



GOVERNMENT OF INDIA OFFICE OF DIRECTOR GENERAL OF CIVIL AVIATION

SSP/SMS DIVISION PROCEDURES MANUAL

August 2014



FOREWORD

In accordance with the ICAO SARPs, India has established State Safety Programme. The DGCA is the custodian of the Sate Safety Programme and is required to implement the same to meet the Safety Objectives listed therein. Implementation of SSP is the responsibility of all the concerned directorates of DGCA.

For the purpose of providing guidance to various directorates in discharging their roles and responsibilities under SSP, this manual has been prepared. All the Directorates may further introduce their roles and responsibilities under SSP in their respective Procedures Manual for providing detailed guidance to their officers at the grass root level.

(Dr. Prabhat Kumar) Director General.



RECORDS OF REVISIONS

Issue No.	Revision No.	Date	Chapter/ Section	Details



LIST OF EFFECTIVE PAGES

Description	Page No.	Revision No.	Revision Date



REVIEW AND AMMENDMENT

Review cycle

This manual will be reviewed and updated by the DGCA SSP/SMS Division from time to time.

Related documents

Documents and reference material relating to the content of this manual are:

AIP India Air Safety Circulars Aeronautical Information Circulars, India Relevant DGCA CARs ICAO Annex 19 ICAO Doc 9859 Edition 3



ABBREVIATIONS

Acronym	Definition
AAI	Airports Authority of India
AIC	Aeronautical Information Circular
AIP	Aeronautical Information Publication
ACs	Advisory Circulars
ADREP	Accident Data Reporting
ALoSP	Acceptable Level of Safety Performance
AIRPROX	Air Proximity incident
AIRS	Accident Incident Reporting System
ARAP	Aviation Regulatory Advisory Panel
BFAS	Board for Aviation Safety
CAR	Civil Aviation Requirement
CARG	Civil Aviation Requirement Group
CASAC	Civil Aviation Safety Advisory Council
CSIS	Comprehensive Safety Information System
DGCA	Directorate General of Civil Aviation
FAA	Federal Aviation Administration
FDM	Flight Data Monitoring
FIR	Flight Information Region
FOQA	Flight Operations Quality Assurance
IASA	International Aviation Safety Assessments
ICAO	International Civil Aviation Organization
MoCA	Ministry of Civil Aviation
MORS	Mandatory Occurrence Reporting System
NBCC	National Bird Control Committee
NOTAM	Notice to Airmen
RQMS	Regulatory and Quality Management System
SAR	Search and Rescue



SARPs	ICAO Standards and Recommended Practices
SMS	Safety Management System
SPI	Safety Performance Indicator
SSP	State Safety Programme
QMS	Quality Management System
VRS	Voluntary Reporting System



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CHAPTER 1

PURPOSE OF MANUAL

A State Safety Programme (SSP) is an integrated set of regulations and activities aimed at improving safety. It includes specific safety activities that must be performed by the State, and regulations and directives promulgated by the State to support fulfilment of its responsibilities concerning safe and efficient delivery of aviation activities in the State.

The purpose of this manual is to support the implementation and continual improvement of the SSP in India. The manual provides general information to assist the Ministry of Civil Aviation (MoCA) and all relevant DGCA directorates in implementing an SSP and supporting service providers in developing their SMS as part of that process.

For completeness, the roles and responsibilities documented in this manual should be reflected in procedures manual for the respective directorates.

The manual should be read in conjunction with the Indian SSP, relevant CARs¹, ICAO SARPs, Annex 19 and ICAO Doc 9859 Edition 3.

¹ Relevant CARs defined as CAR Section 1 Series C Part I, CAR Section 2 Series O Part I, CAR Section 9 Series E Part I and/or CAR Section 4 Series B Part I as appropriate.



CHAPTER 2

THE STATE SAFETY PROGRAMME

2.1 Overview

The SSP is a management system for the regulation and administration of safety by the State. The objectives of the SSP are to:

- Ensure that a State has the minimum required regulatory framework in place.
- Ensure harmonization amongst the State's regulatory and administrative organizations in their respective safety risk management roles.
- Facilitate monitoring and measurement of the aggregate safety performance of the State's aviation industry.
- Coordinate and continuously improve the State's safety management functions.
- Support effective implementation and interaction with service providers' SMS.

2.2 SSP components

There are four components that form the fundamentals of an SSP. Each component is subdivided into elements that comprise the processes or activities undertaken by the State to manage safety. The elements combine prescriptive and performance-based approaches and support the implementation of SMS by service providers.

- State safety policy and objectives:
 - State safety legislative framework;
 - State safety responsibilities and accountabilities;
 - Accident and incident investigation;
 - Enforcement policy.
- State safety risk management:
 - Safety requirements for the service provider's SMS;
 - Agreement on the service provider's safety performance.
- State safety assurance:
 - Safety oversight;
 - Safety data collection, analysis and exchange;
 - Safety-data-driven targeting of oversight of areas of greater concern or need.



- State safety promotion:
 - Internal training, communication and dissemination of safety information;
 - External training, communication and dissemination of safety information.

The current version of the Indian SSP is published at <u>http://dgca.nic.in/sms/ssp-india.pdf</u>

The DGCA is responsible for the progressive implementation and continual development of the SSP.



CHAPTER 3

DGCA SAFETY ORGANISATION

3.1 Overview

The SSP Steering committee provides oversight for the implementation and continual development of the SSP. It is directly supported by the DGCA through the SSP/SMS Division. In turn, the SSP/SMS Division is supported by the Air Safety Directorate and other DGCA directorates that are responsible for ensuring that the SSP is effectively implemented.



3.2 SSP Steering Committee

3.2.1 Organization

The committee is chaired by the Secretary, MoCA and comprises:

- Director General of Civil Aviation;
- Joint Secretary, Ministry of Civil Aviation (responsible for DGCA);
- Chairman, Airport Authority of India;
- Chairman, Pawan Hans Helicopters Ltd;
- Director General, Department of Meteorology;
- All Joint Director Generals of DGCA;
- Member (Air Navigation Services), AAI;
- Secretary General of Federation of Indian Airlines;
- Representatives of Indian Air Force and Navy;
- Secretary General of Association of Private Airport Operators;



- Representatives of Scheduled Airlines;
- Director, National Aerospace Laboratory;
- Director, IGRUA Fursatgunj;
- Director, RGRUA Gondia;
- Representative of RWSI.

There is currently no formal association for business aviation. As such, they are currently unrepresented.

3.2.2 Responsibilities

The SSP Steering Committee is responsible for implementing and monitoring the development of the SSP and related safety policy. It is also responsible for the promotion of SSP to service providers and supporting the resolution of issues relating to SSP^2 .

3.3 SSP/SMS Division

3.3.1 Organization

The SSP/SMS Division is part of the Air Safety Directorate; however, in reality it is a 'cross cutting' division made up of representatives from all DGCA directorates.

The SSP/SMS Division is chaired by DG DGCA but functional responsibility is delegated to the JDG responsible for Air Safety. The division comprises:

- Director II (Air safety);
- Director (Aerodrome standards);
- Director (ATM);
- Director (Airworthiness);
- Director (AED);
- Director (T&L);
- Chief FOI;
- Technical Advisor to DG.

It can also draw upon additional personnel from the various directorates of the DGCA.

3.3.2 Responsibilities

The SSP/SMS Division is specifically responsible for:

- Assisting the Steering Committee in the preparation and implementation of SSP;
- Coordination, monitoring and review of the implementation of SSP;

² State Safety Programme India - November 2010



• Coordination, monitoring and review of the implementation of SMS.

In practical terms, the division is responsible for the functional oversight and management of the SSP/SMS implementation.

3.4 Air Safety Directorate

The Air Safety Directorate is responsible for managing the functional aspects of the SSP related activities and for coordinating the SSP/SMS activities of other DGCA directorates.

3.5 Other DGCA directorates

The Air Safety Directorate is supported by other **domain directorates** as follows:

Service provider	Domain directorate
Airports (AAI and JV)	Aerodromes Standards Directorate
ANS (airport and en-route)	Airspace and ATM Directorate
Scheduled operator	Flight Standards Directorate
Non-scheduled operator	Flight Standards Directorate
Training organizations	Flying Training Directorate
MRO	Airworthiness Directorate
Aircraft design organizations	Aircraft Engineering Directorate
Aircraft manufacturing organizations	Airworthiness Directorate and Aircraft
	Engineering Directorate

Each **domain directorate** shall, in coordination with the **Air Safety Directorate**, establish its own procedures to ensure the effective implementation and continual improvement of the SSP and individual service providers' SMS.



CHAPTER 4

STATE SAFETY POLICY AND OBJECTIVES

4.1 General

The State safety policy and objectives define how the State will manage safety throughout its aviation system. This includes the determination of responsibilities and accountabilities of the different State organizations related to the SSP, as well as of the broad safety objectives to be achieved by the SSP.

The SSP/SMS Division, working with other DGCA directorates and service providers is responsible for the development, routine review and updates to the State safety policy and objectives.

The Air Safety Directorate, in consultation with the SSP/SMS Division shall, as a minimum, coordinate an annual review of the State safety policy and objectives to ensure their continuing relevance and compliance with ICAO SARPS and national regulatory requirements.

4.1.1 State safety legislative framework

A national aviation legislative framework has been established in accordance with international standards. The legislation defines the roles and accountabilities of each State organization having an aviation regulatory or administrative function. Having established an appropriate framework, it should be routinely reviewed and updated to ensure it continues to meet the intent of the State.

The Directorate of Regulations and Information in consultation with the SSP Steering Committee, SSP/SMS Division and working with MoCA, other government departments and affected parties, will conduct an annual review of the aviation legislative and regulatory framework to ensure the continual improvement and correlation between its legislation and operational regulatory requirements. Any proposed changes to the framework shall be developed and implemented through existing processes.

4.1.2 State safety responsibilities and accountabilities

The State safety responsibilities and accountabilities, and a commitment to provide an appropriate level of resource to support the implementation and continual development of the SSP are defined in the SSP.

The Air Safety Directorate, in consultation with the SSP/SMS Division shall:

• As a minimum, annually review the agreed safety responsibilities and accountabilities and propose changes as appropriate;



- To the best of its ability, ensure that activities are planned and the associated resource allocated to the DGCA to support the implementation and continual improvement of the SSP.
- Seek additional resources on an ad-hoc basis to support specific activities.

4.1.3 Enforcement policy

The SSP describes a legislative framework which includes the provision for enforcement action appropriate to the Indian environment and which distinguishes between a deliberate/gross violation and unintentional errors/mistakes. The SSP also requires service providers to develop and adopt an appropriate enforcement policy.

The Air Safety Directorate, in consultation with the SSP/SMS Division shall:

- Annually review the DGCA approach to enforcement and, through the results of SMS oversight visits to service providers, assess the effectiveness of service providers' own enforcement actions;
- *Propose changes to the legislative framework as appropriate.*

All DGCA directorates shall:

- When conducting SMS oversight visits or routine audits and inspections, assess the effectiveness of a service providers' enforcement policy and actions;
- Identify good practice and areas for improvements and make recommendations to the service provider and/or the SSP/SMS Division as appropriate.

4.1.4 SSP documentation and safety library

The State has a responsibility to establish and properly maintain a safety library to effectively manage and control safety related documentation. The library can be established either physically, electronically or both and should include appropriate levels of control to provide access to all authorized users and to prevent the unauthorized access to specific documents.

The Air Safety Directorate shall:

- Establish and populate a safety library which is accessible to all authorised DGCA staff (including at regional offices);
- Develop, implement and manage a document naming and configuration management system to uniquely identify and track changes to documents;
- Encourage all relevant directorates to use the safety library as the repository for all safety documentation.



CHAPTER 5

STATE SAFETY RISK MANAGEMENT

5.1 General

Safety risk management is a generic term that encompasses the assessment and mitigation of the safety risks of the consequences of hazards that threaten the capabilities of an organization, to a level as low as reasonably practicable (ALARP). 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 for which the control and mitigation is viable. Safety risk management is therefore a key component of the safety management process.

The SSP and relevant CARS require all service providers to implement necessary hazard identification processes and risk management controls. Part of this requirement includes a mechanism for agreement with individual service providers on acceptable safety performance levels to be achieved through their SMS. Substantial risks, which are manifest through the analysis of an individual service provider's internally-generated safety data and related safety performance indicators, may require coordination or agreement with the DGCA in respect of appropriate mitigation action, especially where they are likely to impact other service providers or stakeholders.

5.2 Safety requirements for the service providers' SMS

The DGCA has established the safety requirements for a service provider's SMS through the promulgation of regulations that define the required SMS framework components and elements. Within the SMS framework, the effective implementation of the Safety Risk Management component will ensure that service providers identify hazards and manage the related risks. Individual service providers' procedures for hazard identification and risk management will be commensurate with the complexity of each organization and reflected accordingly in its SMS documentation.

The Air Safety Directorate, in consultation with the SSP/SMS Division shall, as a minimum, conduct an annual review of the SSP's safety risk management requirements. The review shall consider feedback from SMS oversight visits and audits and the applicability of the SSP, relevant CARS, ICAO SMS SARPs and guidance material.

Domain directorates, supported by the **Air Safety Directorate** shall:

- During routine SMS oversight and other surveillance visits or audits, assess the quality and effectiveness of a service provider's risk assessment process and how it is applied;
- When reviewing a safety assessment for a significant change (or for any other safety assessment presented to the DGCA), consider the quality and accuracy of the service providers' risk assessment.



5.3 Agreeing a State level ALoSP

A fully developed ALoSP monitoring and measurement process will, on an on-going basis:

- Identify all the safety critical sectors and the safety indicators that define the level of safety in these areas;
- Identify targets that define the level to be maintained or desired improvement to be achieved for relevant indicators in each sector with a view to achieve continuous improvement throughout the entire aviation system;
- Identify alerts that will indicate an actual or developing safety performance problem in a particular safety indicator or sector;
- Review SSP safety performance to determine whether modifications or additions to existing indicators, targets or alerts, are needed to achieve continuous improvement.

The Indian SSP is not yet mature enough to develop a comprehensive ALoSP; however, in order to support the development of a basic ALoSP, the DGCA shall put in place procedures to collect and analyse relevant data.

In time, when the availability of safety data enables the DGCA to develop SSP safety indicators, *the Air Safety Directorate supported by other domain directorates and in consultation with the SSP/SMS Division:*

- Establish and continually develop a basic acceptable level of safety performance (ALoSP) by developing SSP safety indicators, targets and alerts (such as incident and accident rates);
- Produce a 'State Safety Review' on an annual basis to summarise the overall safety performance of Indian aviation, identify trends and prioritise action at a State level. The report should be data-driven and qualitative in nature; however, the safety performance should only be measured against the ALoSP only when sufficient data is available and the SSP/SMS Division consider the ALoSP sufficiently mature;
- Develop, publish and implement an annual 'State Safety Plan' and take other appropriate action as necessary.



5.4 Agreement on the service provider's safety performance

As the implementation of the SSP and SMS matures, the DGCA will approve the aviation stakeholder's proposed SPIs and their associated targets and alerts. The SPIs, targets and alerts should be appropriate to the maturity of the organization and should encourage improvement in safety performance and achievement of the State ALoSP.

The Air Safety Directorate, with the support of domain DGCA directorates shall:

- As a minimum, conduct an annual review of the performance of all stakeholders against their proposed SPIs and targets and in the context of the Indian aviation environment as a whole;
- Collect safety performance data to assess the performance of service providers against each other and benchmark with other providers outside of India.

All domain DGCA directorates in coordination with the Air Safety Directorate shall conduct safety performance reviews:

- On initially an annual basis, undertake a safety performance review for all service providers. The assessments should review the service provider's progress against agreed SPIs, targets and alerts and their effectiveness in managing risk;
- Agree with service providers appropriate SPIs, targets and alert settings;

[Note: This should be conducted progressively and should take account of the maturity of the SMS. SPIs, targets and settings should be appropriate to the organisation, previous safety performance and the ALoSP targeted by the State]

- Substantiate by appropriate safety data and documentation any necessary adjustments to previously agreed SPIs, target or alert setting;
- Identify good practice and areas for improvement and make recommendations to the service provider and/or the SSP/SMS Division as appropriate.

As more data becomes available, the reviews should be planned and conducted using a risk-based approach.

[Note, it is expected that the **Air Safety Directorate** will initially play a more significant role in agreeing SPIs, targets etc. It is expected that this will be progressively transferred to the **Domain directorates**.]



CHAPTER 6

STATE SAFETY ASSURANCE

6.1 General

The SSP and relevant CARS set out the requirement for the DGCA and service providers' safety assurance processes. The DGCA provides safety assurance through oversight and surveillance activities on service providers and the internal review of its regulatory and administrative processes.

6.2 Safety oversight

The DGCA safety oversight system includes processes for the initial approval and continued surveillance of its service providers to assure compliance with national regulations established in accordance with ICAO SARPs. The initial approval, authorization, certification or designation of a service provider includes acceptance of the organization's SMS implementation plan.

The DGCA conducts surveillance through audits and inspections to assure that an adequate level of regulatory compliance is maintained by its service providers and that their respective aviation-related activities are performed safely. The DGCA surveillance obligations also include the acceptance of an SMS implemented by service providers as well as the periodic assessment of SMS performance.

6.3 Support to service providers during implementation

CAR SMS establishes a phased approach to ensure that the SMS is developed progressively over a number of years. Whilst all existing service providers should have completed the implementation, immature or new service providers will continue to require support in developing and implementing an acceptable SMS.

6.3.1 Phase 1

Phase 1 forms the essential foundation of the SMS by appointing key personnel and identifying and planning what the organization must do in order to meet the requirements of CAR SMS and to develop an effective SMS. The key deliverables of Phase 1 are the completed gap analysis and corresponding implementation plan.

The Air Safety Directorate shall engage initially with the service provider and provide support in identifying appropriate personnel for key positions and in completing the SMS gap analysis and the organization's implementation project plan.

The Air Safety Directorate and the **domain directorate** shall jointly assess the gap analysis and implementation plan and provide formal feedback to the service provider along with any required actions.



6.3.2 Phase 2

The primary objective of Phase 2 is to design and formally document the service providers' SMS processes. The key deliverable is the SMS Manual.

The Air Safety Directorate and the **domain directorate** shall support (to an appropriate level) the service provider in completing the relevant Phase 2 actions and producing an SMS Manual. This can be achieved through meetings at the DGCA and/or the service provider's premises.

The domain directorate supported by the **Air Safety Directorate** shall jointly assess the SMS Manual. The manual should be based in guidance from ICAO Doc 9859 but should describe the processes and the accountability, authority and roles and responsibilities specific to the organization. The manual shall be 'accepted' or 'rejected' along with any required actions.

6.3.3 Phases 3 and 4

Phases 3 and 4 reflect the ongoing development of the SMS, specifically progressing from reactive to proactive and predictive safety risk management techniques and, ultimately, to a performance-based safety management system.

The Air Safety Directorate and the **domain directorate** shall support (to an appropriate level) the service provider in completing the relevant Phase 3 and 4 actions and, where appropriate, updating the SMS Manual. This can be achieved through meetings at the DGCA and/or the service provider's premises.

6.3.4 Planning of SMS oversight visits during implementation

During the implementation phase, the DGCA shall conduct targeted SMS oversight visits to assess progress and provide support to service providers. These are in addition to the routine surveillance visits planned by other directorates and published in the ASP.

The Air Safety Directorate supported by the domain directorate shall:

- Plan an annual 'SMS oversight visit' programme to be published in the Annual Surveillance Programme (ASP) (this will ensure it is deconflicted with other surveillance activities);
- Conduct visits to 'priority³' service providers on at least an annual basis to assess progress and provide support as appropriate.

³ 'Priority stakeholders in this context are defined as *significant stakeholders such as scheduled operators*, *large non-scheduled operators*, *major commercial airports*, *ANS Service Provider*, *major design and manuafacture organizations of aircraft, major training organisations*, and CAR 145 maintenance organizations. The list of priority stakeholders is determined by the Air Safety Directorate.



6.3.5 Conduct of SMS oversight visits during implementation

Visits shall be conducted in accordance with the ASP by nominated officers from the **Air Safety Directorate** and the **domain directorate**. *Visits shall:*

- Be formally structured and shall assess the progress of the service provider against the CAR SMS and other relevant regulations;
- Assess the effectiveness of the SMS implementation. This will initially be conducted using a qualitative approach;
- *Provide support and constructive feedback to the service provider where appropriate and share best practice.*

After the SMS oversight visit:

The domain directorate supported by the Air Safety Directorate shall:

- Write to the service provider summarizing the key points of the visit and agreed actions. This should be completed no later than 5 working days following the visit.
- Continue to engage with the service provider to ensure actions are progressed as agreed and to provide additional support as deemed necessary.

Using the data provided by the domain directorates and in consultation with the SSP/SMS Division, *the Air Safety Directorate shall:*

- By the month of March each year, produce an <u>internal</u> 'SSP/SMS Implementation Status Report' summarizing the progress of the DGCA and service providers in the previous year;
- Share the report with all directorates to support planning prioritization of resources etc.

[Note: This is likely to be a temporary arrangement for the period of SSP/SMS implementation only. This will eventually be superseded by the State Safety Plan (see Section 6.7]

6.3.6 A 'light touch' regulatory approach

The DGCA has agreed to initially adopt a 'light touch' regulatory approach to implementing the CAR SMS. As such, the DGCA will provide an appropriate level of support to service providers to ensure the *effective* implementation of a SMS appropriate to the size and complexity of the operation.

[Note: It remains the responsibility of the service provider to develop and implement the SMS in accordance with SMS CAR. DGCA officers should adopt a firm but supportive approach and should be cognizant of any potential abuse of the relationship. Evidence of



willful non-compliance or a lack of real progress by the organization should be reported to the Air Safety Directorate that will consider whether enforcement action is appropriate]

6.4 Routine safety oversight visits post-implementation

As service providers' SMS mature, visits to assess the effectiveness of the SMS shall be captured as part of the routine surveillance activities of the domain directorates.

Domain directorates in coordination with the **Air Safety Directorate** shall, for their individual directorate:

- Develop, implement and maintain a plan to provide SMS oversight to all service providers as part of a directorate's routine Annual Surveillance Programme;
- Ensure oversight visits are prioritized using, where possible, a risk-based approach but to specifically include priority service providers such as scheduled operators, large non-scheduled operators, major commercial airports and CAR 145 maintenance organizations;
- Ensure a consistent approach to the SSP/SMS implementation by working with the Air Safety Directorate to update existing checklists using the guidance contained in ICAO Doc 9859 Edition 3 and other best practice;
- Record the progress and effectiveness of the SMS implementation and general safety performance and identify shortcomings and make recommendations to the organisation as appropriate.

6.5 Safety performance reviews

When the service provider is sufficiently mature, there is a requirement to review and agree the safety performance of the service provider.

Domain directorates in coordination with the **Air Safety Directorate** shall, for their individual directorate conduct safety performance reviews Section 5.4.



6.6 Safety reporting

Safety reporting is a key component of the safety assurance function.

The Air Safety Directorate, in consultation with the SSP/SMS Division shall:

- Review the continued effectiveness of the State mandatory, voluntary and confidential reporting systems and make recommendations, as appropriate, to the SSP/SMS Division Meeting;
- Working with other DGCA directorates, assess what data could be aggregated and provided to the DGCA from service providers to help better understand aviation safety risk at the State level;
- Take the necessary action to ensure the continued effectiveness of the State mandatory, voluntary and confidential reporting systems.

All DGCA directorates engaged in SMS oversight visits or audits shall:

- *Review the effectiveness of the voluntary and confidential reporting systems developed by service providers;*
- Identify good practice and areas for improvement and make recommendations to the service provider and/or the SSP/SMS Division as appropriate.

6.7 Safety data collection, analysis and exchange

Data-based decision making is one of the most important facets of any management system. The type of safety data to be collected may include accidents and incidents, events, non-conformance or deviations and hazard reports. The quality of the data that is used to enable effective decision making must be considered throughout SSP and SMS development and implementation. Unfortunately, many databases lack the data quality necessary to provide a reliable basis for evaluating safety priorities and the effectiveness of risk mitigation measures. Failure to account for the limitations of data used in support of safety risk management and safety assurance functions will result in flawed analysis results that may lead to faulty decisions and discredit the safety management process.

The DGCA is required to develop and maintain processes and, where appropriate, tools for collecting, analyzing and storing data about hazards and safety risks at the State level.

The Air Safety Directorate is responsible for developing, implementing and managing the entire data management process. The different stages of the process are shown in the diagram below and described in more detail in the following sections.







In order to effectively manage the safety data processes, the Air Safety Directorate shall:

- Appoint a Data Manager who shall be responsible for developing and managing data processes (further described in this section) and the State Safety Database;
- Ensure that processes are established to meet the following safety quality criteria:
 - **Validity:** Data collected is acceptable as per established criteria for its intended use;
 - Completeness: No relevant data is missing;
 - **Consistency:** The extent to which measurement of a given parameter is consistent, can be reproduced and avoids error;
 - Accessibility: Data is readily available for analysis;
 - *Timeliness:* Data is relevant to the time period of interest and available promptly;
 - Security: Data is protected from inadvertent or malicious alteration and which, here appropriate, protects the identity of the provider;
 - Accuracy: Data is error free.

[Note: Quantitative measures of data quality will be introduced at a later date]

6.7.1 Data collection

The collection of data requires support from numerous stakeholders including DGCA directorates, service providers and other external sources.

Data is provided from three key sources:

- **State reporting systems** (including MORS, Voluntary and Confidential Reports and Daily Occurrence Reports);
- **State Safety Oversight** (including Surveillance Visits, Audits and Safety Performance Reviews);
- Service providers' operational data (including risk registers, hazard logs, non-reportable incidents etc.)

The DGCA can also seek input from external agencies such as the AAIB, national associations such as the RWSI, other States and international organization such as ICAO, IATA, ACI, and CANSO etc.



To support the effective collection of relevant safety data, the Air Safety Directorate shall:

- Agree with all relevant DGCA directorates the data requirements for all data types including:
 - *Required field and other meta data;*
 - Frequency and timeliness of data inputs;
 - *Method of data collection and input.*
- Agree with individual service providers:
 - The type and level of data to be made available;
 - *Protocols for providing data (including whether it is de-identified, commercial sensitivities, privacy arrangements etc.);*
 - Required fields and other meta data;
 - Frequency and timeliness of data inputs;
 - *Method of data collection and input.*
- Where possible, DGCA directorates and service providers should be provided with templates containing required data fields etc. and guidance to reduce error and improve the likelihood of the data being provided;
- Continue to work with all stakeholders to develop processes to ensure the effective collection of data.

6.7.2 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 analysis⁴:

- Accident investigation data;
- Mandatory incident investigation data;
- Voluntary reporting data;
- Continuing airworthiness reporting data;
- Operational performance monitoring data;
- Safety risk assessment data;
- Data from audit findings/ reports;
- Data from safety studies/ review;
- Safety data from other States, Regional Safety Oversight Organizations or Regional Accident & Incident Investigation Organizations etc.

Safety databases are typically housed in various parts of an organization. Many organizations provide access to the databases through an interface that allows safety analysts to efficiently specify and extract reports of interest. Reports can be viewed

⁴ Reference ICAO Doc9859 Edition 3



individually or collectively through aggregation. Analytical tools allow safety analysts to view extracted data in multiple formats. Examples include spreadsheets, maps, and various types of graphs.

To ensure that a database is understood and used appropriately, information related to the database (metadata) must be well documented and made available to users. Types of Meta data include field definitions, changes made to the database over time, usage rules and the data collection form.

A large number of safety databases have been developed independently by many different organizations with very specific areas of responsibility and analysis needs. In order to provide aviation safety analysts with expanded views of safety issues, it is necessary to build safety information integration facilities. These facilities extract information from multiple sources, apply common data standards, consolidate metadata, and load the information onto a common platform housed in centralized data storage architecture.

Once the safety data has been processed, it is made accessible to safety analysts through a common interface and common set of analytical tools. If an analyst requires data from multiple databases, the application of common data standards makes it possible for database technicians to extract data from the required databases and construct an entirely new database.

The DGCA has elected to initially store its safety data in a single Microsoft Excel based State Safety Database. The database is split into five connected tabs:

- Accidents and serious incidents;
- Airprox;
- Birdstrikes;
- Voluntary and confidential reports; and
- Service providers' operational data.

The database is designed to ensure that data from any source can be viewed and analyzed in a single view, thereby making the most effective use of data from multiple sources.

The database provides a number of standard analytical 'views' and the opportunity for analysts to develop their own. It should, where possible, be compatible with ADREP⁵.

It is expected that the database will be developed over time with the support of NIC to meet emerging requirements.

⁵ Recommended in Annex 19.



The Air Safety Directorate shall:

- Ensure that the design and function of the database is documented to meet the minimum requirements of users and maintainers;
- *Manage the integrity of the database through effective routine maintenance, configuration management and, where appropriate, training;*
- Develop the design of the database to meet emerging requirements such as new data sources, analysis requirements and to ensure the continuous improvement of State safety risk management and assurance;
- Ensure the security of data through the maintenance of effective access control.

6.7.3 Analysis

After collecting safety data, DGCA shall perform the necessary analysis to identify actual or potential safety deficiencies; measure safety performance and to determine and prioritize any actions required to enhance safety at a State level.

Safety analysis is often iterative, requiring multiple cycles. As such, it is not possible to define all the elements of analysis. However, it should, as a minimum, include:

- Monitoring and measuring safety trends;
- Analyzing high impact events;
- Assessing safety performance (both at the service provider and State level) including correlating proactive indicators and safety outcomes (accidents and serious incidents);
- Comparative and benchmark analyses;
- Historical trending analyses.

The Air Safety Directorate is responsible for safety analysis. It shall employ and train an appropriate number of safety analysts to develop the outputs necessary to effectively measure safety performance across all service providers and for the State as a whole and to prioritize State safety actions.

6.7.4 Exchange of data

The DGCA, when appropriate, will aggregate data and share safety information with service providers, the general public and/or other States and organizations.

There are three primary outputs which support the exchange of safety data:

- **DGCA publications:** These include the annual State Safety Plan, State Safety Performance Review, quarterly Safety Bulletin and Safety Alerts (for high priority issues). Additional material may be developed and published as necessary.
- **Response to ad-hoc requests:** If used responsibly, safety data can be used to reinforce safety improvement campaigns and activities. Requests should be carefully considered and any data de-identified before release to avoid personal or commercial damage.



• **DGCA actions:** These include the review of legislation, regulation, AICs etc.; reviewing and agreeing levels of safety performance for the State and service providers and providing input to safety initiatives by other States and/or international organizations such as ICAO, IATA, ACI or CANSO.

The Air Safety Directorate shall, in consultation with the SSP Steering Committee and SSP/SMS Division:

- Using the input data and results of the analyses, develop and publish the State Safety Plan and State Safety Performance Review (annually); a quarterly Safety Bulletin and Safety Alerts;
- Consider requests for specific safety data to support safety campaigns or activities to improve safety;
- Using the results of analyses, review and consider changes to legislation, regulation, AICs etc.; review and agree levels of safety performance for the State and service providers and provide input to safety initiatives by other States and/or international organizations.

6.8 Data protection

Data is key to the success of any safety system, it is therefore imperative for both the improvement of safety and to protect those providing safety data, that it is not misused.

Air Safety Directorate shall ensure that all possible measures are put in place to prevent the misuse of safety data as per the recommendations in Annex 19 Attachment B.

6.9 Safety-data-driven targeting of oversight of areas of greater concern or need

Conventional oversight, surveillance or inspection programmes tend to be consistently and invariably applied to every service provider, with no mechanism for customizing the frequency or scope of surveillance activities. A risk-based approach provides for a more dynamic assessment of safety performance and includes a mechanism for calibrating the scope or frequency of surveillance according to actual safety performance.

All domain directorates engaged in routine oversight, surveillance or inspection programmes shall:

- Routinely review the service providers' SMS and, in particular, it's effectiveness at controlling risk;
- Adopt a risk-based approach in developing the annual surveillance programme where the number of routine oversight, surveillance or inspection programmes can be increased or decreased as appropriate.



CHAPTER 7

STATE SAFETY PROMOTION

7.1 General

Safety promotion involves the establishment of internal as well as external processes by the DGCA to provide or facilitate safety training, communication and dissemination of safety information.

7.2 Safety training

7.2.1 Internal training and dissemination of safety information

The DGCA is responsible for developing, delivering and maintaining an internal safety training programme for all personnel involved in SSP related duties.

All domain directorates shall:

- Working with the **Training Directorate**, assess and agree the training requirements for all staff;
- Ensure that staff receives the required training appropriate to their role and responsibilities and in accordance with an agreed plan.

The Training Directorate shall:

- Working with **domain directorates**, identify and agree the safety training needs for all DGCA staff;
- Develop and support the delivery of the following safety courses appropriate to the DGCA requirements:
 - Basic safety training;
 - Basic safety refresher training;
 - *SSP training for management;*
 - SSP/SMS for practitioners;
 - *Train-the-trainer training.*
- Develop, implement and maintain a training plan that prioritises safety training for personnel involved in implementation or oversight of the SSP/SMS, especially for operational or DGCA field officers who will be involved in determination of SMS acceptance criteria and other safety performance matters;
- Ensure that the scope of the safety training and material evolves to reflect current SSP processes;
- Develop, implement and maintain measures to ensure the continued relevance and effectiveness of the safety training.

An overview of the content for each training course is provided at Annex A.



7.2.2 External training and dissemination of safety information

- All domain directorates engaged in SMS oversight visits or audits shall assess the service providers' training requirements and provide advice to the service provider and/or feedback to the Air Safety Directorate and SSP/SMS Division.
- *The Air Safety Directorate*, in consultation with the SSP/SMS Division, shall routinely assess the input from service providers and, where feasible, facilitate appropriate SMS education or training.

7.2.3 Developing a safety culture

In addition to functional training, the successful implementation of SSP/SMS will also require changes in behaviour for both DGCA and stakeholders to support the transition from a compliance-based regulation to performance-based oversight.

Communication through behaviour is often more powerful than other forms of communication and is particularly important when there is a need to change the culture of an organisation. This should be considered in the provision of all types of training and support.



It is important to recognise the need for the DGCA to adopt and exhibit new behaviours both internally and especially when dealing with external stakeholders. This will facilitate the adoption of a safety culture.

All DGCA directorates shall:

• Actively promote the development of a DGCA safety culture across all staff;



- Exhibit and seek to promote a safety culture during all routine communications with service providers and other bodies;
- Where engaged in routine oversight, surveillance or inspection programmes, shall assess the effectiveness of service providers' SMS through the safety culture of its staff.

The Air Safety Directorate, in consultation with the SSP/SMS Division Meeting shall:

- Assess the safety culture of the DGCA as a whole;
- Through reports from the DGCA directorates, routinely assess the development of the safety culture of all service providers and, where feasible, conduct activities at a State level to further develop it.

7.3 Communication

The effective internal and, where appropriate, external dissemination and coordination of SSP operational strategies, harmonized SMS requirements and oversight activities of the service providers is essential to the success of the SSP.

All DGCA directorates shall adopt the procedures detailed in the DGCA SSP Communications Plan (Annex B).



ANNEX A

DGCA TRAINING

B.1 Basic safety training

Course title	Basic safety training course
Target audience	All staff
Duration	2 hours (for new staff to be undertaken within one month of joining the DGCA)
Approach	Classroom
Objectives	Awareness of role of safety in aviation
	Awareness of policy and legislation with respect to SSP/SMS
	Awareness of SSP, specifically including understanding of State's objectives for aviation safety and means of achieving the objectives.

B.2 Basic refresher training

Course title	Basic safety refresher training course
Target audience	All staff annually
Duration	Approximately 1 hour
Approach	E-learning
Objectives Refresh awareness of role of safety in aviation	
	Refresh awareness and provide updates to policy and legislation with respect to SSP/SMS
	Refresh awareness of SSP, specifically including understanding of State's objectives for aviation safety and means of achieving the objectives.

B.3 SSP training for management

Course title	SSP for Management
Target audience	DGCA HQ staff appointed to management posts directly related to SSP implementation and management – may include DGCA HQ SSP/SMS Division personnel and implementation team leaders (although they will need more specialised training)
Duration	Initial 2 days (for new staff to be undertaken within 3 months of appointment) and on-going support through coaching
Approach	Classroom
Objectives	To gain an understanding and practical experience of non-compliance based oversight



	To understand in depth the objectives of the application of SMS and its link to the SSP	
	To ensure the application of a just culture in the DGCA, including clear understanding where enforcement is necessary and where it is not	
		To understand the leadership actions necessary to move the DGCA from a compliance-based regulator to a compliance and SMS oversight approach (sharing responsibility with service providers)

B.4 SSP/SMS training for practitioners

Course title	SSP/SMS for practitioners
Target audience	Those working daily with SSP/SMS issues including staff from the SSP/SMS Division and other lead directorates
Duration	Initial 2 days (for new staff to be undertaken within 3 months of appointment) followed by an extended period of on-the-job training and coaching
Approach	Mixed
ObjectivesAwareness of SSP, specifically including understanding of State's ob for aviation safety and means of achieving the objectives.	
	Awareness of Policy and legislation with respect to SSP/SMS
	Ability to gather feedback from stakeholders on appropriate of regulations
	Understand the role of SMS implementation/action plans for stakeholders, and be able to assess progress objectively
	Effectively review an SMS Manual and accept and/or provide guidance as necessary
	Ability to form one-to-one relationships with stakeholders (at safety manager level)
	Detailed knowledge of risk management approaches
	Communication skills to share best practice and lessons learnt between stakeholders
	Specifically, understand in depth the purpose and structure of hazard logs (risk registers) and stakeholder action plans
	Develop understanding of risk assessment and tolerability
	Develop understanding of appropriate risk controls to be applied
	Ability to negotiate / agree with stakeholders the risk management approach, rather than prescribe
	Able to differentiate between Surveillance and Enforcement (inspection), and SMS Oversight (and explain to stakeholders)
	Understand performance based safety, and be able to explain it to the stakeholders



Awareness of theory and practice on Acceptable Level of Safety (ALoS)
Ability to implement data-based trial of KPI measurement
Ability to review and agree stakeholders targets for KPIs (challenging but achievable)
Awareness of latest occurrence reporting requirements (i.e. MORS)
Awareness of any confidential or voluntary reporting system
Awareness of data analysis and trends arising
Ability to understand and promote all aspects of safety culture

B.5 Train the trainer

Course title	SSP and SMS – Train the Trainer
Target audience	DGCA internal trainers
Duration	As required
Approach	Aim to ensure a sustainable knowledge of SSP and SMS through detailed examination of training strategies, provision of material, and explanation of concepts (appropriate to the course being taught)
Objectives	Ability to deliver training to other DGCA staff in relevant aspects of SSP/SMS and to the appropriate level Note: Course will generally be tailored to group or individual and will include training in instructional techniques if required. Students would have already undertaken course they are required to impart. This course will reinforce understanding and provide effective means of delivering the training.



ANNEX B

COMMUNICATION PLAN

C.1 General

This annex describes the communication processes, including the structure of meetings and documentation that supports the implementation and ongoing management of the SSP.

C.2 Internal communication

The DGCA is a dispersed organisation, as such, structured internal communication is essential to enable the effective two-way sharing of relevant information between all internal stakeholders.



Meeting structure

The DGCA internal communications structure comprises 2 formal meetings and the routine management meetings held by individual directorates.



SSP Steering Committee meetings

SSP Steering Committee is responsible for implementing and monitoring the development of the SSP and related safety policy. The committee includes a large number of service providers. Meetings are held on an 'as required' basis as agreed between the MoCA and the DGCA.

SSP Steering Committee Meeting	Frequency: As required		
Aim:			
To provide oversight and governance to SSP/SMS implementation.			
Objectives:			
• Monitor SSP and Safety Policy;			
• Promote SSP to service providers;			
• Resolve conflicts;			
• Provide oversight and direction to the SSP/SMS Division.			
Input:	Output:		
International bodies, MoCA, external stakeholders and SSP/SMS Division	Minutes of meeting providing feedback to external stakeholders and direction to SSP/SMS Division		



SSP/SMS Division Meeting

The SSP/SMS Division meeting is a high level management meeting providing functional oversight and direction. The meeting comprises the entire SSP/SMS Division and is chaired by the DG.

SSP/SMS Division Meeting		Frequency: Quarterly		
Air	Aim:			
То	To manage the functional implementation of SSP/SMS.			
Ob	jectives:			
•	• Ensure that all relevant DGCA directorates and regional offices are aware of and operating in accordance with the SSP;			
•	Develop a consistent approach across the DGC	A to safety management;		
•	Ensure that procedures, terms of reference and training are developed in accordance with the SSP;			
•	Resolve any potential conflicts between the operation of a directorate and the principles of the SSP. Manage SSP implementation within the DGCA;			
•	Monitor progress and intervene as necessary;			
•	• Coordinate and, where appropriate, harmonise the implementation and continued development of service providers' SMS.			
Chairman:				
JDG on behalf of DG				
Input: Output:		Output:		
SSI dire	SSP Steering Committee, reports from routine directorate meetings Minutes of meeting and updated action pla			



Directorate routine co-ordination meetings

Each directorate with responsibility for supporting the implementation and continual development of the SSP and service providers' SMS shall, as a minimum, include a report on the status of the SSP/SMS implementation at its routine monthly meetings. The meeting should include relevant headquarters and regional office staff.

Directorate routine coordination meetings	Frequency: Monthly		
Aim:			
To manage the functional implementation of SSP/SMS within the directorate and applicable service providers			
Objectives:			
• Coordination of activities;			
• Reviewing feedback from service providers;			
• Share information and address issues from SMS	S oversight meetings and routine inspections;		
• Develop and agree actions;			
• Escalate issues to the SSP/SMS Division Meeti	ng.		
Chairman:			
As decided by individual directorates			
Input:	Output:		
SSP/SMS Division meeting, feedback from SMS oversight visits and routine inspections	Meeting notes, agreed actions and a summary report to the SSP/SMS Division Meeting		
oversight visits and routine inspections report to the SSP/SMS Division Meeting			



Documentation, communication and tools

Document	Objectives	Description	Responsibility
SSP/SMS Division Procedures Manual	Guidance to SSP/SMS Division and Implementation Team members	Published electronically and available on the DGCA website and safety portal	SSP/SMS Division
Individual Directorate procedures manuals	Guidance to individual Directorate staff on their role in the context of the SSP/SMS implementation and management	Existing documentation updated to meet the requirements and reflect SSP/SMS Division Procedures Manual	Individual Directorates

The following documentation shall be developed and maintained:

In addition, the following documents shall be used to support the SSP implementation and ongoing management:

Document	Objectives	Description	Responsibility
SSP/SMS Implementation Status Report	Provide an annual assessment of progress to support planning and prioritisation	Detailed summary of implementation status of SSP and service providers' SMS. Produced annually on 1 January.	Air Safety Directorate
SSP/SMS Implementation Action Plan	Provide a structured approach, detailed actions, resource and timelines to manage SSP/SMS implementation	Living document managed by the Air Safety Directorate under the direction of the SSP/SMS division. Published on the DGCA safety portal.	Air Safety Directorate
Formal minutes and actions log	To record discussion, decisions and formal actions	Used for SSP Steering Committee and SSP/SMS Division meetings. Record of actions is sufficient for routine directorate-level meetings	Chair
Directorate monthly report to SSP/SMS Divisions	Summary of SSP/SMS related activities within the directorate Reporting of issues to SSP/SMS Division	A single consolidated list of decisions and issues to be discussed at the next SSP/SMS Division and Implementation Team Leader meeting.	Directorates



Communication

The formal meetings provide a structured approach to communication; however, these shall be supplemented by informal communication, including:

Means	Objectives	Description
Circular	Internal DGCA direction	Published in accordance with DGCA procedures
Internal e-newsletter	Connect staff to the DGCA and other colleagues by informing them of latest news.	Published on a regular basis to keep staff up to date. Especially important for a distributed organisation such as DGCA
Written communication	Routine team communication	
Email communication	Routine team communication	
Voice communication	Routine team communication	

Tools

Internal communication will also be supported by a number of tools which promote the sharing of information and contribute to a consistent approach across the DGCA:

Tool	Objective	Description
Safety Portal and Document Management System	Provide a single portal for all safety information. Ensure the correct management and security of safety related documentation	Principle tool and repository for all safety information and documentation. This will initially be the DGCA website
DGCA calendar	Improve communication	Provides visibility and increases awareness of future activities

C.3 External communication

In addition to a structured approach to internal communications, it is essential that external communications are also coordinated to:

- Inform stakeholders about the SSP, introduce SSP concepts and encourage safety culture;
- Support SMS oversight and encourage stakeholder implementation;
- Develop 2-way communications processes to communicate safety related information;
- Supports the development of safety assurance, including data collection, management, analysis and sharing;
- Support safety promotion.



Means of communication

The SSP/SMS Division and DGCA directorates shall employ the most suitable means when communicating with external stakeholders. The table below summarises the most common approaches.

Means	Objective	Description
International cooperation	Engagement with international stakeholders	Includes ICAO, EASA and other relevant bodies
Legislation	Legislative framework for state safety activities	Includes international, primary and secondary national legislation and Statuary Notices
Civil Aviation Requirements (CAR)	Regulation to support state safety activities	Published in accordance with DGCA procedures
Aeronautical Information Circulars (AIC)	Formal guidance and revisions	Published in accordance with DGCA procedures
Advisory Circulars	Advice and clarifications to service providers	Published in accordance with DGCA procedures
Technical Standing Orders	Direction for technical issues	Published in accordance with DGCA procedures
DGCA website	Guidance for service providers	Safety portal for external stakeholders
DGCA initiated forums/meetings	Dissemination of information and sharing of best practice	Structure, frequency and content to be agreed by DGCA based on stakeholder requirements
Stakeholder organisation initiated forums/meetings	Sharing best practice, learning lessons and benchmarking	DGCA will encourage stakeholder groups to arrange meetings
MORs Reports	Provision of mandatory data	
VRS/confidential reports	Sharing of voluntary/confidential data	
Safety e-newsletter	Connect service providers to the activities of the DGCA and other stakeholders	6-monthly
Safety bulletins	Provide feedback on safety issues, including lessons learned from both DGCA data analysis and inputs from stakeholders	Quarterly
Written, email and voice communication	Routine communication	



In addition to routine means of communication, the following formal report will be published on the DGCA website.

Document	Objectives	Description	Responsibility
State Annual Safety Review	Summary of India's safety performance against agreed State ALoSP [when available]	Published by DGCA on an annual basis. This is intended as the publically available summary of progress.	Air Safety Directorate

C.4 Media relations

The reporting of confidential information by the Indian media can undermine confidence in voluntary reporting systems.

In order to preserve confidentiality it is essential that the SSP/SMS Division ensure that:

- DGCA staff and service providers are aware of formal media relations procedures and the consequences of releasing inappropriate data;
- Media organisations are briefed and encouraged to support the SSP concept.