circular 2/2015. Air Safety Procedure Manual contains the procedure for receiving and processing of the voluntary reports in accordance with Rule 19. These documents are available on DGCA website.

c) Civil Aviation Requirement Section 5 Series F Part II, prescribes requirements for Flight Data Analysis Programme (FDAP) which exceeds the ICAO Annex-6 SARPs requirements.

3.4.3 Regulation/guidance for Hazard Identification and Safety Risk Management

CAR Section 1 Series C Part I prescribes the requirements and guidance for the hazard identification and safety risk management. Detailed procedure for Safety Risk Management is contained in SSP Circular 1/2012.

3.5 Management of Safety Risks

3.5.1 Resolution of Safety Issues

One of the requirement of DGCA under the Aircraft Act, 1934 is to ensure compliance of operating regulations/instructions issued by DGCA for the management of safety in civil aviation sphere by all the relevant stakeholders, identification and resolution of safety issues.

The identification of deficiencies and safety issues is achieved by means of an effective surveillance programme, accident and incident investigation reports including safety recommendations made therein, investigation of occurrences, analysis of reported safety events, trend analysis of the safety data, reliability analysis, management of change, risk assessments, etc. Guidance for collection, analysis, resolution of identified safety issues and maintenance of database is provided in the respective Departmental Procedure Manuals. In addition, Surveillance Procedures Manual and Regulatory Audit Manual contains the guidance for management of surveillance and regulatory audit programme.

For effective resolution of safety issues, enforcement policy and procedures are documented in Enforcement Procedure Manual. DGCA's enforcement policy determines the way it uses its powers vested by relevant Rules to regulate the aviation industry. The key focus is to address safety by consistent and appropriate enforcement action. No information derived from safety data collection and processing systems relating to report classified as confidential, voluntary or equivalent category, is used as the basis for enforcement action. The aim of the Enforcement Policy is to lead the aviation community in India to provide a world-class air safety environment, which has public trust and confidence. To achieve trust and confidence

from the aviation industry and the members of the public including air commuters, DGCA will take appropriate and timely action to curb the intentional breach or neglect of the statutory provisions.

3.5.2 Resolutions of Safety Issues-Agreement on Service Provider's Safety Performance

The ALoSP established by DGCA has facilitated a top down Safety Performance Indicators (SPIs) and Safety Performance Targets (SPTs) setting for all applicable aviation service providers in India. This is a reference by which the service providers and DGCA assesses the ongoing safety performance, and initiate corrective actions as required. The SPIs & SPTs are agreed between the DGCA and the applicable service provider. The targeted safety performance is scaled as appropriate dependent on the scope and complexity of operations of the applicable service provider. The Safety Performance Indicators (SPIs) developed by service provider are required to be measurable and reviewable on an ongoing basis. Collected data from sources such as safety studies, occurrence reporting, safety surveys, safety audits and safety investigation will be used for monitoring and measuring the safety performance. The DGCA identifies key risks from the data to focus corrective actions. For a complete and realistic picture of the safety performance, the service providers will progressively encompass wide spectrum of indicators which includes (a) low probability/high severity events, (b) high probability/low severity events and (c) process performance. Indicators associated with (b) and (c) along with their SPTs will be measurable on an operational level (i.e. they will relate directly to the daily operations of the relevant service provider).

4. State Safety Assurance

4.1 Surveillance Obligations

Safety oversight function is a fundamental component of safety assurance in aviation in India. DGCA oversight covers all the required areas of civil aviation activities and caters to the extent and complexity of aviation activities in India. The safety oversight ensures that accepted safety practices and procedures that promotes safety in operation are maintained.

The oversight activities include regular planned and unplanned audits and inspections, Surveillance of Foreign Aircraft (SOFA), Night Surveillance, Ramp Checks, Surveillance of foreign approved maintenance organizations; data collection, data exchange, data analysis and information management. The oversight activities are carried out in accordance with Annual Surveillance Programme available on the DGCA website and plans based on perceived area of greater safety concern or need. The Surveillance Procedure Manual and Regulatory Audit Procedure Manual both available on DGCA website provide guidance for carrying out oversight activities. These guidance takes into consideration the size and complexity of the service provider and their safety performance. In addition, documented procedures for surveillance are available in the Procedure Manual of each technical area. This permits application of consistent guidance by safety inspectors in each area of oversight activity.

DGCA's safety oversight has following elements:

a) Ensuring compliance with regulations, namely: compliance with National and International Standards and Regulations;
b) Ensuring appropriate qualification and training with specific training in relation to SMS;
c) Ensuring availability of documented procedures and guidance – for approval, surveillance and associated safety processes;
d) Licensing, certification, authorization and approval;
e) Oversight of service provider's SMS for ensuring implementation of SMS in accordance with DGCA requirements

Surveillance is the mechanism to monitor the ongoing safety status and maturity of aviation industry. Surveillance assesses an authorization holder's ability to manage its safety risks and willingness to comply with legislation including compliance with SMS. This approach to surveillance aims to guide the aviation industry to better understand its responsibility for safety management.

Surveillance is reinforced by the presence of a Surveillance Procedures Manual and Enforcement Policy and Procedures Manual, together with Surveillance and Enforcement Division. This Division maintains a database of all findings detected, and monitors the same until closure of the observation.

4.1.1 Oversight of service provider's SMS

Oversight of service provider's SMS is carried out periodically as part of Annual Surveillance Programme. The guidance for the SMS oversight is provided in SSP/SMS Procedure Manual and respective Departmental Procedure Manual. The SMS oversight includes following:

a) Appropriate integration of regulatory safety risk controls into individual service provider's SMS,
b) Effectiveness of the safety risk controls,
c) Appropriate resource allocation.
d) Periodic review of each service provider's SPIs and SPTs to assess their performance and effectiveness.
e) SPIs and SPTs are adjusted as required to support the continuous safety improvement.

4.1.2 Safety Data Driven Approach

a) The oversight programme generates sufficient data to enable the conduct of safety driven analysis, identification of major safety concern and associated safety risks in order to set DGCA safety priorities and focus of attention.
b) The safety data collected by the service providers is regularly reviewed. The aggregate data is analyzed for identifying

trends, emerging safety issues and developing safety controls.

c) DGCA will establish safety risk-based surveillance (SRBS) approach to enable prioritization and allocation of its safety management resources commensurate with the safety risk profile of each sector or individual service provider.

4.2 State Safety Performance

4.2.1 Acceptable Level of Safety Performance (ALoSP)

The ALoSP represents state's expressed target of aviation safety performance that its aviation system should deliver and demonstrates. It takes into account the existing level of safety risk and the public expectations in setting realistic and measurable goals for safety risk management. The ALoSP for India will be established by the DGCA in agreement with other constituent organization of SSP. The Acceptable Level of Safety Performance (ALoSP) of India is defined in figure 5.

Figure 5: ALoSP

The DGCA National Aviation Safety Plan will be developed to ensure that the ALoSP, as specified by specific safety priorities, objectives, Safety Performance Indicators (SPIs) and Safety Performance Targets (SPTs) is delivered in a reasonable timeframe. The SSP/SMS Division of the DGCA will be responsible for the production of the National Aviation Safety Plan (NASP), and oversight of its implementation.

The National Aviation Safety Plan takes account of the identified risks, available resource and cost-benefit of any change to determine a pragmatic series of actions to be taken by stakeholders in India and is developed based on the data drawn from SDCPS.

The actions which can be included in the National Aviation Safety Plan could use operational procedures, technology or training to help achieve the ALoSP and SEIs developed by RASG-APAC and contained in the Global Aviation Safety Plan.

The National Aviation Safety Plan will be subject to regular review by the SSP/SMS Division of the DGCA, in particular by:

a) continuous hazard identification and proposal of appropriate risk mitigations;
b) assessment of occurrence data, audits, inspections and safety reporting to update and prioritize action upon individual risk areas.

DGCA has developed State Safety Plan 2015-2016. The National Aviation Safety plan 2018-2022 is currently in place. The performance of each of the State Safety Priorities is analysed and captured in Annual Safety Review hosted on DGCA website. This has provided inputs for identification of new hazards.

4.2.2 **Safety Performance Measurement and Monitoring**

Safety performance measurement and monitoring are the means by which the safety performance of the aviation system is described and evaluated. Through analysis of safety data and information drawn from SDCPS, areas of emerging risk can be highlighted and this information used to inform decisions regarding making appropriate safety interventions and the subsequent assessment of effectiveness of those interventions.

Based on the Global safety priorities, Regional safety priorities and using our own experience, supported by data from SDCPS (State Safety Database), the DGCA has identified key Safety Priorities**.** For each key Safety Priority, DGCA has developed safety objectives; proposed a desired safety outcome and developed a safety action plan and a number of Safety Performance Indicators (SPIs) on areas

covering ANSP, aerodromes, operations and approved maintenance organizations. Other areas would also be progressively covered.

Based on the data drawn from SDCPS, the performance of key safety priorities and their associated SPIs is assessed annually with respect to the set Safety Performance Targets (SPTs). The result of the performance evaluation is published in the Annual Safety Review as part of safety promotion. The performance evaluation helps in refining Safety Objectives and Safety Performance Indicators (SPIs). The process is depicted in Figure 6.

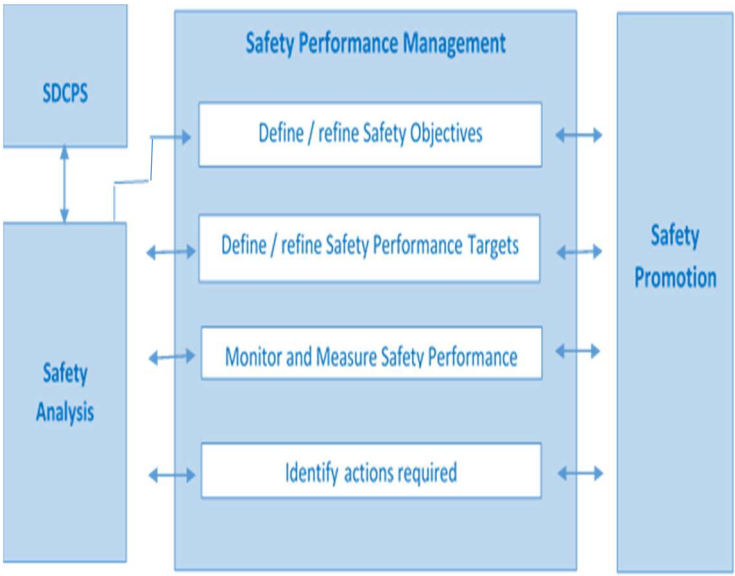


Figure 6: Safety Performance Management process

4.2.3 ICAO Universal Safety Oversight Audit Programme-Continuous Monitoring Approach

DGCA and AAIB continuously update their SAAQ, CCs/EFOD, CAPs and PQ status (self-assessment) along with the relevant evidences.

4.2.4 **Internal Audit and Quality Assurance**

DGCA would set up an Internal Audit and Quality Assurance Division to audit aviation safety regulations and DGCA processes in relation to the ICAO's eight Critical Elements of a safety oversight system. The division would carry out regular internal quality assurance audits to support corporate governance in DGCA.

4.2.5 **Management of Change**

Change Management procedures allows to proactively identify the safety impact of change in the aviation system, plan and execute proposed changes in a structured way. The process of change management may include risk arising out of changes but not limited to the following:

Reorganization of State aviation authorities (including downsizing);

Changes in the SSP processes, including changes in methodology such as SRBS, SRM and safety assurance processes;

Changes in the regulatory environment, such as changes in existing State safety policies, programmes, and regulations;

Changes in the operational environment, such as introduction of new technologies, changes in infrastructure, equipment and services;

Rapidly changing industry (expanding, contracting, morphing) and its potential impact on the State oversight and performance monitoring capabilities.

5. State Safety Promotion

For effective performance of a SSP, it is essential that all personnel within national safety system embrace and understand their roles and responsibilities towards safety performance and objective of Indian SSP. Similarly, for a safety culture to be inherent amongst personnel and organizations, effective communication of the principles and policy for safety, national safety priorities, best practices, etc. is essential. Safety management training and dissemination of safety information is therefore a pre-requisite to support this. The content of the training should be customized according to the role of the individual concerned.

5.1 Internal communication and dissemination of safety information

As required by ICAO, the DGCA would provide training, awareness, and two-way communication of safety relevant information to support, within the DGCA, the development of a positive organizational culture that fosters the development of an effective and efficient State Safety Programme. The DGCA as a body responsible for the SSP has developed a safety training programme contained in SSP/SMS Division Procedure Manual. The training programme should include National Aviation Safety Plan and its relationship with ICAO Global Aviation Safety Plan and APAC Regional Aviation Safety Plan. This ensures that personnel are trained and competent to perform the SSP duties.

Each individual's development and training needs including SSP/SMS is being assessed upon induction at DGCA by the concerned Directorate. Both initial and recurrent training is provided to officials/inspectors. The trainings are being conducted at regular intervals as per the annual training programme developed by the Training Directorate in consultation with the concerned directorates.

DGCA communicates and disseminates safety-relevant information within the DGCA through Annual Safety Review, circulars, emails, DGCA website, Safety alerts, workshops, etc.

The basic principle is to train the trainers in appropriate institutions and then carry out in-house training. The records of safety training

are kept in accordance with internal procedures by the respective Directorates.

The key element of internal communication of safety-relevant information is the process used to handle Mandatory Safety Reports (MSRs) and Voluntary Safety Reports (VSRs) received by DGCA. These are reported to Air Safety Directorate of DGCA for investigation or information and, in many cases, are required to provide feedback on action taken so that the MSRs, VSRs can be officially 'closed'. The information of MSRs and VSRs is shared with other Directorates within DGCA and external civil aviation entities as the case may be. This is an important part of the DGCA safety risk management process.

5.2 External communication and dissemination of safety information

ICAO Annex 19 requires that State to promote safety awareness by sharing and exchange of safety information within the aviation communities with the objective of maintenance and improvement of safety and to support the development of positive safety culture. In this respect, DGCA endeavors that:

- service provider personnel are fully aware of the SSP and its relationship with the SMS.
- safety critical information is conveyed to service providers.
- service providers understand why particular safety actions are taken.
- service provider and its personnel understand the importance of reporting.

DGCA communicates with stakeholders in many different ways. At a high level, safety is addressed in the MoCA's Annual Report. DGCA has developed a National Aviation Safety Plan which describes in more detail the high-level safety objectives and outline the DGCA's programme of work to achieve continuous safety improvement and is published on DGCA website. The ICAO Global Aviation Safety Plan, APAC Regional Aviation Safety Plan, Safety Enhancement Initiatives (SEIs) developed by the APRAST/RASG-APAC are also communicated to the stake holders through National Aviation Safety Team (NAST) and in the form of circulars.

In addition, DGCA publishes on its website documents such as public notices, circulars containing safety information and guidance material for the implementation of SMS, Air Safety Circulars, aircraft accident/incident reports, accident summaries and air transport related data. DGCA will also publish the lessons learnt from the accidents.

The critical safety-relevant information is communicated and disseminated nationally and internationally through Aeronautical Information Publication (AIP), AIP supplements, Aeronautical Information Circular (AIC) and Notice to Airmen (NOTAM). This keeps aviation personnel updated with the current operational information. India Meteorological Department under the Ministry of Earth Sciences provides the Meteorological forecasting and climatological services for civil aviation in India.

The DGCA promotes the implementation of SMS among applicable service providers by organizing seminars/ workshops. The cultivation of an active safety culture at all levels and in all functional areas in the aviation industry is seen as a key area of development.

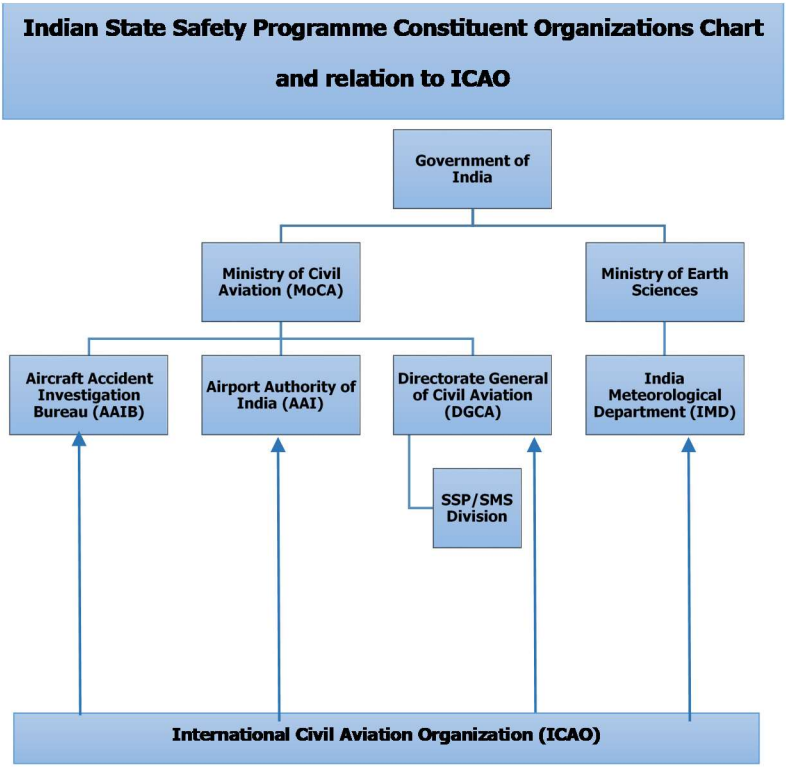
DGCA encourages the establishment of safety information sharing or exchange networks among the aviation community.

The DGCA holds regular meetings with operators and service providers, in order to apprise them of likely regulatory developments, and develop the required safety culture.

DGCA shares the relevant occurrence data with the other states and outcome of investigation relevant for the improvement of safety.

The safety system and procedures developed are also shared during the multilateral meetings with other states.

Appendix A


Indian State Safety Programme Constituent Organizations Chart and relation to ICAO
Government of India
Ministry of Civil Aviation (MoCA)
Ministry of Earth Sciences
Aircraft Accident Investigation Bureau (AAIB)
Airport Authority of India (AAI)
Directorate General of Civil Aviation (DGCA)
India Meteorological Department (IMD)
SSP/SMS Division
International Civil Aviation Organization (ICAO)

Appendix B

SSP Steering Committee

Composition:

Chairman: Secretary, Ministry of Civil Aviation

Members:

i) Director General of Civil Aviation, India
ii) Joint Secretary, Ministry of Civil Aviation (Looking after DGCA)
iii) Chairman, Airport Authority of India
iv) Director General of Meteorology, India Meteorological Department
v) Director General, AAIB
vi) All Joint Director Generals of DGCA
vii) Member (Air Navigation Services), AAI
viii) Representatives of Indian Air Force and Navy

Stakeholders/particular sector service providers may be invited as and when required.

The Joint Director General looking after Air Safety Directorate will act as Secretary to the Steering Committee.

Appendix C

List of References

1. ICAO Annex 19, Ed. II
2. ICAO Doc 9859, Ed IV
3. ICAO Doc 9734 Part A, ED III
4. The Aircraft Act, 1934
5. The Aircraft Rules, 1937
6. Aircraft (Investigation of Accidents and Incidents) Rules, 2017
7. ICAO Global Aviation Safety Plan 2020-22
8. National Aeronautical Search and Rescue Manual

Appendix D

List of Figures

Directorate General of Civil Aviation
Ministry of Civil Aviation, New Delhi,
India