

Civil Aviation Authority of Nepal

Aviation Safety Report - 2022

FOREWORD



The prime objective of the establishment of Civil Aviation Authority of Nepal (CAAN) is to make the operations of national and international flights, air communication, air navigation and air transportation services safe, regular, standard and efficient.

Safety is the fundamental and foremost prioritized domain of aviation because there are lives involved in every operation of aircraft. The 193 countries including Nepal, who cooperate through ICAO, are currently working toward their agreed global safety goal of zero fatalities by 2030 along with the strengthening of their regulatory capacities, while pursuing a range of programmes and targets relevant to current core areas of global aviation safety planning, oversight and risk mitigation.

CAAN is publishing the Aviation Safety Report annually in order to support the safety objectives. This edition of Aviation Safety Report (ASR) is an endeavor to promote safety through sharing of state safety information. It also reflects the level of CAAN's priority on safety promotion and enhancement.

This Safety Report, 2022 is the sixth edition of the Aviation Safety Report that started being published from 2016. It provides a summary on safety activities, initiatives and updates on safety indicators, reactive and proactive safety information, safety promotional activities and highlights on the Nepal Aviation Safety Plan (NASP) 2018-2022. It is based on Safety data (mandatory and voluntary) collected by state and operators, ICAO USOAP Audit Reports, and Accident Investigation Reports conducted by MoCTCA. It also depicts Airline Operators' SMS implementation Status, Nepal's status in latest USOAP Audit as well as in the field of SSP implementation.

I hope this report will successfully serve the purpose of its publication and play an important part in inculcating safety culture in the aviation stakeholders of Nepal.

Er. Pradeep Adhikari Director General

Published By:

© 2022, Civil Aviation Authority of Nepal November 2022. **Civil Aviation Authority of Nepal** Babarmahal, Kathmandu, Nepal

Tel.: +977-1-4262387, 4262326 Website: <u>www.caanepal.gov.np</u>

Note:

This report contains safety data of Nepali - registered Aeroplanes & Helicopters only. Any comments and suggestions regarding the report should be directed to: Safety Management Division Civil Aviation Authority of Nepal Phone: +977 014251284, 01-4262326 Ext. 110. Email: nast@caanepal.gov.np

Photo Credit : ktm_spotter Babu r. Soti (Desh Nepal) Madhu Sudan Thapa



Table of Contents

Executive Summary	4
Abbreviations and Acronyms	6
Aircraft Operations in Nepal	8
Air Traffic Movement in Nepal (2012 to 2021)	9
Accident Statistics and Analysis (2012 to 2021)	10
State Significant Safety Risks for 2022	15
Safety Reporting in 2021	20
Status of Safety Management System Implementation in 2021	32
State Safety Performance Indicators (SPIs) and Safety Performance Target (SPTs) for 2022	35
State Safety Oversight Information	38
Operational Safety Risks In Nepal	41
Accident Investigation Recommendation Implementation Status	42
National Aviation Safety Plan (NASP), Nepal (2018 to 2022)	44
Aviation Safety Activities In 2021	47
Appendix-1 : Record of multi-engine Aeroplane Accident in Nepal	49
Appendix-2 : Record of single Engine Aeroplane Accidents in Nepal	50
Appendix-3 : Record of helicopter accidents in Nepal	51
Appendix 4 : Record of foreign - registered aircraft accidents in Nepal	52

Executive Summary

Nepal has a diverse geographical and meteorological conditions since the geography ranges from Mountain region (3000m and above), to Hilly region (below3000 meters and above1000 meters) and Terai region (below1000 meters up to 60 meters above mean sea level). This composite distribution demands operation of different types of aircraft to connect all parts of nation.

With the limitations regarding types of aircraft to be operated in most of the STOL airfields subjected to manoeuvring restrictions, the operations in different regions of Nepal pose different levels of complexity. Moreover, helicopter operations are almost inevitable and hence frequent in remote sector owing to the demand of rescue and relief flights. These specific conditions prevalent in Nepal have resulted in quite a heterogeneous fleet operating in the airspace of Nepal.

In 2021, International and Domestic traffic movement has came back to track slowly after Covid pandemic in 2020. The movements have increased in 2021 after significant decrease in 2020.

The trend of accident (per 1,000 flying hours) and fatality related to aeroplane have registered a continuous steep drop. However, the fatality related to helicopter accidents has undergone a rise in trend during 2012-2021. During the past ten years, there has been a continuous increase in helicopter movement. The abundance of remote topography in the country demands helicopter operations for logistic, rescue and relief purposes in mountainous terrain. Similarly, growth in tourism has also led to the increase in helicopter operations. Since such operation carries a higher risk factor considering the geography and weather, the accidents related to helicopter operations still remains a challenge in the field of Nepali aviation.

With regards to the category of aircraft, in the fixed wing sector, the higher number of fatal accidents and also that of fatality have been registered to the multiengine aircraft with 19 seats or less capacity. Such aircrafts have witnessed 12 accidents with 80 fatalities in the past ten years. The second in the list is helicopter operations with 12 accidents and 27 fatalities.

During the last ten years, aircraft operating in STOL sector have suffered comparatively more number of accidents than the aircraft operating in trunk sector. Out of 17 accidents that occurred during the period, 14 occurred in the STOL sector aircraft rendering the STOL operation comparatively riskier.

Analyzing the causes of accident with fixed wing aircraft, in the past ten years, top three high risk categories of accident were CFIT, LOCI and RE on the basis of a combination of factors such as number of accidents and fatalities witnessed by such category of aircraft. CFIT remained the top risk category with highest number of fatality (ie, 71% of fatality from 31% of accidents).

Occurrence Reporting is one of the sources of reactive safety information. 453 occurrences were reported in 2021 against 213 in 2020. Studying the type of occurrences based on their severity, no accident has occurred in the year 2021. 6 serious incidents and 447 incidents, were registered in 2021. Considering the data derived from occurrence reporting in 2021, based on the number and severity of the occurrences, the significant five areas posing risk to Nepali civil aviation sector for the year 2022 are Wildlife related (WILD), Mid Air Collision (MAC), System Component Failiure- Powerplant (SCF-PP), Abnormal Runway Contact (ARC) and Bird related (BIRD). Similarly, top five risky phases of flight are:



Enroute, Landing, Take - off and Standing.

Similarly, there has been a progressive development regarding the proactive source of information especially in the area of voluntary information reporting. The approaches such as introduction of SMS audits, vigorous safety promotion and collaboration with stakeholders in SMS matters have played a significant role in spreading awareness in a deeper way. As a result, 986 hazards have been reported in the year 2021 against 625 in 2020.

Nepal Aviation Safety Plan (NASP), 2018-2022 developed in congruence with the Global Aviation Safety Plan, and Regional Aviation Safety Plan (RASP), has identified seven areas of operational safety risk, viz. Controlled Flight into Terrain (CFIT), Loss of Control in Flight (LOC-I), Mid Air Collision (MAC), Runway Incursion (RI), Runway Excursion (RE) and Wild life Strike (WS) and Abnormal Runway Contact (ARC). CAAN is continuously monitoring the implementation of NASP's SEIs and associated actions to make sure that the actions are done within the deadlines.

CAAN is conducting maturity level (Present, Suitable, Operating and Effective) - based SMS audits of airline Operators since 2018/2019. Based on analysis of audit reports, SMS implementation status of all operators has improved consistently despite having Covid pandemic in 2019 and 2020.

The Effective Implementation of Nepal in the last USOAP audit (April 2022) is 70.10 which is above the Global benchmark of 60%, Global average EI and APAC average EI. Nepal has made a significant progress in its oversight capability since the initial audit in 2009.

Nepal has started to implement State Safety Programme for effective state safety management. Now, Nepal has completed 92.9% of Level 3 of SSP implementation (SSP implementation as depicted by ICAO iSTARs State Safety briefing App.).

During 2021, CAAN has performed various activities for the enhancement of safety and inculcation of safety culture among all. Various promotional activities were carried out by CAAN and some in collaboration with aviation stakeholders.





Abbreviations and Acronyms

AGA	- Aerodrome and Ground Aids
AIG	- Aircraft Accident and Incident Investigation
AIR	- Airworthiness
Airprox	- Aircraft Proximity
ANS	- Air Navigation Services
APAC	- Asia Pacific
APRAST	- Asia Pacific Regional Aviation Safety Team
ATM	- Air Traffic Management
ATS	- Air Traffic Services
CAAN	- Civil Aviation Authority of Nepal
CAP	- Corrective Action Plan
CAST	- Commercial Aviation Safety Team
CE	- Critical Element
CFIT	- Controlled Flight into Terrain
CICTT	- CAST/ICAO Common Taxonomy Team
DHM	- Department of - Hydrology and Meteorology
EI	- Effective Implementation
FH	- Flying Hours
GASP	- Global Aviation Safety Plan
HRC	- High Risk Category
ICAO	- International Civil Aviation Organization
ICVM	- ICAO Coordinated Validation Mission
LEG	- Legislation
LOC-I	- Loss of Control- In Flight
MAC	- Mid Air Collision
MoCTCA	- Ministry of Culture, Tourism and Civil Aviation
MOR	- Mandatory Occurrence Reporting



MTOW	- Maximum Take-Off Weight
NASP	- Nepal Aviation Safety Plan
NAV	- Navigation
OPS	- Operations
ORG	- Organization
PEL	- Personnel Licensing
PQs	- Protocol Questions
RASG	- Regional Aviation Safety Group
RASP	- Regional Aviation Safety Plan
RE	- Runway Excursion
RI	- Runway Incursion
RS	- Runway Safety
SARPs	- Standards and Recommended Practices
Sch.	- Scheduled
SEI	- Safety Enhancement Initiative
SMS	- Safety Management System
SMSIGM	- Safety Management System Implementation Guidance Material
SRPWG	- Safety Reporting Programme Working Group
SSP	- State Safety Programme
STOL	- Short Take-off and Landing
TIA	- Tribhuvan International Airport
USOAP	- Universal Safety oversight Audit Programme
WS	- Wildlife Strike



Aircraft Operations in Nepal

Air Transport Management in Nepal largely depends upon its geography and meteorological conditions. With the limitations regarding types of aircraft to be operated in most of the STOL airfields subjected to manoeuvring restrictions especially due to the high terrain, the operations in different regions of Nepal pose different levels of complexity.

As of date of publication of this report, total 21 airline operators are into operation with 9 of them operating fixed wing aircrafts, 12 operating rotor wing aircraft and 1 operating a mixed fleet of fixed wing and rotor wing aircrafts. Helicopter operators in Nepal are involved in chartered as well as rescue and relief flights. Of the 9 fixed wing operators, 1 is an exclusive international scheduled operator, 3 are into both domestic and international scheduled operations, and the remaining are involved in scheduled domestic operators. One operator owning both helicopters and fixed wing aircrafts has been operating international chartered flights together with domestic chartered, rescue and relief flights with its helicopters and scheduled domestic flights with the fixed winged aircraft.

Aircraft Operations in Nepal

International (5)

- * Nepal Airlines Corp.
- * Himalaya Airline
- * Buddha Air
- * Shree Airlines (Chartered only)
- * Yeti Airlines

Domestic (9)

- * Nepal Airlines Corp.
- * Buddha Air
- * Guna Airlines
- * Saurya Airlines
- * Shree Airlines
- * Sita Air
- <u>* Summit Air</u>
- * Tara Air
- * Yeti Airlines

Helicopter (12)

- * Air Dynasty Heli.
- * Altitude Air
- * Fishtail Air
- * Heli Everest Services
- * Kailash Helicopters
- * Manang Air
- * Mountain Helicopters
- * Prabhu Helicopters
- * Shree Airlines
- * Simrik Air
- * Mustang Helicopters
- * Annapurna Helicopters



Air Traffic Movement in Nepal (2012 to 2021)

International

One of the major causes of the significant low traffic movement in 2020 and 2021 in comparison with other previous periods is the travel restriction within and outside of nation including lockdown due to COVID pandemic.



International Movement

Domestic

Domestic traffic movement in 2020 was relatively lower than other periods because of the travel restriction including lockdown of COVID pandemic. In 2021, when the restrictions were slowly relieved, traffic movement started to increase.



Accident Statistics and Analysis (2012 to 2021)



Total accidents and fatal accident : all type of Operations









Accident and Fatality : by phase of flight

Top five STOLport/Altiport total accident and no. of fatality







Accident and Fatality : Aeroplane Operations

Sector Flying Aeroplane : Total Accident and Fatal Accident



Currently the trunk sector flying aircraft are: ATR72-212A, ATR42-320, Beechcraft 1900 series, CRJ200/700, Jetstream 4100, DHC8-402

STOL section flying aircraft are: DHC6-300 and 400, DO228-202K, LET410



Total Accident and Fatality : Multi Engine Aeroplane ≤ 19 seats

No. of Accident and Fatality : Single-Engine Aircraft









State Significant Safety Risks for 2022

Considering the occurrences reported in 2021, State has identified top five Significant risks (not in specific order), top five risky months (not in specific order) and top five risky phase of flight (not in specific order) in Nepal.

The occurrence categories are in line with the occurrence category defined in CAST/ICAO Common Taxonomy Team document, 2021.





WILD= Animal

MAC = Airprox/TCAS Alert/Loss of Separation/Near Midair Collisions/Midair Collisions

SCF-PP= System Component Failure or malfunction (Powerplant)

ARC= Abnormal Runway Contact

BIRD = Bird



Risk Identified on the basis of hazard reports (Proactive approach)



Considering the hazards reports received in 2021, state proactively has identified top fifteen Significant risks (not in specific order) in Nepal as the state future safety risks. These risks have been identified by considering the possible occurrence categories leading by the hazards.



Trend analysis of rate of occurrence of Top 5 State Significant Safety Risks of last 4 - years (2018, 2019, 2020, 2021)



Rate of MAC Occ. per 1000 FHs in last 4 years



CANÍ



Rate of ARC Occ. per 1000 FHs in last 4 years

Rate of SCF-PP Occ. per 1000 FHs in last 4 years 0.70 0.60 0.60 0.50 0.46 0.40 0.30 0.20 0.15 0.10 0.00 2018 2019 2020 2021





The Trend of last four years (2018, 2019, 2020 and 2021) State top five significant safety risks with 3period moving average trend lines indicate that Animal, Abnormal Runway Contact and Bird related occurrences are increasing whereas other categories occurrences are decreasing during the period.



Rate of BIRD Occ. per 1000 FHs in last 4 years

Safety Reporting in 2021

Occurrence Reporting in 2021

Total number of occurrences reported in 2021 were 453 against the 213 in 2020. 95 Occurrences has fallen under the category "Others" which Includes the Occurrences those could not be related to a particular category as defined in the CAST/ICAO Common Taxonomy Team (CICTT) Taxonomy.



CAANÍ

The Taxonomy adopted for the purpose of deriving information related to mandatory and voluntary occurrences is the one prepared by CICTT. The CICTT includes experts from several air carriers, aircraft manufacturers, engine manufacturers, pilot associations, regulatory authorities, transportation safety boards, ICAO, and members from Canada, the European Union, France, Italy, Japan, the Netherlands, the United Kingdom, and the United States. The taxonomy for occurrences has been given below:

Abnormal Runway Contact (ARC)	Loss of Control-In Flight (LOC-I)
Abrupt Maneouver (AMAN)	Medical (MED)
Aerodrome (ADRM)	Navigation (NAV)
Airpox, Mid Air Collision (MAC)	Other (OTHR)
ATM/CNS(ATM)	Rejected Takeoff (RTO)
Bird Strike (BIRD)	Runway excursion (RE)
Cabin Safety Events(CABIN)	Runway incursion (RI)
Collision with obstacle(s) during take off and landing (CTOL)	Security related (SEC)
Controlled flight into terrain(CFIT)	System/Component Failure or Malfunction (SCF-NP)
Evacuation (EVAC)	System/Component Failure or Malfunction (SCF-PP)
External Load Related (EXTL)	Turbulence encounter(TURB)
Fire/Smoke (FIRE)	Undershoot/overshoot (USOS)
Fuel Related (FUEL)	Unintended flight in IMC (UIMC)
Ground Collision (GCOL)	Unknown or undetermined (UNK)
Ground Handling (Ramp)	Wildlife (WILD)
Icing (ICE)	Windshear or Thunderstorm (WSTRW)
Loss of Control-Ground (LOC-G)	

ICAO/CAST Taxonomy for Occurrences







Type of occurrences

- 1. Accident
- 2. Serious incident
- 3. Incident



Type of Occurrence-Monthwise





Type of Occurrences- Total





Wildlife Occurrence in Nepal

Of all the operational significant risks as identified by Nepal in the Nepal Aviation Safety Plan (NASP), 2018-2022, wildlife is a peculiar one in the sense that it is more of Nepal specific risk category. GASP and RASP have still not recognized wildlife strike as one of the operational safety risks of the world or the Asia Pacific Region.



The study related to wildlife (animal and bird) occurrences have been presented in the following charts:



Bird Occurrence - Monthwise





CANI



Bird Occurrence - per Aerodrome

Bird Occurrence - per Time Period







Bird Occurrence - per type

Bird Occurrence - per Consequence





Animal



Animal Occurrences - per Month



27





Animal Occurrences - per Aerodrome

Animal Occurrences - per Time Period







Animal Occurrences - per type of Animal





Voluntary Information Reporting

Hazards Reported in 2021

Out of total 986 hazards reported in the year 2021, highest number of reports were related to the organization factors (43%) whereas the lowest number were associated to the Human factors.



Category of Hazard (Taxonomy-wise)

Type of Hazard (Priority-wise)





Out of total 986 hazards reported in the year 2021, 7% were of high priority level having the probability of an accident, 29% were of medium priority level having the probability of a serious incident if escalated to the consequence level and 64% were of low priority level having the probability of an incident or event if escalated to the consequence level.



Rate of Hazard Reporting (per 1000 FHs)



Status of Safety Management System Implementation in 2021

SMS performance of the operators in last three years (2019, 2020 and 2021) was analysed basically on their SMS audit reports. The reports were prepared such that along with non - compliance (not documented), the compliance in each activity was further categorized to fall in one of the four levels namely present (establishment in documents only), suitable (suitable based on the size, nature and complexity of the organization), operating (output is being generated) and effective (desired outcome is being generated).

Level of SMS Implementation by Aeroplane operators



Level of SMS implementation by aeroplane operators in 2018/2019, 2020 and 2021





SMS Implementation- Component wise

Last Three Years (2018/2019, 2020, 2021)- Average Implemenation %







Level of SMS implementation by Helicopter Operators

Present: There is evidence that the 'marker' is clearly visible and is documented within the organisation's SMS or MS Documentation.

Suitable: The marker is suitable based on the size, nature, complexity and the inherent risk in the activity

Operating: There is evidence that the marker is in use and an output is being produced

Effective: There is evidence that the marker is effectively achieving the desired outcome and has a positive safety impact



State Safety Performance Indicators (SPIs) and Safety Performance Target (SPTs) for 2022

A. Lagging Indicators

1. Bird Strikes and Bird activities resulting occurrences (BIRD).

SPI: Number of incidents related to BIRD per 1000 FHs. SPT for 2022: Reduce the number of occurrences related to BIRD by 10% over the value to 2021.

2. Wildlife (WILD)

SPI: Number of occurrences related to WILD per 1000 FHs. SPT for 2022: Reduce the number of occurrences related to WILD by 10% over the value to 2021.

System/Component failure or malfunction (Non- Powerplant) (SCF-NP)
SPI: Number of incidents related to SCF-NP per 1000 FHs.
SPT for 2022: Reduce the number of occurrences related to SCF-NP by 8% over the value to 2021.

4. Abnormal Runway Contact (ARC)

SPI: Number of occurrences related to ARC per 1000 FHs. SPT for 2022: Reduce the number of occurrences related to ARC by 8% over the value to 2021.

- 5. System/Component Failure or Malfunction (Power Plant) (SCF-PP) SPI: Number of incidents related to SCF-PP per 1000 FHs. SPT for 2022: Reduce the number of occurrences related to SCF-PP by 8% over the value to 2021.
- 6. Ground Handling (RAMP)

SPI: Number of incidents related to RAMP per 1000 FHs.SPT for 2022: Reduce the number of occurrences related to RAMP by 10% over the value to 2021.

AIRPROX/TCAS alert/Loss of Separation/Near Midair Collision/ Midair Collision (MAC)
SPI: Number of incidetns related to MAC per 1000 FHs.
SPT for 2022: Reduce the number of occurrences related to MAC by 12% over the value to 2021.

8. Fuel Related (FUEL)

SPI: Number of occurrences related to FUEL per 1000 FHs. SPT for 2022: Reduce the number of occurrences related to FUEL by 12% over the value to 2021.

9. Security Related (SEC)

SPI: Number of occurrences related to SEC per 1000 FHs.SPT for 2022: Reduce the number of occurrences related to SEC by 10% over the value to 2021.



10. Medical (MED)

SPI: Number of incidents related to MED per 1000 FHs. SPT for 2022: Reduce the number of occurrences related to MED by 10% over the value to 2021.

11. Windshear or Thunderstorm (WSTRW)

SPI: Number of incidents related to WSTRW per 1000 FHs.SPT for 2022: Reduce the number of occurrences related to WSTRAW by 10% over the value to 2021.

12. Cabin safety (CABIN)

SPI: Number of incidents related to CABIN per 1000 FHs. SPT for 2022: Reduce the number of occurrences related to CABIN by 10% over the value to 2021.

13. Aerodrome (ADRM)

SPI: Number of incidents related to ADRM per 1000 FHs.SPT for 2022: Reduce the number of occurrences related to ADRM by 10% over the value to 2021.

14. Abrupt Manuvour (AMAN)

SPI: Number of occurrences related to AMAN per 1000 FHs. SPT for 2022: Reduce the number of occurrences related to AMAN by 10% over the value to 2021.

15. Turbulance (TURB)

SPI: Number of incidents related to TURB per 1000 FHs.

SPT for 2022: Reduce the number of occurrences related to TURB by 10% over the value to 2021.

16. ATM/CNS (ATM)

SPI: Number of occurrences related to ATM per 1000 FHs. SPT for 2022: Reduce the number of occurrences related to ATM by 25% over the value to 2021.

17. Runway Incursion (RI)

SPI: Number of occurrences related to RI per 1000 FHs. SPT for 2022: Reduce the number of occurrences related to RI by 10% over the value to 2021.

18. Runway Excursion (RE)

SPI: Number of occurrences related to RI per 1000 FHs.

SPT for 2022: Reduce the number of occurrences related to RI by 10% over the value to 2021.

19. Fire/Smoke (F-NI)

SPI: Number of occurrences related to Fire/Smoke per 1000 FHs. SPT for 2022: Reduce the number of occurrences related to F-NI by 10% over the value to 2021.

20. Navigation (NAV)

SPI: Number of incidents related to NAV per 1000 FHs.SPT for 2022: Reduce the number of occurrences related to NAV by 10% over the value to 2021.

21. Undershoot/Overshoot (USOS)

SPI: Number of occurrences related to USOS per 1000 FHs. SPT for 2022: Reduce the number of occurrences related to USOS by 10% over the value to 2021.

22. Controlled Flight Into Terrain (CFIT)

SPI: Number of occurrences related to NAV per 1000 FHs. SPT for 2022: Reduce the number of occurrences related to CFIT by 10% over the value to 2021.

23. Loss of Control-In Flight (LOC-I)

SPI: Number of occurrences related to LOC-I per 1000 FHs. SPT for 2022: Reduce the number of occurrences related to LOC-I by 10% over the value to 2021.

24. Ground Collision (GCOL)

SPI: Number of occurrences related to GCOLper 1000 FHs. SPT for 2022: Reduce the number of occurrences related to GCOL by 10% over the value to 2021.

25. Collision with Obstacle during take off and landing (CTOL)

SPI: Number of occurrences related to CTOL per 1000 FHs. SPT for 2022: Reduce the number of occurrences related to CTOL by 10% over the value to 2021.

B. Leading Indicators

1. Number of hazards

SPI: Number of Hazards from multiple sources including surveillance activities. SPT for 2022: Increase the hazards reporting over the value of 2021.

2. Safety awareness workshops and seminars

SPI: Number of safety awareness workshops and seminars.SPT for 2022: Increase the number of safety workshops and seminars over the value of 2021.

3. Safety Trainings (SMS and SSP related)

SPI: Number of safety trainings.SPT for 2022: Increase the number of safety trainings over the value of 2021.

4. Number of Safety Committee Meetings

SPI: Number of safety trainings. SPT for 2022: increase the number of safety committee meeting over the value of 2021.

5. Number of audit/inspection

SPI: Number of audit/inspections .SPT for 2022: Increase the number of regular and randam audits and inspections over the value of 2021.



State Safety Oversight Information

Nepal's State Safety Oversight Capability

The latest ICAO USOAP audit of Nepal was conducted from 13 to 25 April 2022. In this audit State Safety Oversight Capability including 8 Areas and 8 Critical Elements were audited. In this audit Nepal has achieved the Effective Implementation Rate of 70.10% which is above the ICAO Target (60%), Global average rate and Asia Pacific average rate. Nepal has made a significant progress in its oversight capability since the initial audit (in 2009) score of 46.97%.



Overall El Percentage



Nepal's EI percentage in comparison with regional and global average

(Global and APAC regional average source: ICAO USOAP State Profile- Nepal, date: 2 November 2022)



El percentage according to the Critical Elements

El percentage according to the Audit Areas



Aviation Safety Report - 2022 **39**

SSP implementation in Nepal



Nepal's SSP implementation Level 3 (92.9%) is well above the target of State agreed with ICAO which is level 2.

Definitions:

- Level 0: States not having started a GAP analysis
- Level 1: States having started a GAP analysis
- Level 2: States having reviewed all the GAP analysis questions
- Level 3: States having defined an action plan for all non -implemented questions
- Level 4: States having closed all actions and fully implemented their SSPs



CAAN

AANI

Operational Safety Risks in Nepal



Nepal Aviation Safety Plan (NASP), 2018-2022 has been developed in congruence with the Global Aviation Safety Plan (GASP), Doc. 10004 and Regional Aviation Safety Plan (RASP). NASP (2018-2022) has identified six areas of operational safety risk (not in specific order), viz. Controlled Flight into Terrain (CFIT), Loss of Control in Flight (LOC-I), Mid Air Collision (MAC), Runway Incursion (RI), Runway Excursion (RE) and Wild life Strike (WS).



Accident Investigation Recommendation Implementation Status





Status of Implementation of Recommendations directed to CAAN, MOCTCA, DHM, NOC and operators.

Directed to CAAN	
Total Recommendations:	85
Complied:	70
Partially complied:	5
Not Complied:	5
Not Applicable	5



Directed to MoCTCA, DHM and NOC

Total Recommendations:	19
Complied:	5
Partially complied:	5
Not Complied:	9



Directed to Operators

Total recommendations:	69
Complied:	58
Partially complied:	1
Not Complied:	1
Not applicable:	9





National Aviation Safety Plan (NASP), Nepal (2018 to 2022)





Goals of NASP

AANÍ



NASP's Goals with Targets



GAANÍ

Aviation Safety Activities In 2021

Following safety activities were conducted by CAA Nepal in 2021

ANS Safety Standards Department

- 1. Safety Awareness Program and brief information about Reporting Culture conducted at Dolpa airport in March 2021.
- 2. Workshop on RNAV/GNSS Based separation workshop conducted at Janakpur airport in June 2021.
- 3. ANS Safety Awareness programme and brief information about reporting culture conducted at Tenzing Hillary Airport, Lukla in October 2021.

Aerodrome Safety Standards Department

- 1. Interaction programme of Implementation of ICAO Global Reporting Format (GRF) was conducted at TIA on October 2021.
- 2. Workshop on Wildlife Hazard Management was conducted at Nepalgunj airport in November 2021.
- 3. Workshop on Safety Oversight and Aerodrome Certification was conducted at Nepalgunj airport on November 2021.
- 4. Interaction programme on Aerodrome Certification was conducted at Biratnagar Airport on December 2021.

Flight Safety Standards Department

- 1. Aviation Enforcement Policy and Procedure Manual based on ICAO USOAP CMA Principles-28-29 Oct 2021.
- 2. ICAO Safety principles based CAAN Safety Promotion- Nov 2021- GBIA Bhairahawa.
- 3. Workshop/Seminar on "ICAO-USOAP CMA Principles" July 2021.
- 4. Workshop/Seminar on Safety issues in Dhangadhi airport- 17 Oct 2021.
- 5. Workshop/Seminar on "ICAO Safety principles based CAAN Safety Promotion" Nepalgunj 5 October 2021.
- Workshop/Seminar on "Operational and airworthiness safety workshop based on ICAO principles"-19 Dec 2021.
- 7. Workshop/Seminar on "Manual of Operating Standards"- 13-14 Sept 2021.
- 8. Workshop/Seminar on "Recreational Aviation Operational Safety in Nepal applying ICAO SMS Principles" 23-25 October 2021- Pokhara .
- 9. Workshop/Seminar on "Recreational and Paragliding Safety Awareness (ICAO SMS principles) in Nepal" 17 September 2021- Pokhara.
- 10. Wildlife Hazard Awareness Program 25-26 Nov 2021 Nepalgunj .
- 11. Workshop/Seminar on "Regulatory Staff Training Policy based on ICAO USOAP CMA Principles" 21-2 Oct 2022.
- 12. Workshop/Seminar on "ICAO USOAP CMA PQ on CE-4" 5 Aug 2021.
- 13. Workshop/Seminar on "ICAO CART principles based CAAN Guidance for restart in COVID-19 pandemic 27 June 2021.



- 14. Workshop/Seminar on "ICAO/CAAN Standard on FDAP and guidance materials" 11-13 June 2021.
- 15. Workshop/Seminar on "ICAO safety oversight principles-Helicopters" 6 July 2021.
- 16. Workshop/seminar on "ICAO Aviation Medicine awareness among pilots and aviation personnel" June 2021.
- 17. Workshop/Seminar on "ICAO GASP based Nepal NASP" 4-6 June 2021.
- 18. Workshop/Seminar on "ICAO Based Safety Principles Workshop- for STOL air operators" 2 August 2021.
- 19. Workshop/seminar on "ICAO Personnel Licensing principles and Nepal's perspective " 13-17 June 2021.
- 20. Workshop/Seminar on "ICAO SMS principles for restart in COVID-19 pandemic" 28 June 2021.
- 21. Workshop/Seminar on "ICAO-CAAN principles of safety oversight" 28 May 2021.
- 22. Workshop/Seminar on "ICAO Targeted Exemption (TE)" 31 May 2021.

Safety Management Division

- 1. Two Interaction programmes on Integration of FDAP data with SMS was conducted in June 2021.
- 2. Interaction programme on Application of Safety Management Principles for Management of Risk Induced by Covid 19 and Resumption of Normal Operations was conducted in June 2021.
- 3. Interaction programme on Fire Safety During Refueling of Aircraft was conducted in April 2021.
- 4. Discussion on ICAO Survey about Safety Management, Implementation Challenges was conducted in December 2021.





Appendix-1

Record of multi-engine Aeroplane Accident in Nepal

S.N.	Date	Registration	Type of A/C	Operator/Owner	Operation	Place	Fatality
1	5 Nov 1960	9N-AAD	DC-3	Nepal Airlines	Scheduled	Bhairahwa	4
2	1 Aug 1962	9N-AAH	DC-3	Nepal Airlines	Scheduled	Tulachan Dhuri	10
3	12 July 1969	9N-AAO	DV-3	Nepal Airlines	Scheduled	Near Heatauda	35
4	25 Jan 1970	9N-AAR	F-27	Nepal Airlines	Scheduled	New Delhi	1
5	15 Oct 1973	9N-ABG	DHC – 6	Nepal Airlines	Scheduled	Lukla	None
6	22 Dec 1984	9N-ABH	DHC-6	Nepal Airlines	Scheduled	Cheklatidanda	15
7	02 May 1986	9N-ABI	DHC-6	Nepal Airlines	Scheduled	Sanfebagarirport	None
8	19 Aug 1987	9N-ABB	DHC-6	Nepal Airlines	Scheduled	Dolpa	None
9	9 Jun 1991	9N-ABA	DHC-6	Nepal Airlines	Scheduled	Lukla	None
10	28 Jun 1991	9N-ABS	DHC-6	ATSC, DCA	Charter	Simikot	None
11	26 Sep 1992	9N-ACI	Y-12	Nepal Airways	Scheduled	Lukla	None
12	08 Nov 1993	9N-ACS	Y-12 II	Nepal Airways	Scheduled	Jomsom	None
13	31 Jul 1993	9N-ACL	DO-228	Everest Air	Scheduled	Solighopte	18
14	14 Jan 1995	9N-ABI	DHC-6	Nepal Airlines	Scheduled	Kathmandu Airport	2
15	15 Jul 1995	9N-ADB	Y-12	Nepal Airways	Scheduled	Bharatpur	None
16	25 Apr 1996	9N-ABR	HS-748	Nepal Airlines	Scheduled	Meghauli	None
17	28 Jul 1996	9N-ACC	DHC6/300	ATSC, DCA	Charter	Simikot	None
18	23 Dec 1996	9N-ACF	Y-12	Nepal Airways	Scheduled	Dolpa	None
19	21 Aug 1998	9N-ACC	DHC-6	Sangrila Air	Scheduled	ChuchcheKhark, Myagdi	18
20	05 Sept1999	9N-AEG	HS-748	Necon Air	Scheduled	Thankot, Kathmandu	15
21	25 Dec 1999	9N-AFL	DHC-6	Skyline Airways	Scheduled	Burjo Lake, Makwanpur	10
22	26 Feb 2000	9N-ABO	DHC-6	Nepal Airlines	Scheduled	Bajhang	1
23	27 Jul 2000	9N-ABP	DHC-6	Nepal Airlines	Scheduled	Jogbuda, Dadeldhura	25
24	03 Nov 2000	9N-ACV	DO-228	Gorkha Airlines	Scheduled	Lukla	None
25	19 Nov 2000	9N-AFS	DO-228	Cosmic Air	Scheduled	Tumlingtar	None
26	05 Apr 2001	9N-AEV	DHC-6/300	YetiAirlines	Scheduled	Tumlingtar	None
27	17 Jul 2002	9N-AGF	DHC6/300	Skyline Airlines	Scheduled	Gadgade Danda, Surkhet	4
28	22 Aug 2002	9N-AFR	DHC6/300	Shangrila Air	Scheduled	Pokhara	18
29	21 Apr2004	9N-AEK	B1900D	Buddha Air	Scheduled	TIA	1
30	25 May2004	9N-AFD	DHC-6/300	Yeti Airlines	Scheduled	Lamjura, Solukhumbu	3
31	30 June 2005	9N-AEO	DO-228	Gorkha Airlines	Scheduled	Lukla Airport	None
32	12 June 2006	9N-AEQ	DHC6/310	Yeti Airlines	Scheduled	Jumla Airport	9
33	03 July2006	9N-AFE	DHC-6/310	Yeti Airlines	Scheduled	Bajura Airport	None
34	08 Oct2008	9N-AFE	DHC-6/300	Yeti Airlines	Scheduled	Lukla Airport	18
35	24 Aug2010	9N-AHE	DO-228	Agni Air	Scheduled	Sikharpur, Makawanpur	14

36	15 Dec 2010	9N-AFX	DHC-6/300	Tara Air	Scheduled	Okhaldhunga	22
	10 0 00 10 10	5117474	2110 0,000		Scheduled	China and Iga,	
37	25 Sept 2011	9N-AEK	Beech1900D	Buddha Air	Scheduled	Kotdanda, Lalitapur	19
38	14 May 2012	9N-AIG	DO-228	Agni Air	Scheduled	Jomsom Airport	15
39	21 Sept2012	9N-ABQ	Do-228	Tara Air	Scheduled	Dolpa	None
40	28/Sept. 2012	9N-AHA	DO-228	Sita Air	Scheduled	Manohara, Bhaktapur	19
41	16 May 2013	9N-ABO	DHC-6/300	Nepal Airlines	Scheduled	Jomsom Airport	None
42	01 June 2013	9N-AHB	DO-228	Sita Air	Scheduled	Simikot Airport	None
43	16Feb2014	9N-ABB	DHC-6/300	Nepal Airlines	Scheduled	Masinelek, Arghakhanchi	18
44	24Feb2016	9N-AHH	DHC-6/400	Tara Air	Scheduled	Dana, Myagdi	23
45	27May2017	9N-AKY	Let410	Summit Air	Cargo	Lukla Airport	2
46	28Nov2017	9N-ABM	DHC-6/300	Tara Air	Scheduled	Simikot	None
47	14 April 2019	9N-AMH	LET 410	Summit Air	Scheduled	Lukla Airport	1+2
48	28 March 2020	9N-AKU	Y12 E	Nepal Airlines Corp.	Chartered	Nepalgunj Airport	None
49	May 29, 2022	9N- AET	DHC6	Tara Air	Scheduled	Titi, Ghasa Area, Mustang	22

Appendix-2

Record of single Engine Aeroplane Accidents in Nepal

S.N.	Date	Registra- tion	Type of A/C	Operator/Owner	Operation	Place	Fatality
1	31 Mar 1975	9N-AAZ	PC-6	Nepal Airlines	Charter	Bouddha, Kathmandu	5
2	30 Oct 1981	9N-ABJ	PC-6	Nepal Airlines	Charter	Biratnagar	10
3	20 Nov 1998	9N-ABK	PC-6/B2-H4	Nepal Airlines	Charter	Phakding	1
4	17 Jan 1999	9N-ADA	Cessna-208	Necon Air	Charter	Jumla	5
5	21 Nov 2011	9N-AJM	Cessna-208	Makalu Air	Cargo	Talcha Airport	None
6	26 Feb 2016	9N-AJB	PAC750XL	Air Kashthamandap	Charter	Chilkhaya Kalikot	2
7	08 Apr 2016	9N-AKC	Cessna-208	Makalu Air	Cargo	Near Simikot	None
8	16 May 2018	9N-AJU	Cessna-208	Makalu Air	Cargo	Simikot Pass	2



Appendix-3 Record of helicopter accidents in Nepal

S.N.	Date	Registration	Туре	Operator/Owner	Place	Fatality
1	27 Dec 1979	9N-RAE	Allutte-III	VVIP	Langtang	6
2	27 Apr 1993	9N-ACK	Bell-206	Himalayan Helicopter	Langtang	None
3	24 Jan 1996	9N-ADM	MI-17	Nepal Airways	Sotang	None
4	30 Sep 1997	9N-AEC	AS-350	Karnali Air	ThuptenCholing	1
5	13 Dec 1997	9N-ADT	MI-17	Gorkha Airlines	Kalikot	None
6	04 Jan 1998	9N-RAL	Bell-206	VVIP Flight	Dipayal	
7	24 Oct 1998	9N-ACY	AS-350B	Asian Airlines	MulKhark	3
8	30 Apr 1999	9N-AEJ	AS-350BA	Karnali Air	Lisunkhu, Sindhupalchowk	None
9	31 May 1999	9N-ADI	AS-350B2	Manakamana Airways	Ramechhap	None
10	11 Sep 2001	9N-ADK	MI-17	Air Ananya	Mimi	None
11	12 Nov 2001	9N-AFP	AS-350B	Fishtail Air	Rara Lake, Mugu	4
12	12 May 2002	9N-AGE	AS 350B2	Karnali Air	Makalu Base Camp	None
13	30 Sep 2002	9N-ACU	MI-17	Asian Airlines	Sholumkhumbu*	11
14	(MI8-MTV)	AsianAirlines	Sholumkhumbu*	11	None	2
15	28 may 2003	9N-ADP	MI-17 IV	Simrik Air	Everest Base Camp	2
16	04 Jan 2005	9N-AGG	AS-350BA	Air Dynasty HeliSer- vice	Thhose VDC, Ramechhap	3
17	02 Jun 2005	9N-ADN	MI-17	Shree Airlines	Everest Base Camp.	None
18	07 May 2006	9N-ADT	MI-17 MTV1	HeliHansa Services	Dhawalagiri Base Camp	None
19	08 Aug 2006	9N-AGS	MI-17	Karnali Air	TI Airport, KTM	None
20	03 Sep 2006	9N-ACR	AS-350BA	Air Dynasty HeliSer- vice	Dhawalagiri Base Camp	None
21	23 Sep 2006	9N-AHJ	MI-17	Shree Airlines	Ghunsa, Taplejung	24
22	23 Nov 2006	9N-ADO	MI-17	Simrik Air	Raralihi, Jumla	None
23	29 Jun 2008	9N-AIA	AS-350	Fishtail Air	Annapurna Base Camp	None
24	07 Nov 2010	9N-AIX	AS 350B3	Fishtail Air	Amadablam Mountain	2
25	29 Nov 2011	9N-AIK	AS 350B	Fishtail Air	Solukhumbu	None
26	19 Jun 2013	I-VIEW	AS 350B3	Fishtail Air	Simikot, Muchu	1
27	03 Aug 2014	9N-AJI	AS 350B3	Fishtail Air	Sindhupalchok	1
28	02 Jun 2015	9N-AJP	AS 350B3	Mountain Helicopter	Yamuna Danda, Sindhupalchok	4
29	22 Jun 2015	9N-AKF	AS 350B3e	Simrik Air	Samdo, Gorkha	None
30	17 Mar 2016	9N-AJI	AS 350B3	Fishtail Air	Langtang	None
31	08 Aug 2016	9N-AKA	AS 350B3	Fishtail Air	Betani, Nuwakot	7



32	30 June 2018	9N-ALR	AS 350B2	Simrik Air	Grandy Roof-top Helipad	None
33	14 Aug. 2018	9N-AHV	AS350 B	Manang Air	Hilsa, Humla	1
34	8 Sept. 2018	9N-ALS	AS350 B3	Altitude Air	Dhading	6
35	27 Feb. 2019	9N-AMI	AS350 B3 E	Air Dynasty	Pathivara, Taplejung	7
36	14 April 2019	9N-ALC	AS350	Manang Air	Lukla Airport	None

Appendix 4

Record of foreign - registered aircraft accidents in Nepal

S.N.	Date	Registration	Туре	Operation	Operator/Owner	Place	Fatality
1	30 Aug 1955	VT-AZX	DC-3	Scheduled	Kalinga Air	Simara	2
2	15 May 1956	VT-DBA	DC-3	Scheduled	Indian airlines	Kathmandu	14
3	24 Mar 1958	VT-CYN	DC-3	Scheduled	Indian Airlines	Patnebhnajyang	20
4	10 May 1972	HS-TGU	DC-8-33	Scheduled	Thai Airways International	TIA	0+1
5	31 Jul 1992	HS-TID	A 310	Scheduled	Thai Airways	Gyangphedi	113
6	28 Sep 1992	AP-BCP	A 310	Scheduled	Pakistan International Airlines	Bhattedanda	167
7	07Jul 1999	VT-LCI	B727(200)	Cargo	Lufthansa	Bhasmasur Hill, Kathmandu	5
8	4 Mar 2015	TC-JOC	A330-300	Scheduled	Turkish Airlines	TIA	None
9	12 Mar 2018	S2 - AGU	DHC 8 D	Scheduled	US Bangla	TIA	51
10	20 April 2018	9M-LNJ	B737-900	Scheduled	Malindo Air	TIA	0







Civil Aviation Authority of Nepal Head Office: Babarmahal, Kathmandu, Nepal

Head Office: Babarmahal, Kathmandu, Nepal Tel. : +977-1-4262387, 4262326 Email : dgca@caanepal.gov.np Website: www.caanepal.gov.np Cable : AIRCIVIL AFTN : VNKTYAYX Twitter : hello_CAANepal