Risk Based Surveillance Procedure Manual

1st Edition

March, 2022

Civil Aviation Authority of Nepal

Approved for publication by the Director General, Civil Aviation Authority of Nepal, under Article 82 of the Civil Aviation Rules, 2058 BS.

Safety Management Division

Aviation Safety and Security Regulation Directorate

Civil Aviation Authority of Nepal

First Edition – March 2022

This manual is available at www.caanepal.gov.np

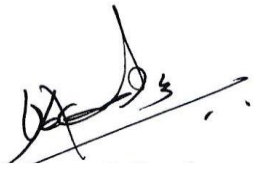
FOREWORD

Civil Aviation Authority of Nepal (CAAN) has developed this Risk Based Surveillance (RBS) Procedure Manual to comply with the standard laid down in ICAO Annex- 19 (Safety Management), the requirement provisioned in the Civil Aviation Requirements for Safety Management (CAR-19) and other relevants documents. This manual has been issued by the Director General pursuant to the rule of 83 (b) of Civil Aviation Regulations, 2002.

The Manual explains the processes and procedures to determine the organizational risk level and modify the authority's surveillance frequency. The RBS approach also helps the authority to use its resources in an efficient manner and to identify the deficient areas or areas of safety concern of the organization so that additional focus can be given to such areas during surveillance activities. Ultimately, this approach helps improve the aviation safety level as a whole by reducing accident and incident in flight operations.

At the State level, Risk Based Surveillance provides a mechanism for better identifying hazards and measuring associated risks as well as demonstrating effective mitigation of these risks. Ultimately it allows the CAAN to focus its attention on organisations that require additional or closer attention, strengthening the efficiency of the oversight. At the same time, an improved understanding of the risks across the aviation system will increase effectiveness of the oversight, based on an improved risk picture that considers the causal factors of all safety occurrences. Therefore, the implementation of Risk Based Surveillance Approach in Audit and inspections also helps for effective implementation of State Safety Programme (SSP) in Nepal.

Any Comments or suggestions for the improvement of this manual may be forwarded to Safety Management Division. It is the onus of the Civil Aviation Authority of Nepal to update this Manual as and when necessary.



Er. Pradeep Adhikari

Director General

RECORD OF AMENDMENTS

Revision No.	Date	Entered By

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Conceptual Model

1.1 Concept of Risk Based Surveillance System

1.1.1. Risk Based Surveillance is a way of performing Surveillance, where planning is driven by the organizational risk profile (the combination of organizational safety performance and Operational Complexity Level); and execution focuses on the management of risks, besides ensuring compliance. A risk-based approach to surveillance entails the assessment of the performance influencing factors, organisational changes and other safety performance indicators that make up an organization's risk profile. An organization's risk profile is inevitably be dynamic. The CAAN shall have a process that acquires and analyses different sources of intelligence that provide insight into the changing risks in an operation and determine the surveillance frequency.

1.1.2 In order to better visualise the feedback loops the following RBS scheme, based on the PLAN, DO, CHECK, ACT concept, following conceptual model is used:

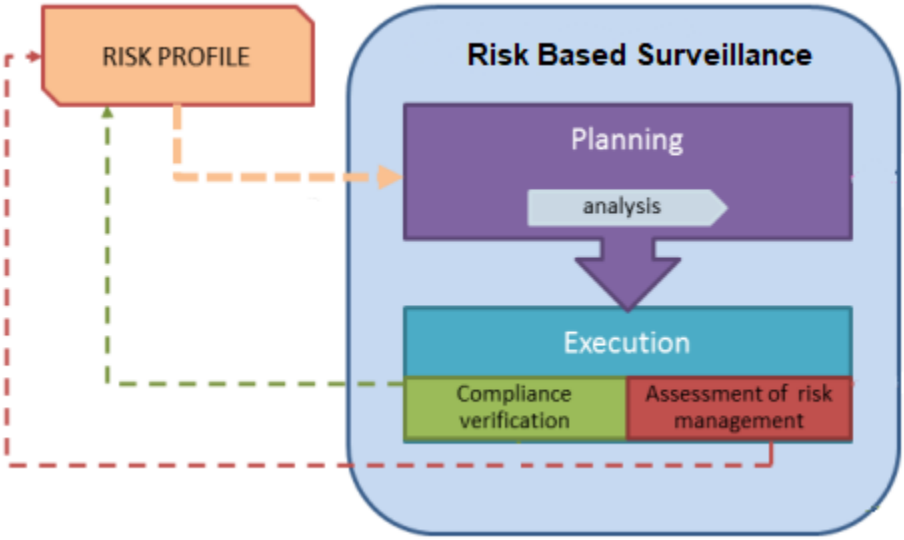

Figure 1: Conceptual Model of RBS

1.1.3 RBS combines the two phases of “planning” and “execution”. “Planning” phase, the prioritisation and content of activities is decided after analysis of the information available from the risk profile and the overall safety performance, which includes:

- the specific nature of the organisation,
- the complexity of its activities,
- the Safety Performance Indicators (SPI),
- the outcome of previous oversight,
- an assessment of associated risks.

1.1.4 The above shall be combined with contextual information coming from many sources of intelligence, such as isolated events, reorganisation, retirement of key employees, reported occurrences, financial health etc. The results of this planning phase should be periodically reviewed because the level

of risk the organization is exposed to could be constantly changing due to various factors. Choice of cycle length and audit interval shall be driven by availability of resources. For the purpose, following approach is used:

1.1.5 For each operator, the cycle length is derived from its individual risk profile which is calculated by the help of organizational safety performance level (considering areas of flight operations, technical capacity, organisation, compliance and safety management) and Organizational operational complexity level. CAAN shall then allocate available resources to enable the surveillance to be undertaken as close to the desired cycle interval as possible.

1.1.6 During the "execution" phase, attention is paid to both "compliance" and "risk management" because compliance remains the basic element to ensure safe operations, whereas risk management looks at the effectiveness of the activities put in place to achieve the safety objectives.

1.1.7 The outcome of the oversight may require a quick response to safety performance issues in the short term (planning and content), or mitigations adjusting the risk profile in the longer term.

1.2 SSP and Management System as drivers to RBS

1.2.1 At the State level, RBS provides a mechanism for better identifying hazards and measuring associated risks as well as demonstrating effective mitigation of these risks. Ultimately it allows the Civil Aviation Authority to focus its attention on organisations that require additional or closer attention, strengthening the efficiency of the oversight. At the same time, an improved understanding of the risks across the aviation system will enable better calibration of the oversight, based on an improved risk picture that considers the causal factors of all safety occurrences, from isolated events to incidents and accidents.

1.2.2 SSP is the ICAO tool for a State to define and achieve its safety objectives, including the collection of data and identification of areas of greater risk, concern or need. A State should establish mechanisms to ensure the capture and storage of data on hazards and safety risks for each overseen organisation, as well as at an aggregated State level. Mechanisms to develop information from the stored data, and to actively exchange safety information with service providers and/or other States, as appropriate, should also be considered. A significant number of the ICAO SSP elements are accomplished by the management system demanding a safety risk management process, a compliance monitoring function and the mutual exchange of all necessary information. The oversight programme(s) shall therefore:

- take into consideration the risk profile of the organisations, their specific nature and their types of operations, the assessment of associated risks, the SPIs at State aggregate level and organisation level,
- include a mechanism for adapting the scope or frequency of surveillance according to the collected safety information, the actual safety performance and the management of changes for the organisations,
- plan the availability of CAAN staff in order to ensure the proper completion of oversight activities, and
- input to the State safety assurance element and to the State safety promotion activities.
- Such a risk-based approach to surveillance prioritisation will also facilitate the allocation of resources to areas of greater risk, concern, need or emerging risks and shall enable a more efficient use of resources.

Chapter 2

Risk Profile and Surveillance Planning

2.1 When planning the surveillance programme, the Civil Aviation Authority shall assess the risks related to the activity of each organisation and adapt the surveillance to the level of risk identified and to the organisation's ability to effectively manage safety risks.

2.2 Therefore, the first step towards RBS is the determination of organizational risk profile for each regulated entity, which will support the prioritisation, the content and planning of the oversight. By so doing, a Civil Aviation authority begins surveillance of the organisations under its oversight in terms of risk and no longer solely in administrative terms of approval holder, where the continued validity of the approval is ensured by a set of predefined steps prescribed by the regulation. The logical consequence is the differentiation of the oversight activity based on the outcome of the risk profiling.

2.3 The calculation of the risk profile is a multifaceted process, based on an evaluation of the organisation's management system, examining the culture of the organisation and also the way it is addressing the challenges of operating within the national aviation industry. It will also be informed by the output of the authority's management system. The size, scope, complexity of operations, and the organisation's risk exposure are always at the heart of the analysis.

2.4 The Civil Aviation Authority shall adopt a progressive approach, which can be summarised as:

I. Start with one domain,
II. Gain experience, and
III. Then expand the practices to other domains.

2.5 Initially, CAA shall adopt RBS for Airline Operators (AOC Holders only) and then progressively extend the process to Aerodrome Operators, ANS Operators, AMO, ATO etc.
The annual safety reviews produced by CAA include the analysis and aggregation of the outcome of oversight and reported safety events. These reviews will attempt to find correlations or identify patterns or trends. A common element in all practices is the use of data combined with expert judgement during the risk profile definition. This is a logical decision, as the currently available data sources are not very consistent and any algorithm combining safety and background data to deliver a risk indication could be easily challenged in its theoretical basis.

2.6 To ensure that expert judgement supports a consistent risk profiling, the related decision-making is made by consensus by a team of subject matter experts, in teams of inspectors of the same competent authority, normally within the same technical domain, sometimes supported by safety analysts. This allows them to evaluate and continuously review the risk profile as well as the performance assessment in a consistent manner, with individual biases or single opinions being blended in the consensus process, and to standardise the approach among the inspectors. In this way is also possible to benefit from the experience gained and to further train inspectors to achieve a common approach.

2.7 Once RBS becomes well-established, it is expected that expert judgement will remain essential in determining the risk profile, however this evaluation should be conducted

i) by a team of experts, so that no judgement is made only by one person and
ii) by working by comparison (e.g., comparing a score with the average in a similar category) in order to better determine what, why and when to oversee.

2.8 When a model or scoring system for risk profiling or risk evaluation is used:

- The variation of the indicators is often more important than the indicators themselves, therefore too much attention to absolute figures shall not be given.
- The regular monitoring of the trends of these indicators shall be carried out over time.
- Calibration and weighting of indicators are fundamental to support proper profiling (e.g., excessive weighting of one single factor could alter the outcome of calculations).
- Avoid being bogged down by the scoring system as it's more important to assess the relevance of the outcome.
- Adequate attention shall be given to borderline situations to avoid inaccurate decisions.

2.9 The execution of RBS requires that direct interaction with the regulated entities goes beyond the mere verification of compliance with all applicable regulatory requirements. Communication should now take place at different levels, not only at the technical one. In particular, when a safety management system is established the organisation's senior management must be involved when assessing and discussing the safety performance. RBS requires the ability to move away from the traditional checklist, to understand how an organisation is managing its own risks and whether the safety management system is effective and delivering the expected results.

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Chapter- 3

Enablers and Tools

3.1 Management of safety information

3.1.1 Data is essential to support the RBS process and the sources of information shall be carefully identified in order to obtain the right information. Data sharing is also important, as it allows analysts to widen the available set of data. Finally, data quality is crucial to support proper decision making, otherwise outcomes can be misleading.

3.1.2 This is further emphasised by ICAO Annex 19 which requires that information is systematically collected, analysed and monitored to identify risks and measure progress against outcomes.

3.1.3 RBS relies on data collection and safety modelling as part of an effective Management System of the authority and mature Management System within regulated entities. Various data exchange programmes for Aviation Safety shall properly feed RBS and allow the identification of Safety Performance Indicators (SPI), as well as the organisation's associated targets. In this way it becomes possible to measure and monitor the level of safety performance. In addition, information on the effectiveness of the safety barriers (mitigation strategies for risks) can be continuously gathered.

3.2 Training and qualification of inspectors

3.2.1 The breadth and depth of a risk-focussed audit will be dependent on the qualification of the staff. In order to perform risk-based oversight, some supplementary competence is required, in addition to the required domain-specific technical expertise.

3.2.2 In particular, a more proportionate approach requiring constant dialogue with the organisation enables inspectors to better understand how risks are mitigated and to assess the effectiveness of the mitigation process and the level of maturity of the organisation's safety management system. Authority inspectors need to acquire the ability to assess safety management systems.

3.2.3 Moreover, as oversight will be mainly based on performance, the ability to measure safety performance should also become part of the inspectors' knowledge base. This means a basic understanding of

- safety analysis techniques and root cause determination, and
- how to work with safety indicators.

3.2.4 Duration of the training should be adequate to allow the achievement of the objectives set out above. It is not possible to recommend a standard training duration, as the starting point may vary depending on the background and the knowledge of every individual to be trained.

3.2.5 An organisational cultural analysis should be undertaken to identify the competence elements needed to enable inspectors to implement RBO and to identify the needs of new joiners to the Authority.

3.2.6 Using the KSA model, the competence required for RBS can be summarised as follows:

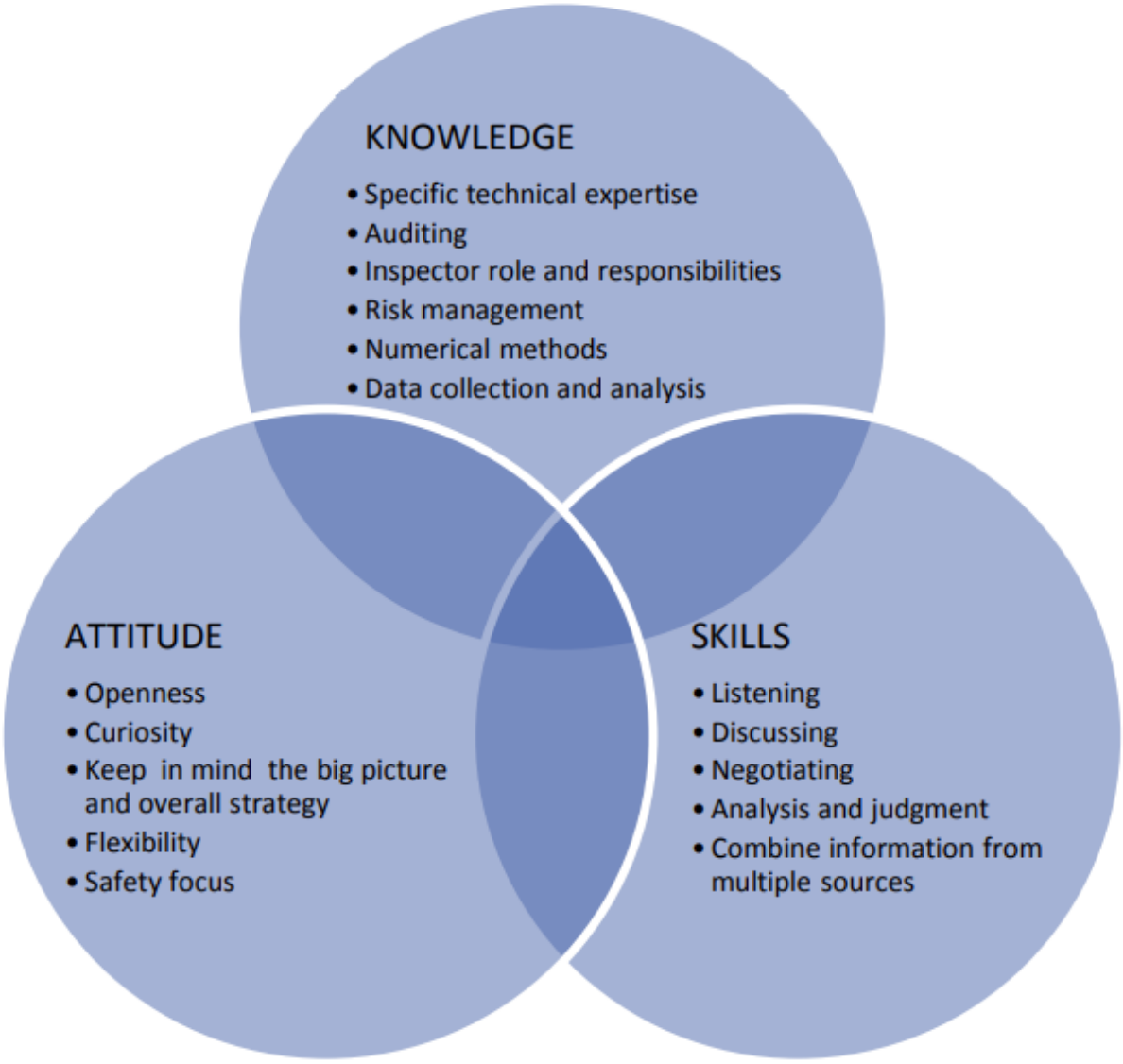

Figure 2: Trainings and Qualifications of Inspectors involved in RBS activities

Chapter- 4

Developing Organizational Risk Profile and Modifying Surveillance Frequency

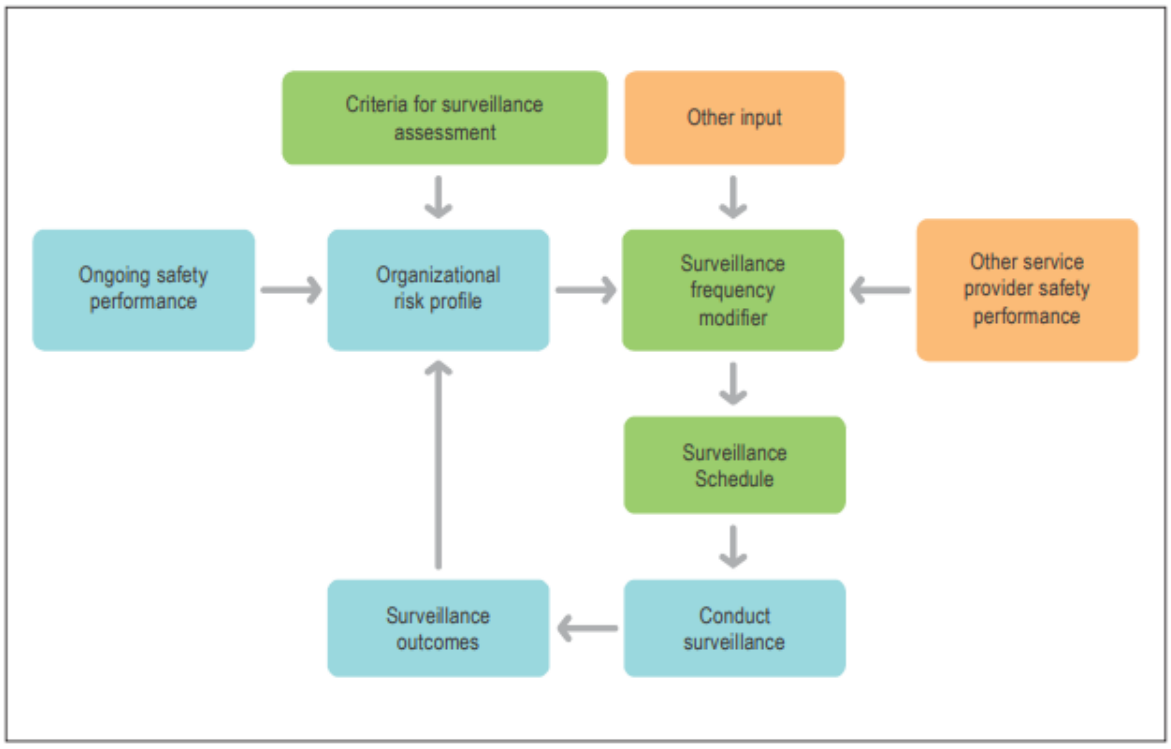

Figure 3: Concept of Organizational Risk Profile and Surveillance Frequency

4.1 Definition of Organisation Risk Profile (ORP)

4.1.1 Determination of Organizational Safety Performance Level (SPL) of organisation

4.1.1.1 The SPL of an AOC holder takes 47 safety parameters of 5 areas (Safety Management, Organisation, Compliance, Technical and Flight Operation) into consideration. Approximately half of these parameters are assessed during the respective audit / inspection, the remainder are rated automatically based on information recorded in the State Safety Database System. As a result, a dynamic risk profile is created. The parameters have been included in Appendix 1.

4.1.1.2 Each safety parameter is scored between 3 and 0, where 3 represents a very high level of safety performance, 2 represents a high level of safety performance, 1 represents a low level of safety performance and 0 represents a very low level of safety performance.

4.1.1.3 Consequently, the total obtained score of each safety area is calculated and converted into percentage considering the maximum obtainable total score of an area is 100 %.

4.1.1.4 Example:

In the area of Safety Management, if the total score is 20, then the SPL is 66.67% = 67% (approx.)

- Total number of parameters in Safety Management area is 10.
- Maximum obtainable score for each parameter is 3.
- Total maximum obtainable score in Safety Management area is (10 x 3) = 30.
- The total obtained score in Safety Management area 20
- The obtained SPL in Safety Management area is therefor (20/30) x 100 = 66.67%

4.1.1.5 When Safety performance levels (in percentage) of 5 areas are calculated, they are depicted in an appropriate graph (chart) and following things are evident:

I. Overall Safety Performance Level of the organisation (by averaging the safety performance levels of all 5 areas).
II. Deficient areas of the organisation that require more focus during audit or inspection.

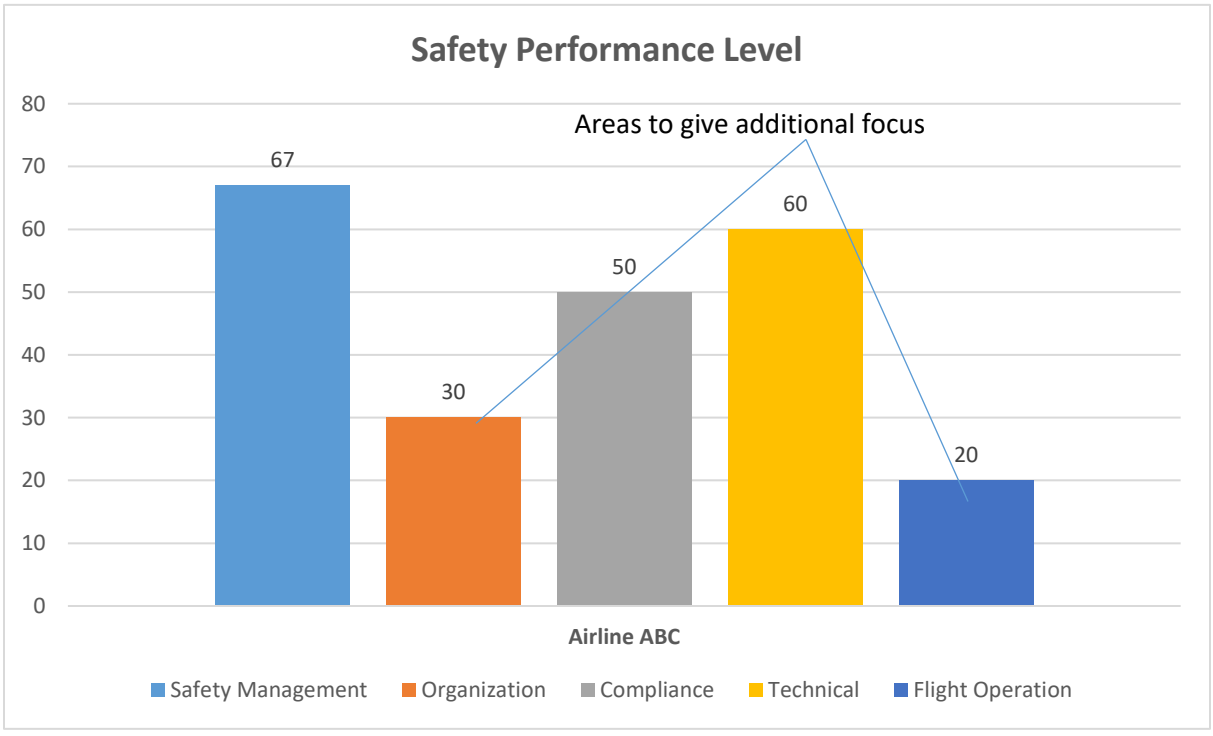

Figure 4: Concept of giving additional focus on areas of concern

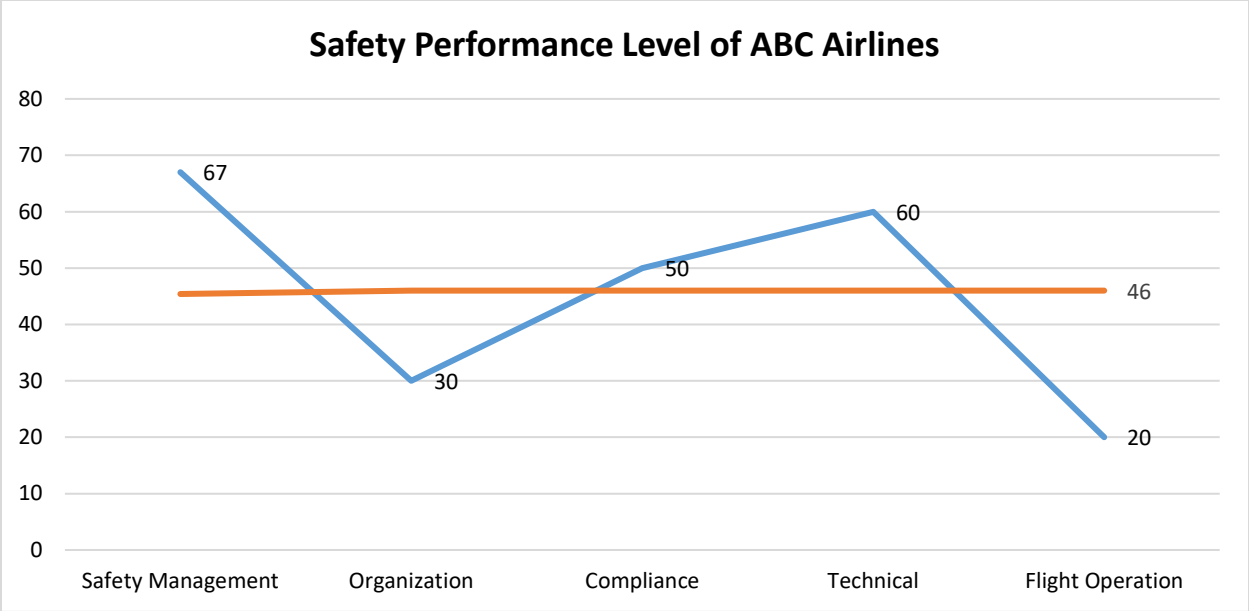

Figure 5: Concept of determining Safety Performance Level of an organization

The Average value is 46 % which is the overall SPL of the organisation.

4.1.2 Determination of Operational Complexity Level (OCL) of an Organisation

The OCL of an AOC Holder takes 10 safety parameters into consideration.

4.1.2.1 Each safety parameter is scored between 0 and 3, where 0 represents a very low level of operational complexity, 1 represents a low level of operational complexity, 2 represents a high level of operational complexity and 3 represents a very high level of operational complexity.

4.1.2.2 Consequently, a total score of parameters is calculated and converted into a percentage, considering the maximum obtainable total score of an area is 100 %.

4.1.2.3 Example:

If the total score of all parameters is 15, then it is 50 %.

Calculation:

- Total number of parameters is 10.
- Maximum obtainable score of each parameter is 3.
- Total maximum obtainable score is (10 x 3) = 30.
- The total obtained score is 15.
- The level of operational complexity is (15/30) x 100 = 50 %.

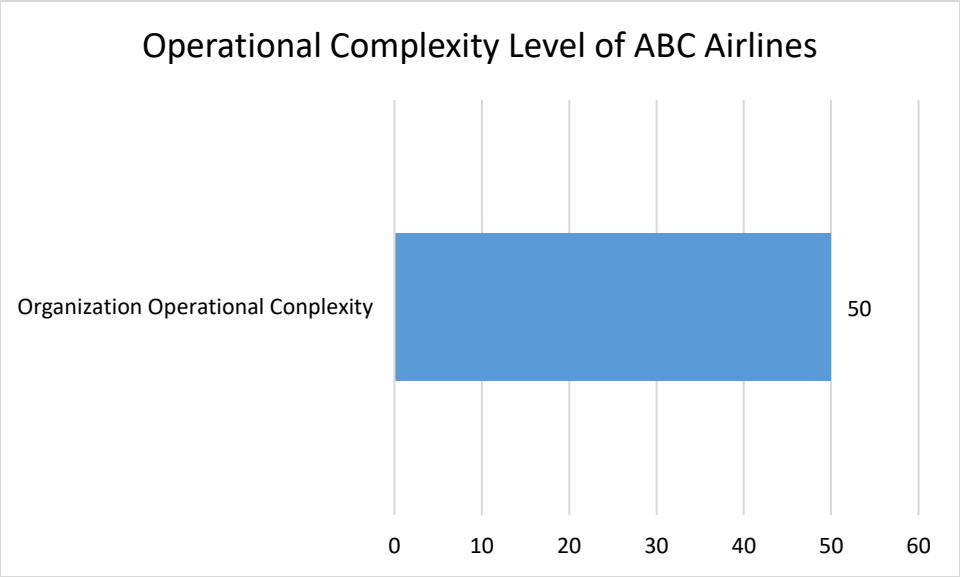

Figure 6: Concept of determining Operational Complexity Level of an organization

50% is the OCL of the organisation.

4.1.3 Determination of Organisation Risk Profile (ORP)

4.1.3.1 By combining the overall safety performance level of an organisation and the level of organisation's operational complexity, the Organisational Risk Profile (ORP) is determined. When the SPL and OCL is plotted in graphical format the ORP is derived. Based on the ORP, surveillance (Audit/Inspection) frequency is determined. There are three types of organisation risk profile which are:

- Low
- Medium
- High

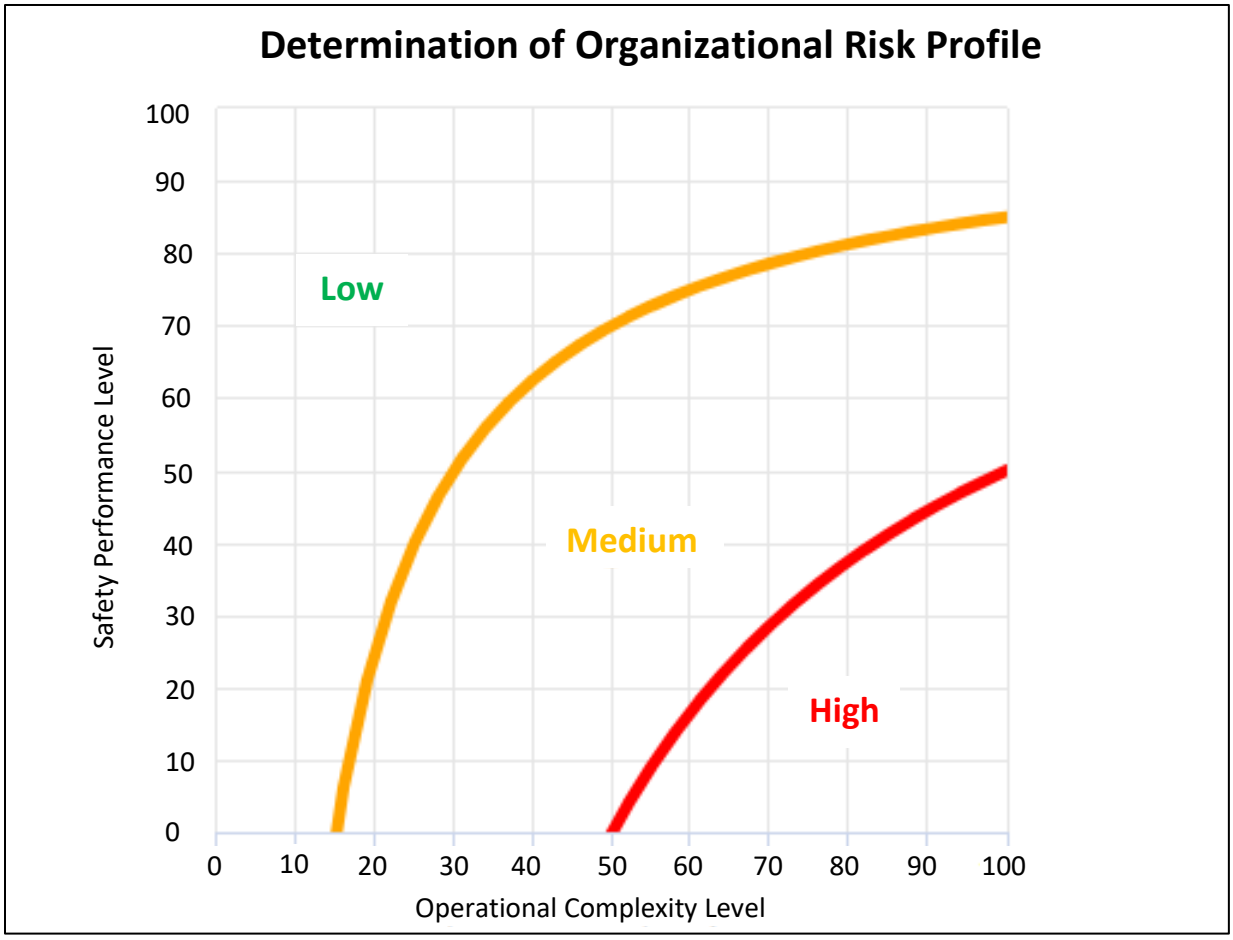

Figure 7: Concept of determining Organizational Risk Profile (ORP)

Conditions	Audit/Inspection Interval	Risk Assessment
No level 1 findings	Risk is low, Audit/Inspection interval can therefore be 18 months	Low
No level 1 findings	Interval for Audit/Inspection set to 12 months	Medium
	Interval for Audits/inspection is set to 6 months; however the higher risk parameters are given more attention during audit/inspection.	High

Figure 8: Concept of Determining Surveillance Intensity Level of an organization

4.1.3.2 **Low Risk Profile (LRP):**

If the combined point of SPL and OCL falls within the Low-risk zone (upper left corner part) in the graph, it is considered that the ORP is low and surveillance frequency should be scheduled at least once in every 18 months, with conditions.

4.1.3.3 **Medium Risk Profile (MRP):**

If the combined point of SPL and OCL falls within the Medium-risk zone (middle part) in the graph, it is considered that the ORP is medium and surveillance frequency should be scheduled at least once in every 12 months, with conditions.

4.1.3.4 **High Risk Profile (HRP):**

If the combined point of SPL and OCL falls within the high-risk zone (lower right corner) in the graph, it is considered that the ORP is high and surveillance frequency should be scheduled at least once in every 6 months, with conditions.

4.1.3.5 This whole approach requires:

(i) careful selection of personnel.
(ii) qualitative, evidence-based evaluation by the Flight Operations, Airworthiness and Safety Management Inspectors, and other experts as required.
(iii) Interaction with the AOC holder.
(iv) Individual parameters are "weighted" according to the Authority assessment, considering potential risks.
(v) Risk profile is periodically reviewed, and surveillance frequency is modified.

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Appendix -1

Calculation of Organizational Safety Performance Level

A. Safety Management

Circle the appropriate number in 'Level of Safety Performance' column

S.No.	Statement	Level of Safety Performance			
1	The Operator has a formal safety data collection and processing system (SDCPS) for effectively collecting information about hazards in operations. • Hazard reporting is simple, accessible and commensurate with the size of the operator. • The operator SDCPS includes a combination of reactive, proactive and predictive methods of safety data collection. • There is a feedback process in place to notify contributors that their reports have been received and to share the results of the analysis. • There is training relevant to different methods of safety data collection. • There is evidence of multiple hazards identified using the SDCPS.	0	1	2	3
2	The operator has a formal process in place to ensure due analysis, assessment and control of the safety risks in operations. • There is a structured process for the analysis of the safety risks associated with the consequences of identified hazards, expressed in terms of probability and severity of occurrence. • There are criteria for assessing safety risks and establishing safety risk tolerability, i.e., the acceptable level of safety risk the organisation is willing to accept. • The operator has safety risk mitigation strategies that include corrective/preventive action plans to prevent recurrence of reported occurrences and deficiencies.	0	1	2	3
3	The operator's safety performance, as well as the effectiveness of safety risks controls, are continuously monitored.	0	1	2	3

	• The operator has defined and monitors appropriate safety performance indicators, alerts and targets. • The operator has a formal process to identify the causes of sub-standard performance of the SMS. • The operator has established a mechanism to eliminate or mitigate the causes of substandard performance of the SMS. • Safety performance indicators, targets and alert levels are periodically reviewed to ensure they are appropriate and relevant.				
4	The operator has identified and analysed changes within its organisation which may affect established processes and services. • The formal process for the management of change analyses any changes to operations or key personnel for safety risks. • The operator has established arrangements to ensure safety performance prior to implementing changes. • The operator has established a process to eliminate or modify safety risk controls that are no longer needed due to changes in the operational environment.	0	1	2	3
5	The operator has developed and maintains an internal safety investigation process. • The internal safety investigation process includes the investigation of accidents, serious incidents, incidents and even occurrences when appropriate. • Lessons learnt and other relevant safety information derived from investigations is distributed within the organisation in a timely manner. • Personal information and other data not directly related to safety are not included in reports.	0	1	2	3
6	The operator has developed a documented process to identify training requirements so that personnel are trained and competent to perform the SMS duties. • The safety training is appropriate to the individual's involvement in the SMS. • The safety training is incorporated into indoctrination training upon employment.	0	1	2	3

	• There is a process that measures the effectiveness of SMS training.				
7	The operator has communication processes in place that permit the safety management system to function effectively. • Safety critical information is established and maintained in a suitable medium that provides guidance regarding relevant SMS documents. • Safety critical information is disseminated throughout the organisation and the effectiveness of safety communication is monitored. • There is a procedure that explains why particular safety actions are taken and why safety procedures are introduced or changed.	0	1	2	3
8	The operator has adequate measures in place to manage risks associated with crew members' fatigue. • There are specific fatigue report procedures and documentation. • The operator documents decisions and actions made in response to fatigue hazards detected by the SMS. • The operator maintains records of planned and actual working times of each operations personnel. • Maximum work periods and minimum non-work periods for each part of crew members' operations are clearly identified and documented. • The operator has established fatigue-related Safety Performance Indicators. • Fatigue risks are always considered as part of the operator's change management process. • The operator assesses the effectiveness of its fatigue management programme. • There is a feedback process to communicate fatigue issues identified through data collection.	0	1	2	3
9	The operator has developed and maintains an adequate Flight Data Analysis Programme (FDAP) as part of its SMS. • There is a written agreement between operator's management and the pilots on the use of the information obtained through FDAP. • There are clear procedures and means to protect personal information as part of the FDAP.	0	1	2	3

	• Roles and responsibilities regarding FDAP are well defined and documented. • Management personnel and flight crew members are well aware of the existence of a FDAP within the operator and understand its scope, nature and conditions. • Safety critical information is disseminated throughout the organisation.				
10	The operator is ensuring the safety level of contracted organisations (product and service contracts). • List of the contracted organisation is well recorded at safety department and the list is being constantly updated. • There is effective means of communication in place and the required critical safety information is being communicated to contracted organisations including safety policy, objectives, investigation outcomes etc. • Periodic Safety audit of contracted organisations is being conducted.	0	1	2	3

B. Organisation

S.No.	Statement	Performance Level			
1	The operator's personnel have an excellent attitude to all aspects of safety within the operator. • Safety culture is well embedded and obvious (such as safety teams across organisational lines). • Just culture is actively promoted. • Managers lead by example. • Safety is clearly a top priority within the operator, including key management personnel.	0	1	2	3
2	The operator has designed and constructed flight schedules and timetables considering all relevant variables and factors to reduce pressure on safety. • Flight schedules or timetables are regularly achieved. • The need to interrupt schedules for safety reasons is understood and accepted. • Changes in schedules or timetables are evaluated within the operator's SMS.	0	1	2	3
3	Key safety management positions have remained stable for the last 24 months. • Operations Manager, Maintenance Manager, Chief Pilot, Training Manager, Safety Manager and Quality Manager positions have been occupied by the same people for the last 24 months.	0	1	2	3
4	People at all key safety positions are experienced and qualified. • Operations Manager, Maintenance Manager, Chief Pilot, Training Manager, Safety Manager and Quality Manager are all well-versed, trained and qualified in safety management and for their specific roles. • They are all perceived by the operator's personnel as being reliable and knowledgeable. • All key safety managers are highly effective at their jobs.	0	1	2	3

5	People at all key safety positions work full-time for the operator. • Operations Manager, Maintenance Manager, Chief Pilot, Training Manager, Safety Manager and Quality Manager are full time employees of the operator. • They assign adequate time to fulfil their managerial roles.	0	1	2	3
6	The operator's personnel feel motivated and identify with the organisation. • Staff are positive in their attitude to the organisation. • Outstanding performance is recognised by the organisation. • Employees are given enough autonomy to make normal situation decisions. • Staff show internal motivation.	0	1	2	3
7	Employees and managers have a good professional relationship and trust each other. • Internal problems are usually prevented or solved by negotiation when they occur. • Employees and managers respect each other and are well aware of their duties and responsibilities.	0	1	2	3
8	The operator is adequately staffed to deal with both normal and abnormal situations. • There is an adequate number of staff to support air and ground operations. • Even during periods of high demand, available staff can support normal operations without feeling over-pressured. • There is no evidence of the organisation being understaffed.	0	1	2	3
9	The organisation is financially healthy. • Financial records show liquidity, solvency and operating efficiency. • There is no evidence of financial stress such as payment delays, growing debt, reduction of operations, etc.	0	1	2	3

C. Technical

S.No.	Statement	Performance Level			
1	The operator has a modern fleet of aircraft. • Average fleet age is less than 10 years	0	1	2	3
2	The general conditions and maintenance of flight and ground equipment and tools are considered to be above the minimum industry standards. • Tools/equipment/materials are adequate and correct for the job, well maintained, documented and controlled. • No deficiencies are observed.	0	1	2	3
3	The fleet is composed of one single type of aircraft. • Fleet is composed of one single type of aircraft.	0	1	2	3
4	The fleet composition has remained stable for the last 24 months. • No major changes in fleet composition during the last 24 months, such as incorporation or retirement of an aircraft type.	0	1	2	3
5	All airports served have an adequate level of Rescue and Fire Fighting Services. • Available Rescue and Fire Fighting Service on all airports served (or to be served during on-demand operations) are adequate for the operator's fleet.	0	1	2	3
6	All airports served have a straight- in approach available. • All airports served have an ILS approach or at least a straight-in VOR approach.	0	1	2	3
7	Technical training is of high quality and effective. • The operator can show that all training done is effective. • There is evidence that shows that where training is ineffective, it is recognised as such and managed.	0	1	2	3

	• There is a clear process that measures the effectiveness of training.				
8	All aircraft of the same type are mostly identically configured. • There are none or minor configuration differences among the fleet of the same type, including engines, instruments and equipment, and software. • Every difference is clearly identified and included as part of the differences training approved for the operator. • Differences training are provided to flight crews before they are assigned to fight the units with the differences.	0	1	2	3
9	The operator continuously invests in new technology and efficiency of its fleet. • The operator has a continuous fleet modernisation programme. • Old aircraft are replaced by newer aircraft on a schedule.	0	1	2	3
10	The operator adopts the safety improvements proposed by the aircraft manufacturer. • The operator has a procedure to evaluate service bulletins. • The operator has a policy to implement all service bulletins that improve safety whether mandatory or not.	0	1	2	3

D. Compliance

S.No.	Statement	Performance Level			
1	The operator accepts regulatory access without question and has an open, cooperative and transparent attitude. • The operator encourages regulatory participation in projects and access at any time. • The operator volunteers information freely and without prompting. • The operator is cooperative, helpful and accepting of comments and recommendations.	0	1	2	3

2	The operator exceeds rules requirements, views rules holistically as the general good for everyone and, therefore, complies with the rules even if it disagrees with them. • The operator exceeds rules requirements, readily accepts interpretations. • Actively participates and co-operates in formal processes to improve rules. • Seeking avenues to circumvent rules is against the operator's policy.	0	1	2	3
3	The operator has fully adopted the IATA Operational Safety Audit (IOSA) standard. • The operator is IOSA or ISSA certified	0	1	2	3
4	Surveillance results are usually satisfactory, and any finding is analysed and resolved in a timely manner. • There are no level 1 findings and level 2 findings are rare. • There is no record of recurring non-conformances with regulatory requirements resulting from audits or validations of programmes or processes, etc. • Root cause analysis is performed for every finding before developing a corrective action plan.	0	1	2	3
5	The operator has a clean and positive safety record in the last 5 years. • No accidents or serious incidents in the last 5 years	0	1	2	3
6	No major sanctions have been imposed on the operator in the last 5 years. • No major sanctions such as AOC suspension, limitation or restriction have been imposed on the operator in the last 5 years.	0	1	2	3
7	No MEL extensions have been granted to the operator in the last 24 months. • No MEL extensions have been granted to the operator in the last 24 months.	0	1	2	3

8	Foreign ramp inspections performed to the operator are satisfactory. • No record of level 3 findings during foreign ramp inspections. • No record of foreign-imposed sanctions such as suspensions, limitations, restrictions, etc. • No record of foreign legal action regarding safety deficiencies.	0	1	2	3
9	The State of the operator has adequate safety oversight capability. • The effective implementation level of the State of the operator is greater than 70%.	0	1	2	3

E. Flight Operations

S.No.	Statement	Performance Level			
1	The operator has an effective Upset Prevention and Recovery Training (UPRT) that is compliant with ICAO Doc. 10011. • The operator UPRT Training has been approved by the CAA using Doc 10011 criteria. • There is a process that measures the effectiveness of UPRT training. • UPRT is part of both initial and recurrent training. • Every flight crew member has received UPRT training during the last 12 months.	0	1	2	3
2	The operator has an effective CFIT prevention training in place. • The operator has developed and maintains and adequate CFIT/ALAR. • There is a process that measures the effectiveness of CFIT training.	0	1	2	3
3	The operator has effective ACAS procedures training. • The operator's approved training programme addresses ACAS procedures as part of the initial and recurrent training for all flight crew members.	0	1	2	3

	• Initial and recurrent training include ACAS response scenarios in the simulator during initial and recurrent training. • There is a process that measures the effectiveness of ACAS training.				
4	The operator has an adequate computerised flight dispatch system to determine aircraft performance and CG position for all phases of flight. • The operator has an adequate computerised flight dispatch system to determine aircraft performance for all phases of flight. • The operator has an adequate computerised flight dispatch system to determine adequate CG position for all phases of flight. • The computerised flight dispatch system is approved by the CAA.	0	1	2	3
5	The operations manual does not allow VFR operations during commercial operations. • The operations manual does not allow VFR operations during commercial operations. • The operations manual does not allow visual circulation for landing.	0	1	2	3
6	The operator does not operate in extreme weather operations, or specific initial and recurrent training is provided for each extreme weather operations. The following is considered extreme weather: • Temperature above 40°C, • Temperature below -15°C, • Low visibility requiring Cat II/III authorisations, and • Field elevation above 10,000 ft. Training. • Specific training is provided for flight crew members for these types of operations. • There is a process that measures the effectiveness of this training.	0	1	2	3
7	The operations manual does not allow for mixed fleet flying operations.	0	1	2	3

	• The operations manual does not allow for mixed flying operations, which means no flight crew member operates more than one type of aircraft.				
8	The operator has developed and maintains an adequate Stabilised Approach criteria and procedures. • Stabilised approach criteria are established in the operations manual and form part of initial and recurrent training for all flight crew members. • Unstable approaches that require a go-around are part of the flight simulator training scenarios during initial and recurrent training. • Stabilised approaches are monitored through the operators Flight Data Analysis Programme.	0	1	2	3
9	The operator has a formal Lithium Battery Risk Mitigation policy, procedures and training. • The operator has a formal Lithium Battery Risk Mitigation policy, procedures and training in place. • Lithium Battery Risk Mitigation training is part of both initial and recurrent training for flight and ground personnel. • There is a process that measures the effectiveness of Lithium Battery Risk Mitigation training.	0	1	2	3

Appendix 2
Calculation of Organizational Complexity Level

Circle the appropriate number in 'Level of Complexity' column

S.No.	Statement	Level of Complexity			
1	Annual flight hours - less than 4000 (0) - 4000 to 15000 (1) - 15000 to 45000 (2) - More than 45000 (3)	0	1	2	3
2	Aircraft numbers - 3 or less (0) - 4 to 10 (1) - 11 to 20 (2) - 21 or more (3)	0	1	2	3
3	Aircraft model - 1 (0) - 2 to 4 (1) - 5 to 8 (2) - 9 or more (3)	0	1	2	3
4	Destinations served - 10 or less (0) - 11 to 30 (1) - 31 to 60 (2) - 61 or more (3)	0	1	2	3
5	Type of operations/flights - Domestic (0) - International (Regional) (1). - International (long haul) (2) - Domestic and International (3)	0	1	2	3
6	Average fleet age - Less than 5 years (0) - 5 to 15 years (1) - 15 to 30 years (2) - More than 30 years (3)	0	1	2	3
7	Operating Environment - Trunk Route (0) - STOL (1) - Both (2)	0	1	2	3

	- ETOPS (3)				
8.	Type of carriage done - Cargo (0) - Emergency Medical (MEDVAC)(1) - Passenger (2) - Dangerous Goods (DG) (3)	0	1	2	3
9	Number of Bases (Locations) - 1 (0) - 2 to 3 (1) - 3 to 5 (2) - More than 5 (3)	0	1	2	3
10	Type of Operations (Engine) - Multi Engine (0) - Single engine (1) - No engine (2) - Mixed (any two or more) (3)	0	1	2	3

ABBREVIATIONS

ACAS:	Airborne Collision Avoidance System
ALAR:	Approach and Landing Accident Reduction
AMO:	Approved Maintenance Organization
ANS:	Air Navigation Services
AOC:	Air Operator Certificate
ATO:	Approved Training Organization
CAA:	Civil Aviation Authority
CAAN:	Civil Aviation Authority of Nepal
CFIT:	Controlled Flight Into Terrain
CG:	Centre of Gravity
DG:	Dangerous Goods
ETOPS:	Extended Range Twin Operations
FDAP:	Flight Data Analysis Programme
IATA:	International Air Transport Association
ICAO:	International Civil Aviation Organization
IOSA:	IATA Operational Safety Audit
KSA:	Knowledge Skill Attitude
MEL:	Minimum Equipment List
OCL:	Operational Complexity Level
ORP:	Organizational Risk Profile
RBS:	Risk Based Surveillance
SDCPS:	Safety Data Collection and Processing System
SMS:	Safety Management System
SPI:	Safety Performance Indicators
SPL:	Safety Performance Level
SSP:	State Safety Programme
UPRT:	Upset Prevention and Recovery Training
VFR:	Visual Flight Rule
VOR:	Very High Frequency Omni-Directional Range