Civil Aviation Authority of Nepal

Aviation Safety Report 2023

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Note:

This report contains safety data of Nepali - registered Aeroplanes & Helicopters only.

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

Foreword

The prime objective of the establishment of Civil Aviation Authority of Nepal (CAAN) is to make the operation 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 target 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, 2023 is the seventh 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 the progress on implementation of Nepal Aviation Safety Plan (NASP) 2023-2025. 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

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Executive Summary

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.

The trend of aeroplane accident (per 1,000 flying hours) and fatality has shown slight increment unlike the last year statistics. Whereas, the trend of helicopter accident (per 1000 flying hours) and fatality has recorded the lowering track.

Still the CFIT is the main risk category in Nepal because according to the last 10 years accident statistics CFIT has accounted 93% of total fatality of the period. Similarly, En-route has been the most dangerous phase of flight since 93% of total facility has occurred in this phase of flight. During the last ten years, aircraft operating in STOL sector have suffered more accident because out of 12 aeroplane accidents in the period all have occurred in STOL airfield operating aircraft only out of which 7 are fatal ones. Therefore, the STOL operations in Nepal is comparatively riskier operation.

Occurrence reporting is one of the sources of reactive safety information. 513 occurrences were reported in 2022 against 453 in 2021. Studying the type of occurrences based on their severity, one accident has occurred in the year 2022. 12 serious incidents and 500 incidents, were registered in 2022. Considering the data derived from occurrence reporting in 2022, based on the number and severity of the occurrences, the significant 7 (top 7 risk areas) of Nepal are CFIT, SCF-NP, BIRD, SCF-PP, FIRE/SMOKE (F-NI), FUEL and WSTRW. Out of seven top risks, two are related to system component of aircraft therefore the technical aspects of aircraft is still a factor of high concern in Nepal. Similarly, the top risky phases of flight are En-route, Take Off, Landing and Approach.

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, 1518 hazards have been reported in the year 2022 against 986 in 2021.

First 5 -years safety plan of Nepal was developed in 2018 in congruence with the Global Aviation Safety Plan, and Regional Aviation Safety Plan (RASP). Now, Nepal has recently developed the national safety plan (2023-2025) and is being implemented. The plan 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 assessing the Safety Management System implementation of airline operators evaluating the maturity level (Present, Suitable, Operating and Effective) since 2018/2019. Based on analysis of audit reports, SMS implementation status of all operators has improved consistently.

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.).

CAAN is tracking the implementation status of accident investigation recommendations of Government of Nepal directed to different entities since 2008 and publishing the last 10 years status in the report. The implementation status of last 10 years (2013 to 2022) has been tracked to be 85% - fully compliant, 6%- partially complaint and 9% - non-compliant.

During 2022, 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.

Chapter 1

Aircraft Operations in Nepal

Air Transport System 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 with rug mountains, the operations in different regions of Nepal pose different levels of complexity.

As of date of publication of this report, total 22 airline operators are into operation with 10 of them operating fixed wing aircrafts, 12 operating rotor wing aircraft. Out of 22 operators, 1 is 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 10 fixed wing operators, 1 is an exclusive international operator, 3 are into both domestic and international operations, and the remaining are involved in domestic operations.

Aircraft Operations in Nepal

International (5)

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

Domestic (9)

* Nepal Airlines Corp.
* Buddha Air
* Guna Airlines
* Saurya Airlines
* Shree Airlines
* Sita Air
* Summit Air
* Tara Air
* Yeti Airlines

Helicopter (12)

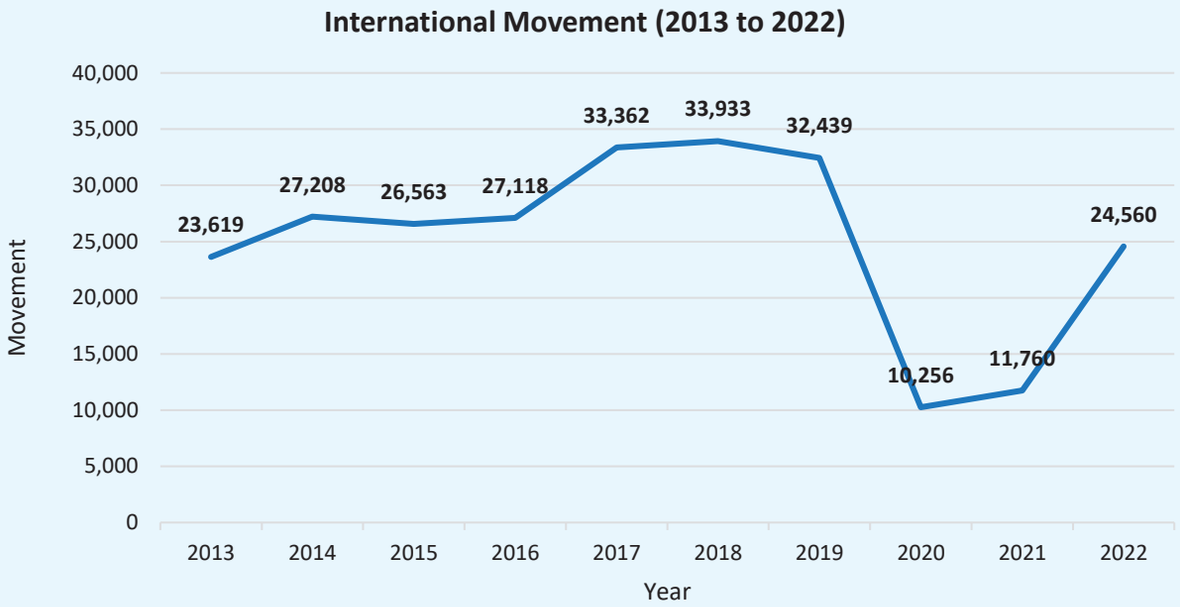
* Air Dynasty Heli.
* Altitude Air
* Fishtail Air
* Heli Everest Services
* Kailash Helicopters
* Manang Air
* Mountain Helicopters
* Prabhu Helicopters
* Shree Airlines
* Simrik Air
* Mustang Helicopters
* Annapurna Helicopters

Chapter-2

Air Traffic Movement in Nepal (2013 to 2022)

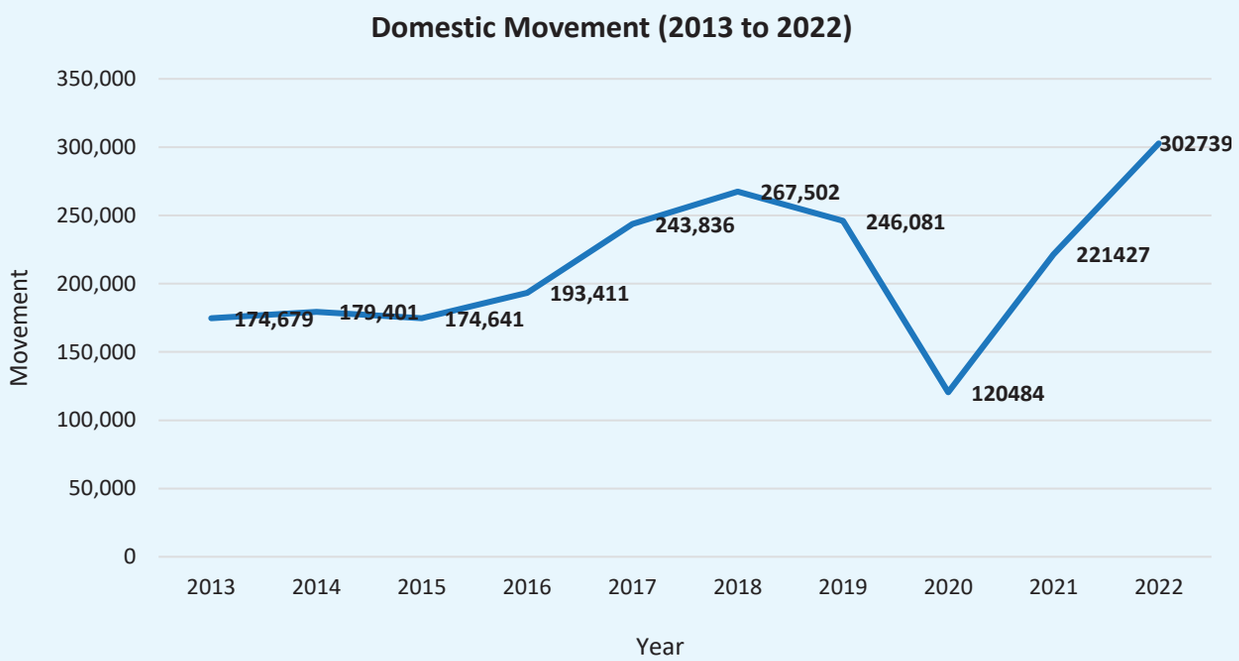
International

There is significant increase in international flight movement in 2022 in comparison to previous year, 2021.



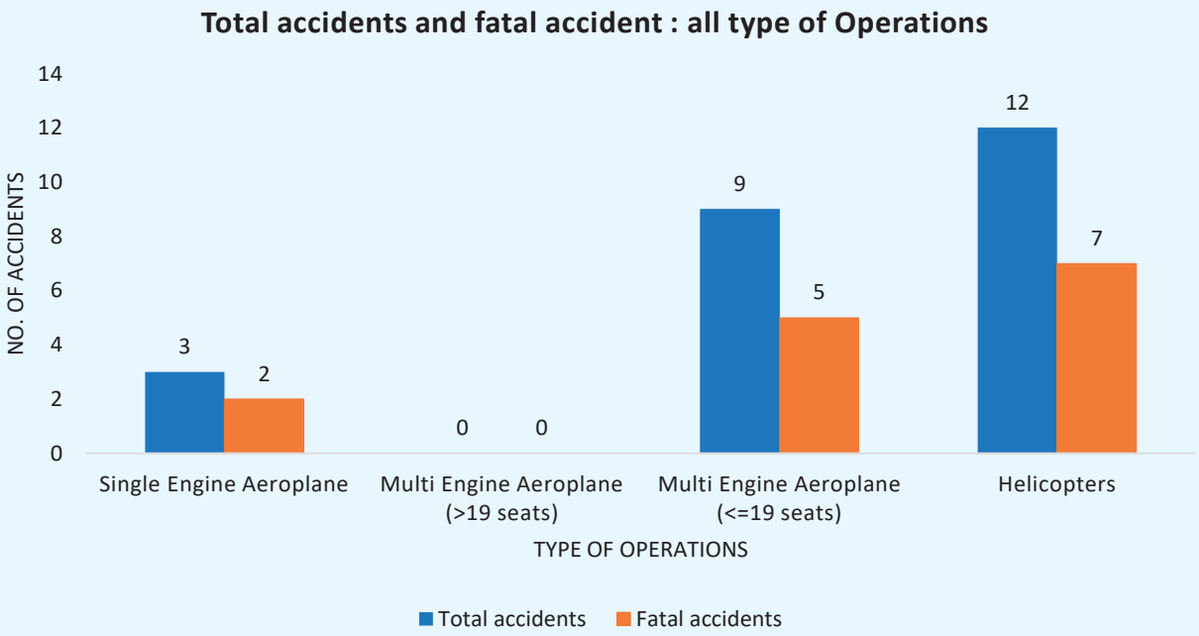
Domestic

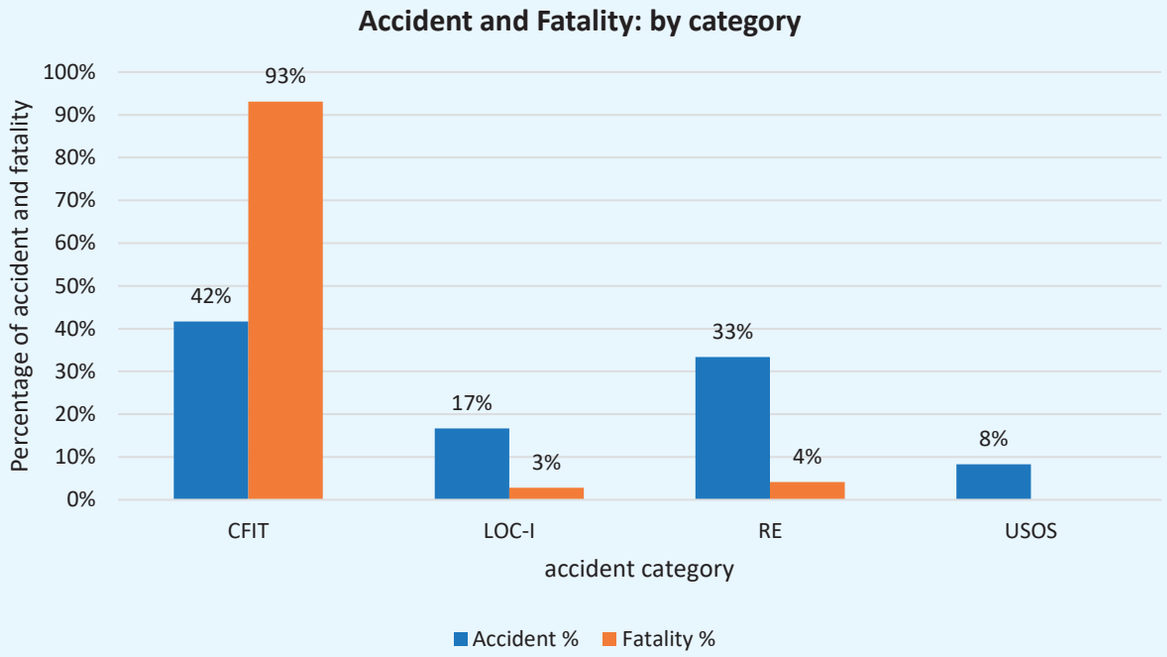
In 2022, the domestic flight movement has significantly increased in comparison to previous years.

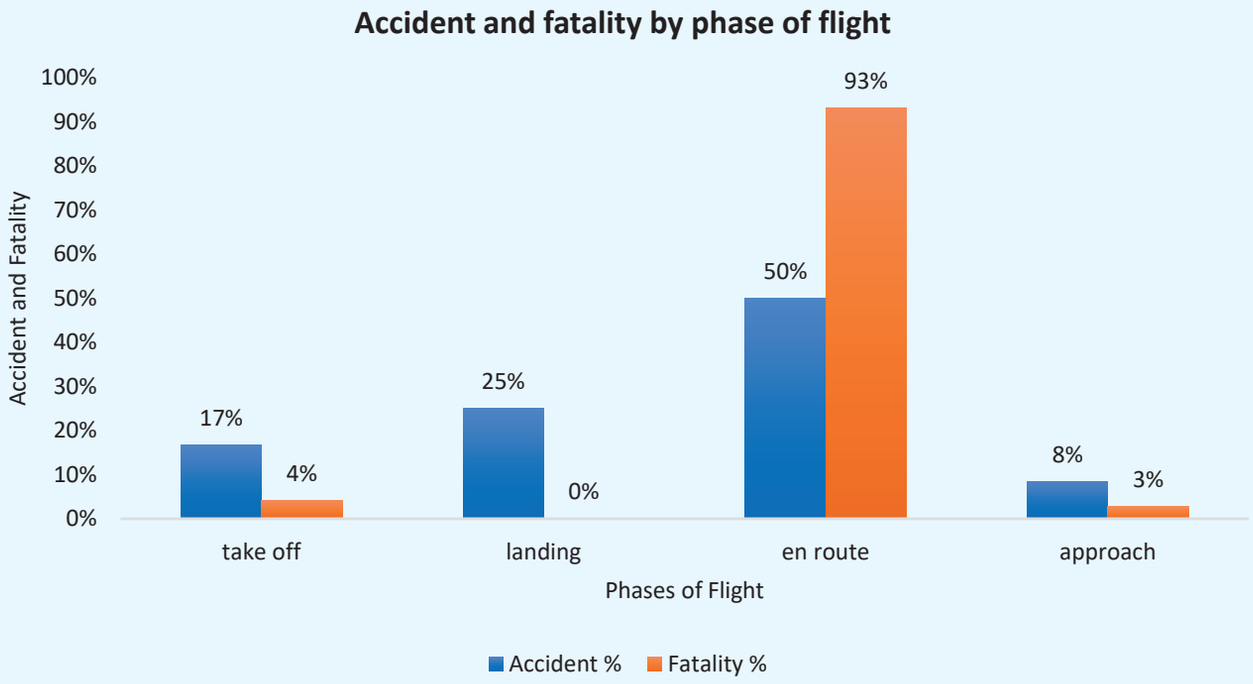


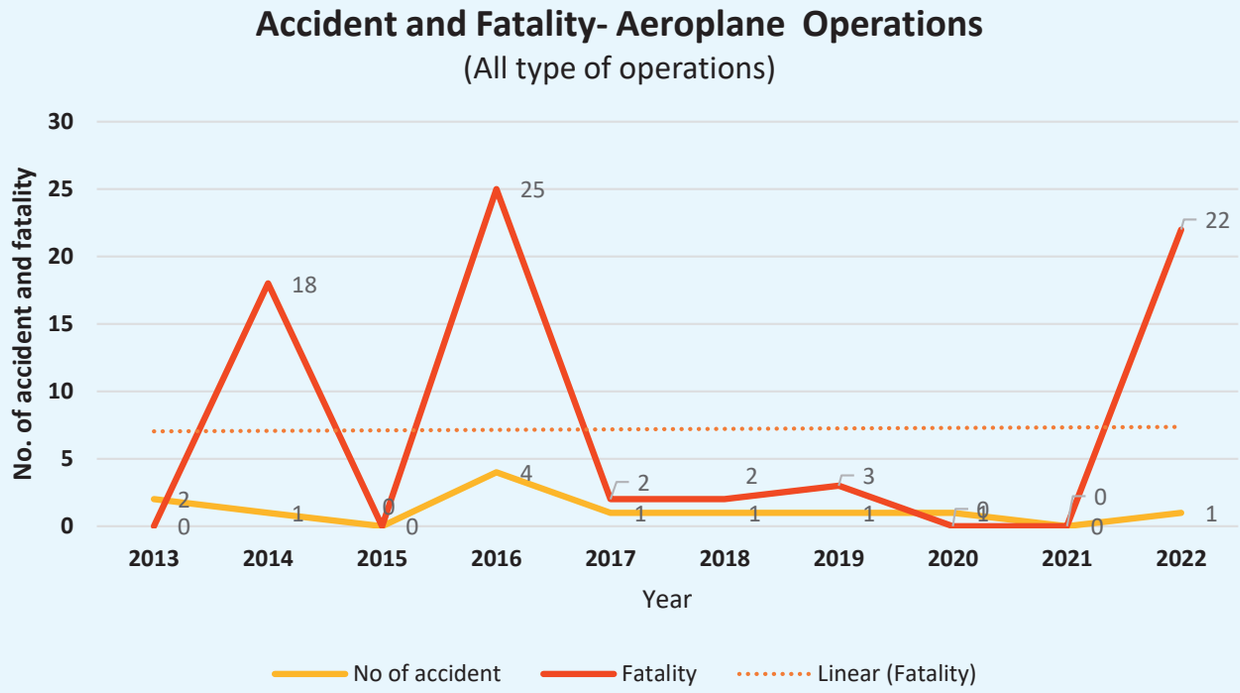
Chapter-3

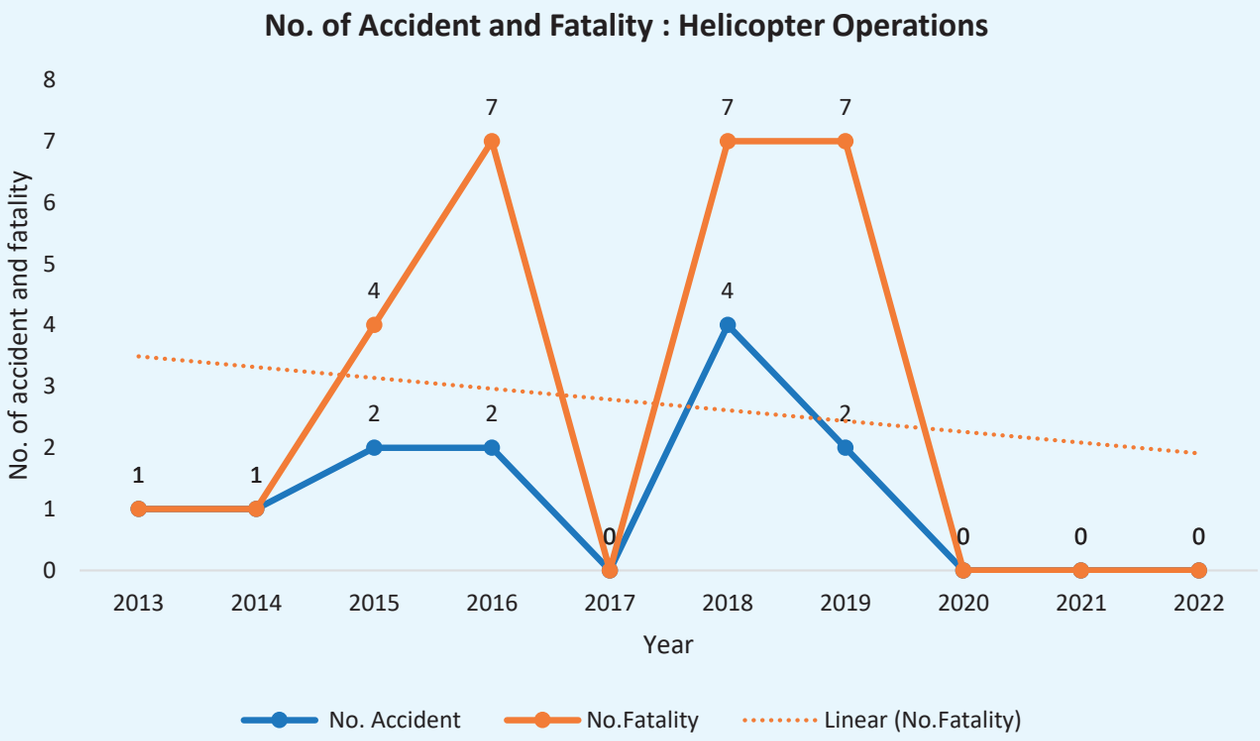
Aircraft Accident in Nepal (2013 to 2022)

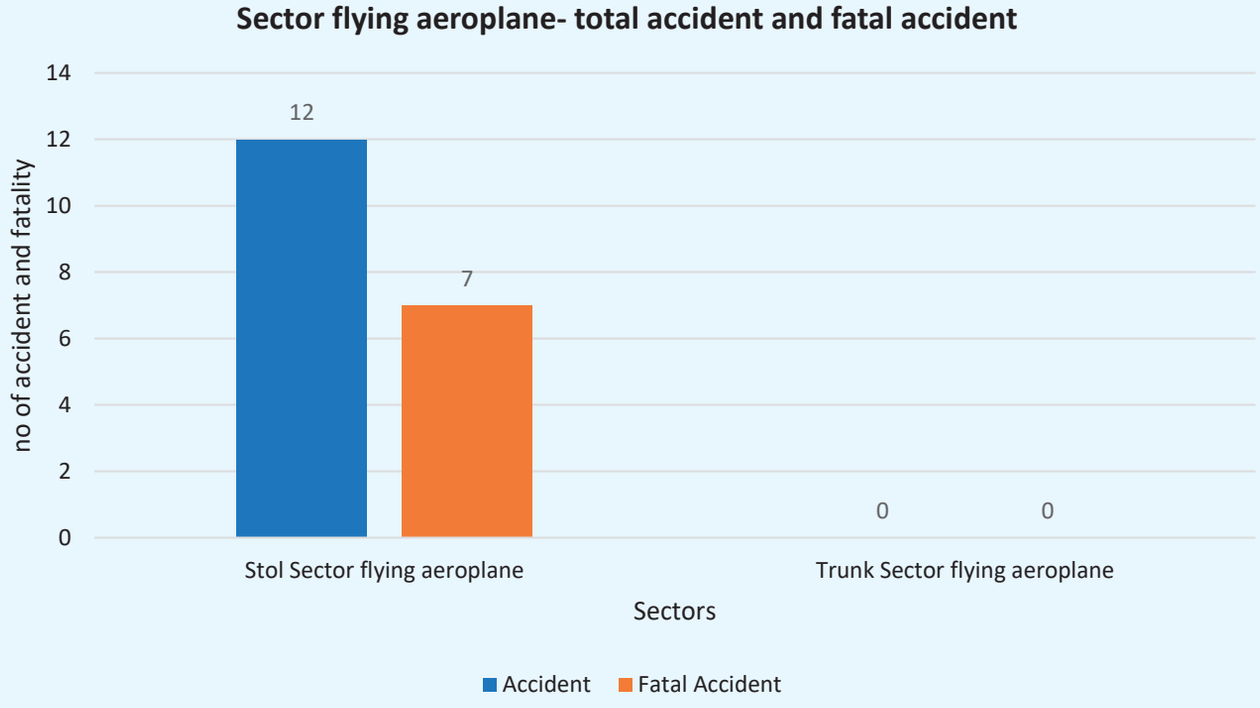


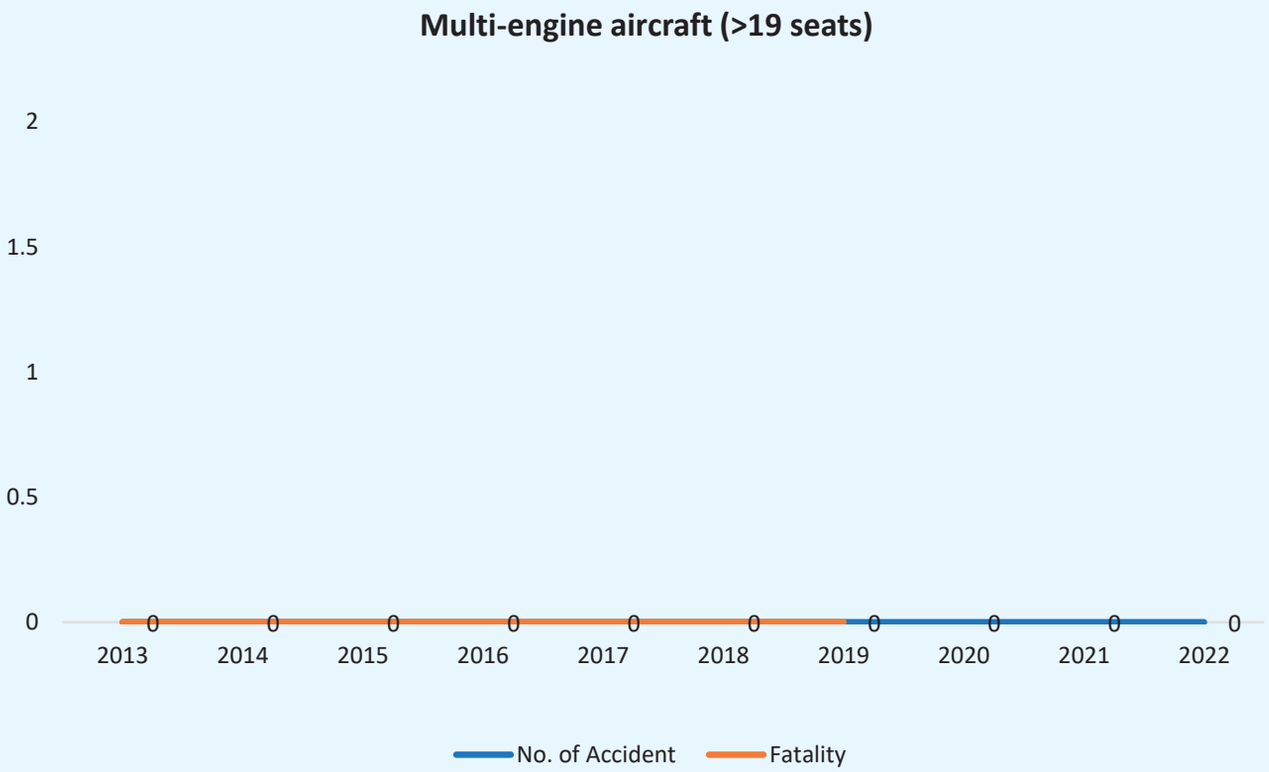


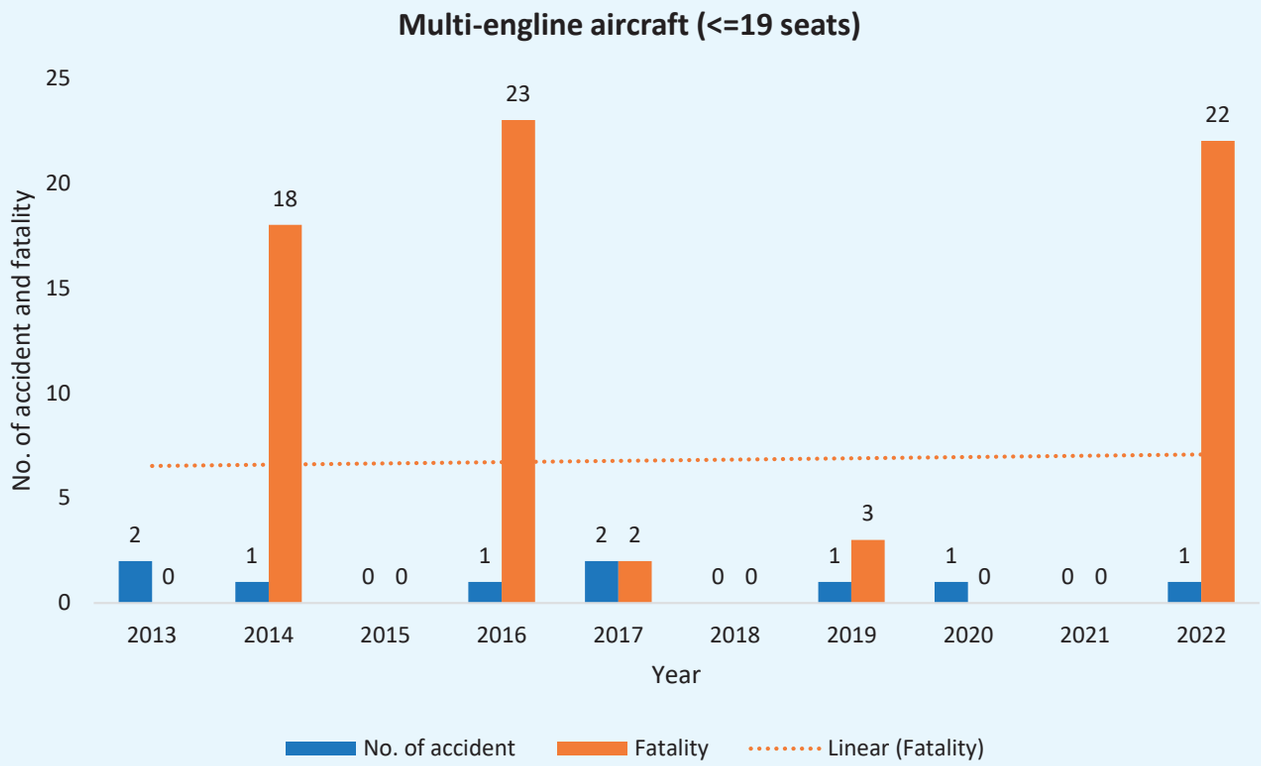

Accident and fatality by phase of flight
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
Accident and Fatality
17%
4%
25%
0%
50%
93%
8%
3%
take off
landing
en route
approach
Phases of Flight
Accident %
Fatality %

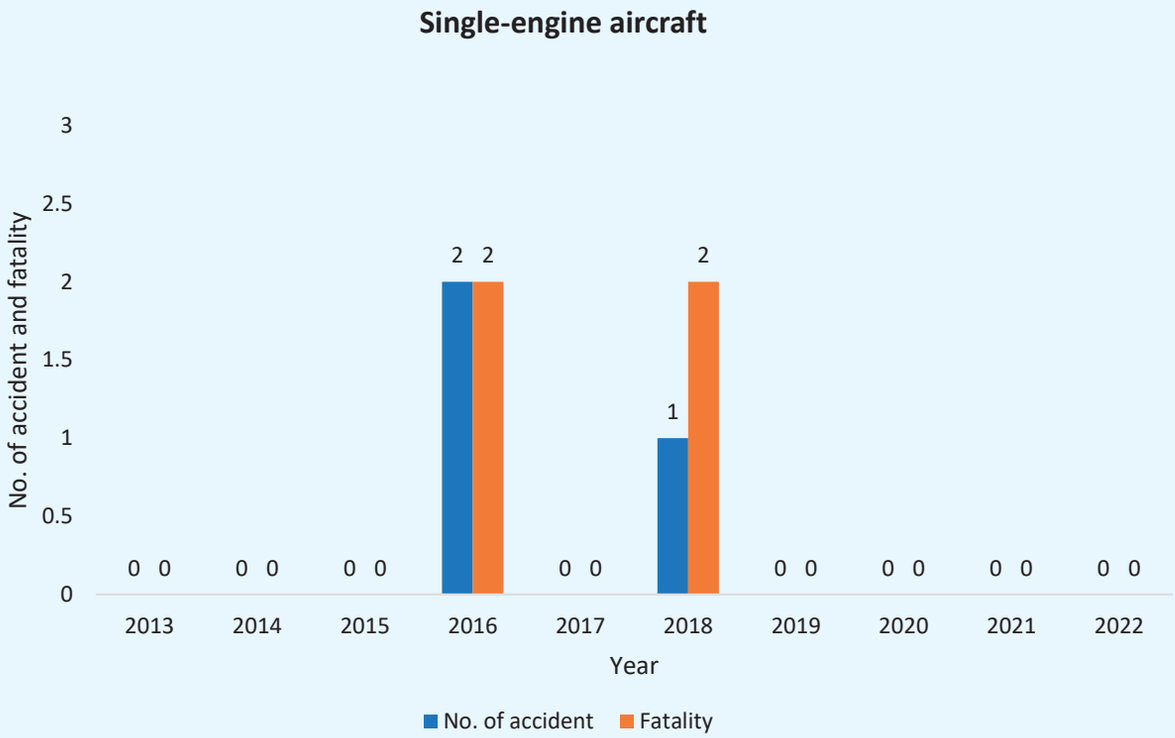

Accident and Fatality- Aeroplane Operations
(All type of operations)
30
25
20
15
10
5
0
No. of accident and fatality
2
0
18
1
0
0
25
4
2
1
2
1
3
1
0
0
0
0
22
1
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
Year
No of accident
Fatality
Linear (Fatality)


No. of Accident and Fatality : Helicopter Operations
No. of accident and fatality
Year
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
No. Accident
No.Fatality
Linear (No.Fatality)


Sector flying aeroplane- total accident and fatal accident
no of accident and fatality
Stol Sector flying aeroplane
Trunk Sector flying aeroplane
Sectors
Accident
Fatal Accident


Multi-engine aircraft (>19 seats)
2
1.5
1
0.5
0
0 0 0 0 0 0 0 0 0 0
2013 2014 2015 2016 2017 2018 2019 2020 2021 2022
No. of Accident
Fatality


Multi-engline aircraft (<=19 seats)
No. of accident and fatality
25
20
15
10
5
0
2 0
1 18
0 0
1 23
2 2
0 0
1 3
1 0
0 0
1 22
2013 2014 2015 2016 2017 2018 2019 2020 2021 2022
Year
No. of accident
Fatality
Linear (Fatality)


Single-engine aircraft
No. of accident and fatality
3
2.5
2
1.5
1
0.5
0
0 0
0 0
0 0
2 2
0 0
1
2
0 0
0 0
0 0
0 0
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
Year
No. of accident
Fatality


ktmspotter

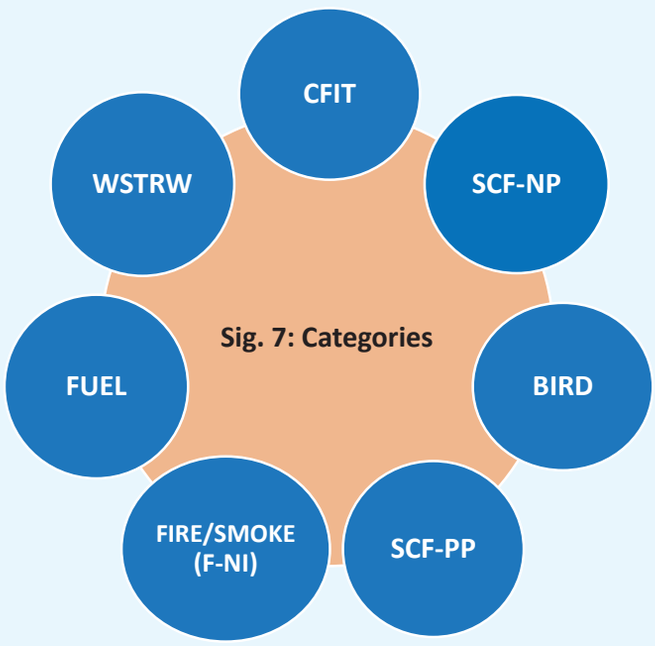
Chapter- 4

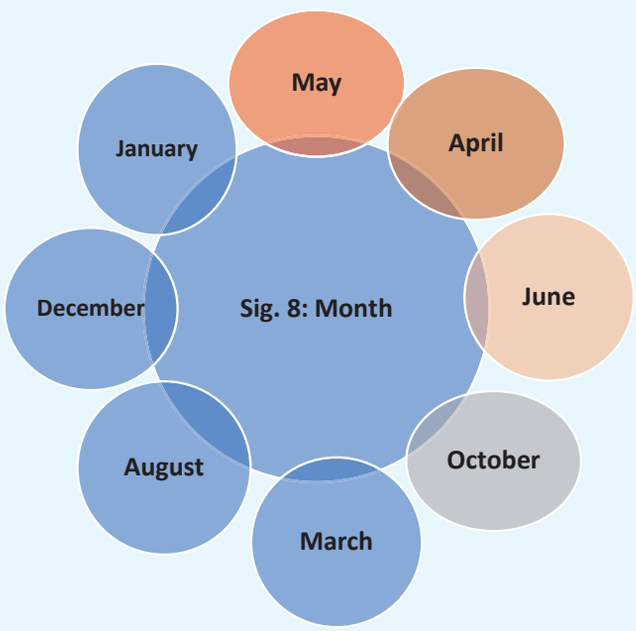
State Significant Safety Risks for 2023

Current Risks

Considering the occurrences reported in 2022, State has identified top seven Significant risks (not in specific order), top four risky phase of flight (not in specific order) and top 8 risky months in Nepal.

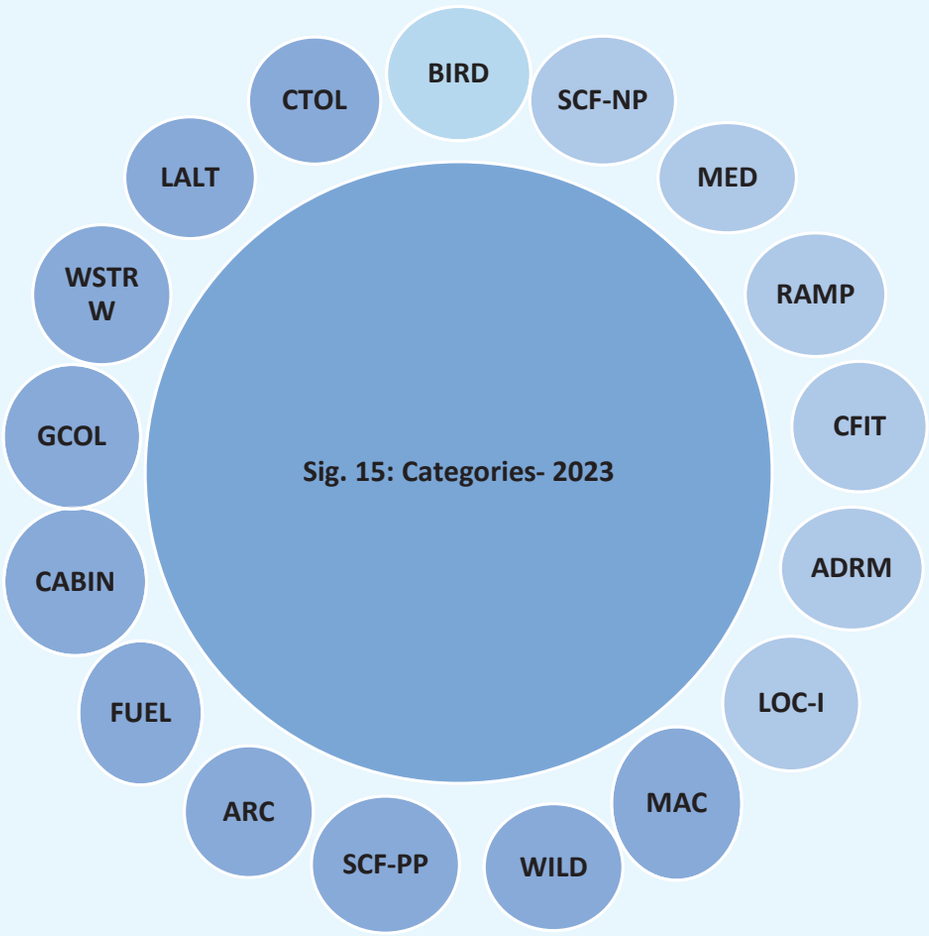
The occurrence categories are in line with the occurrence categories defined in CAST/ICAO Common Taxonomy Team document, 2021.



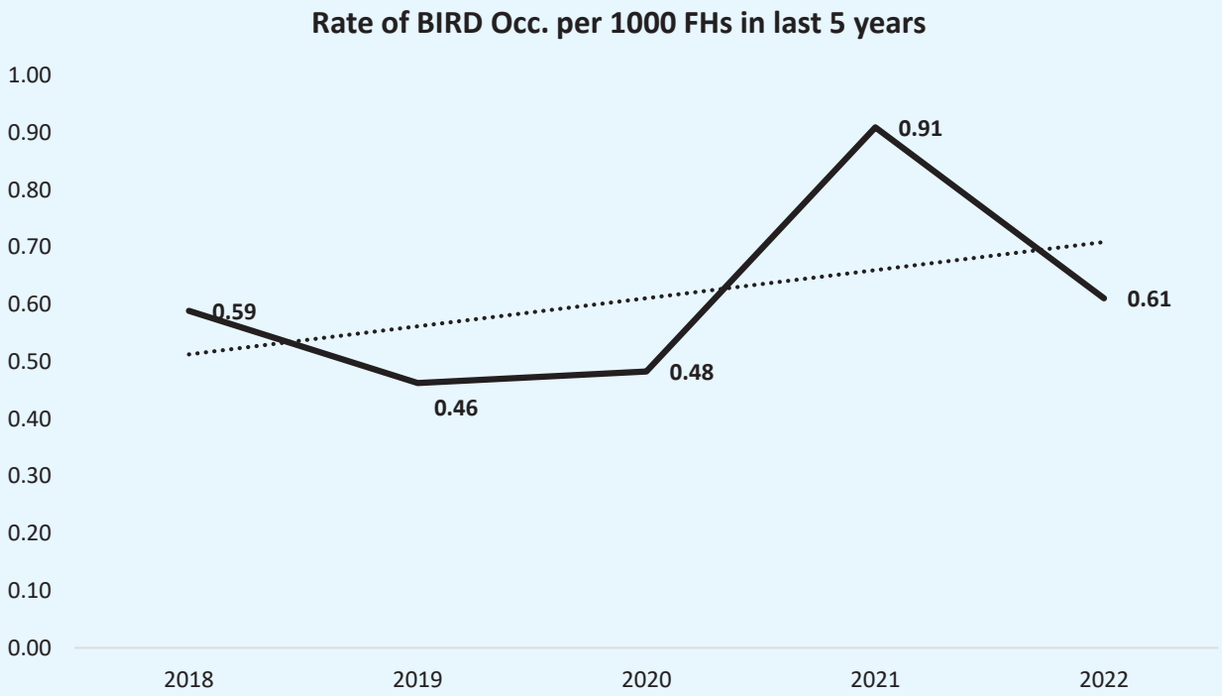


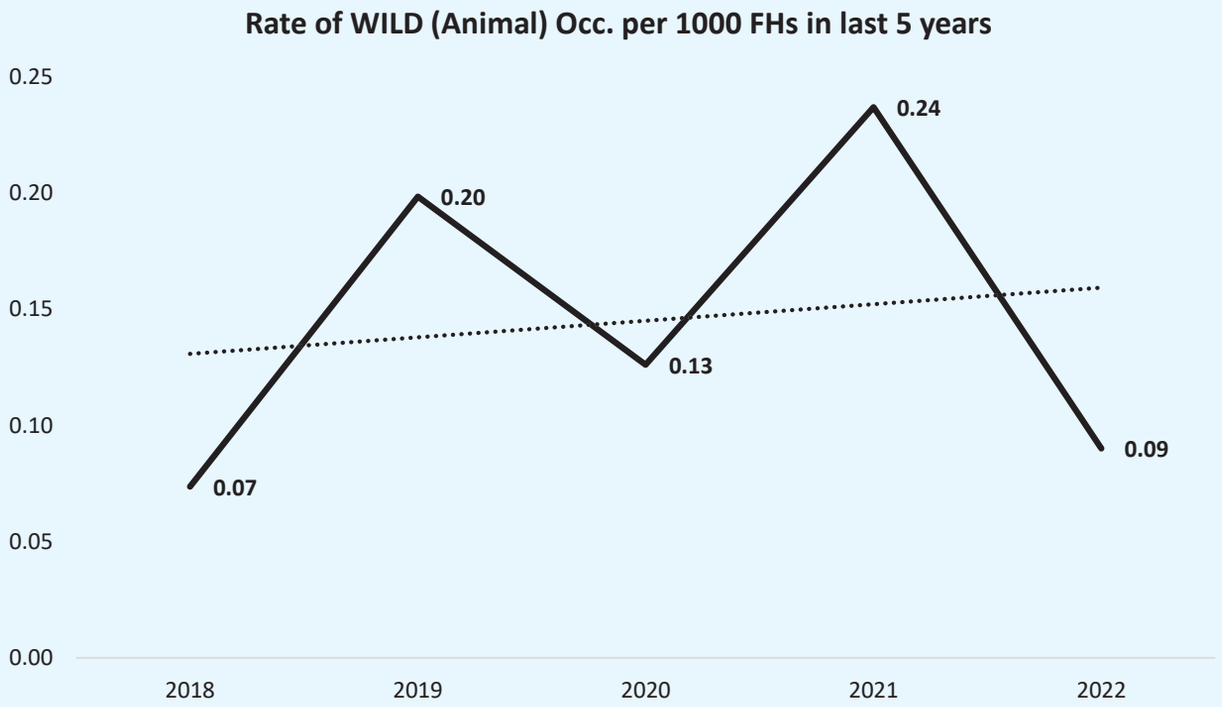
Future Risks

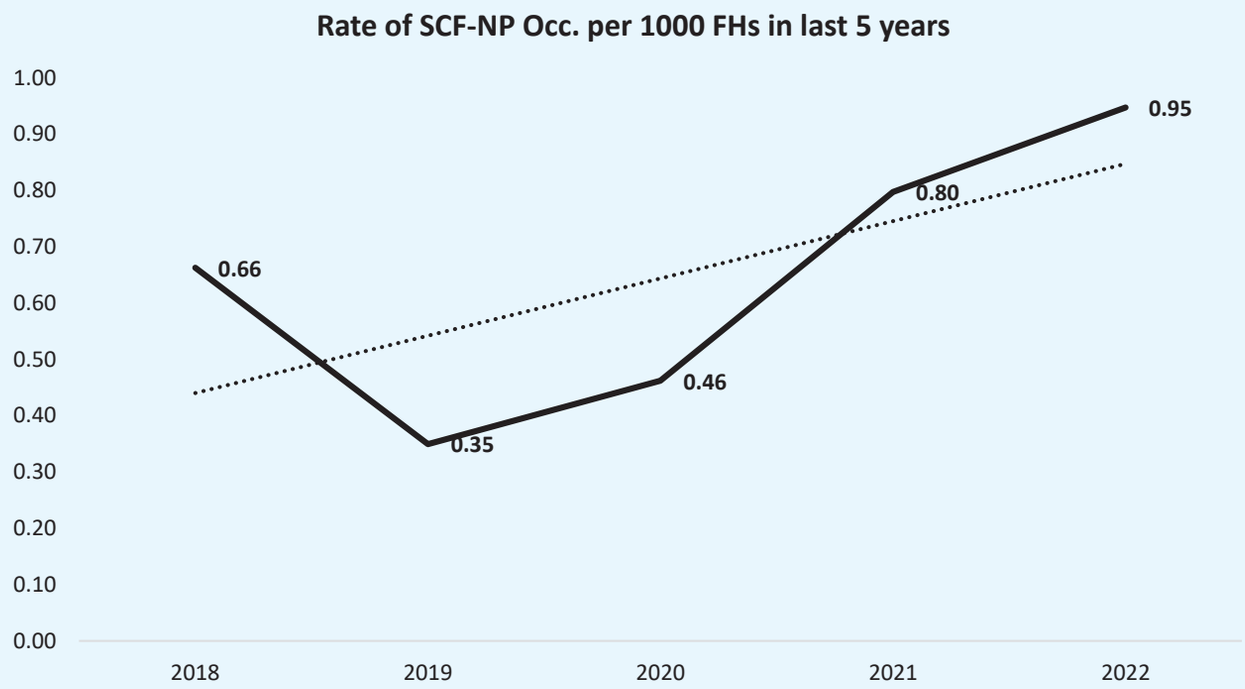
Considering the hazards reported in 2022, State has identified top fifteen Significant safety risks (not in specific order) for the future.

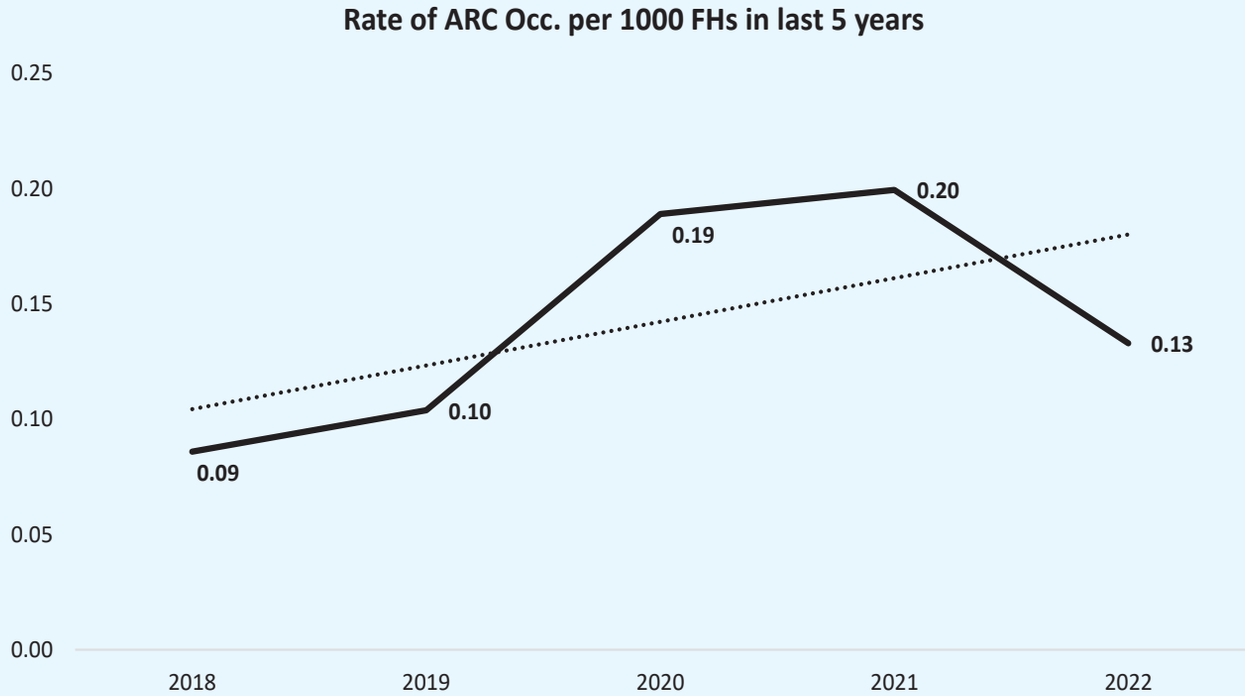


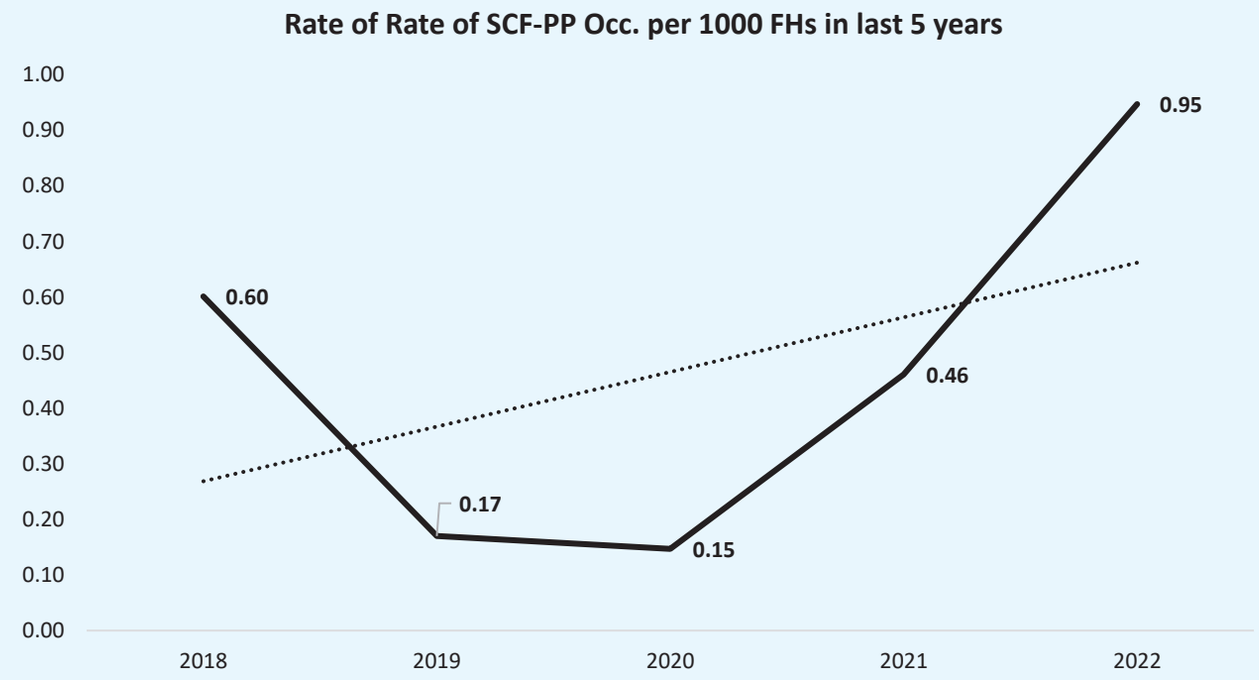
Last 5 – years (2018, 2019, 2020, 2021, 2022) trend analysis of rate of occurrence of Top 8 State Significant Safety Risks

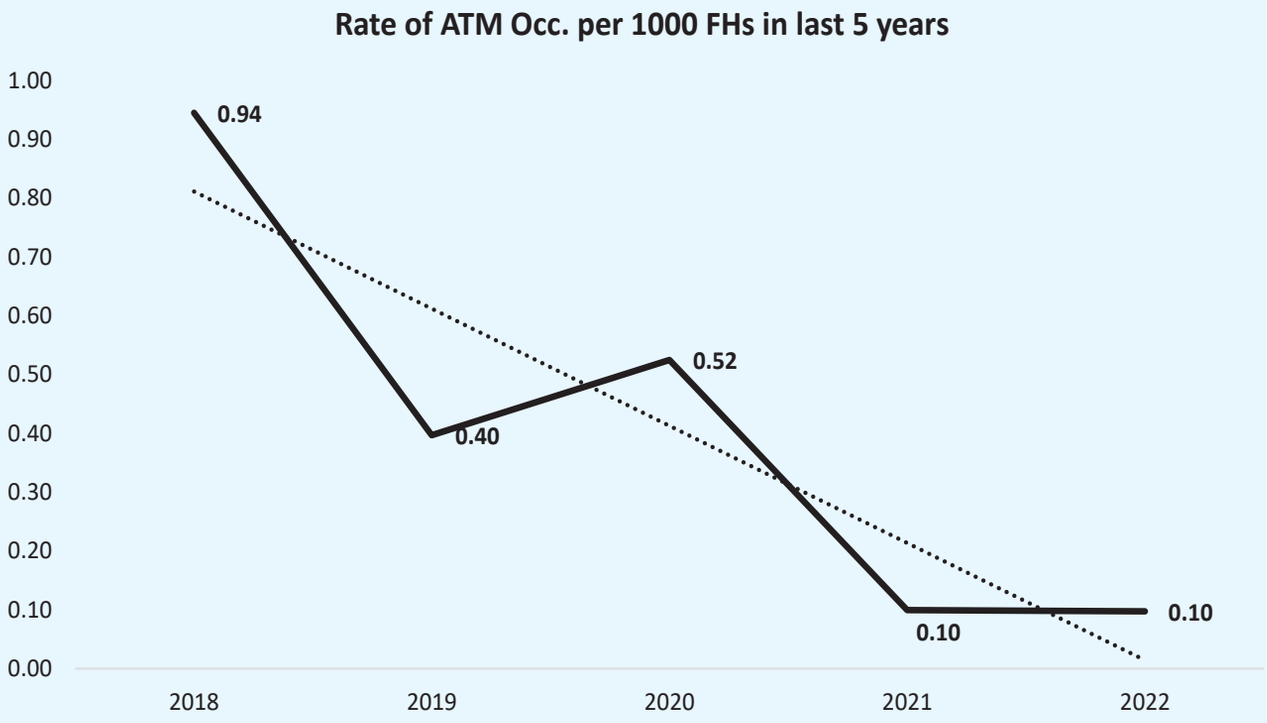


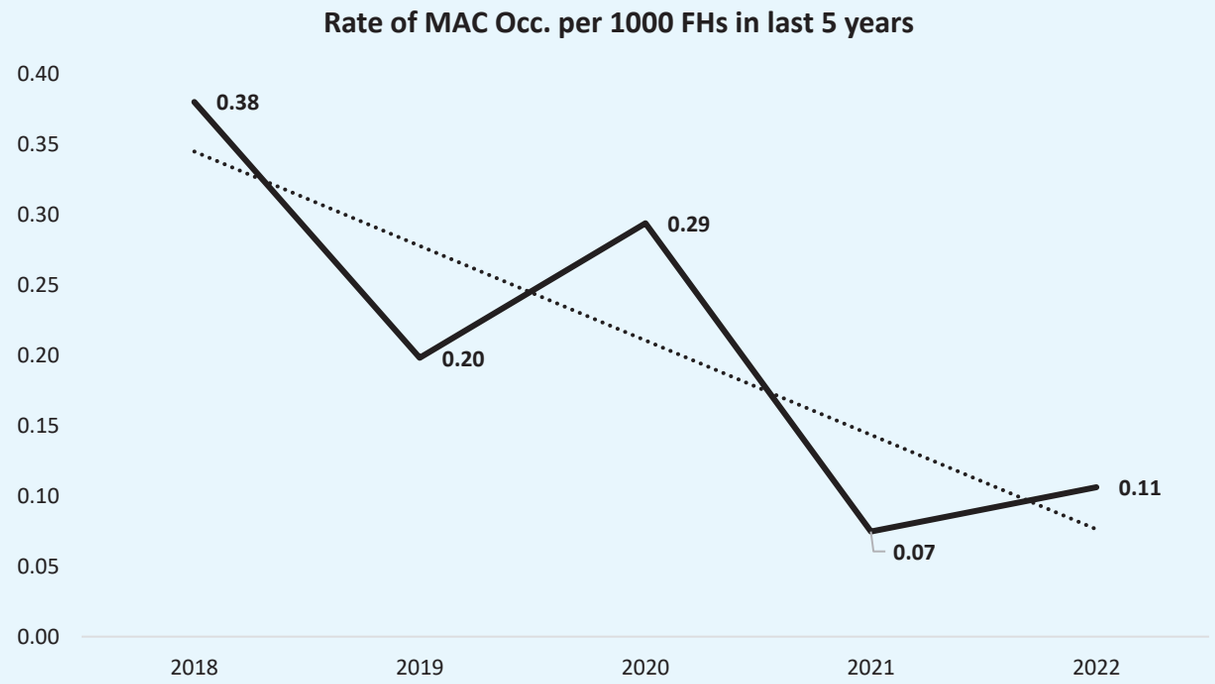


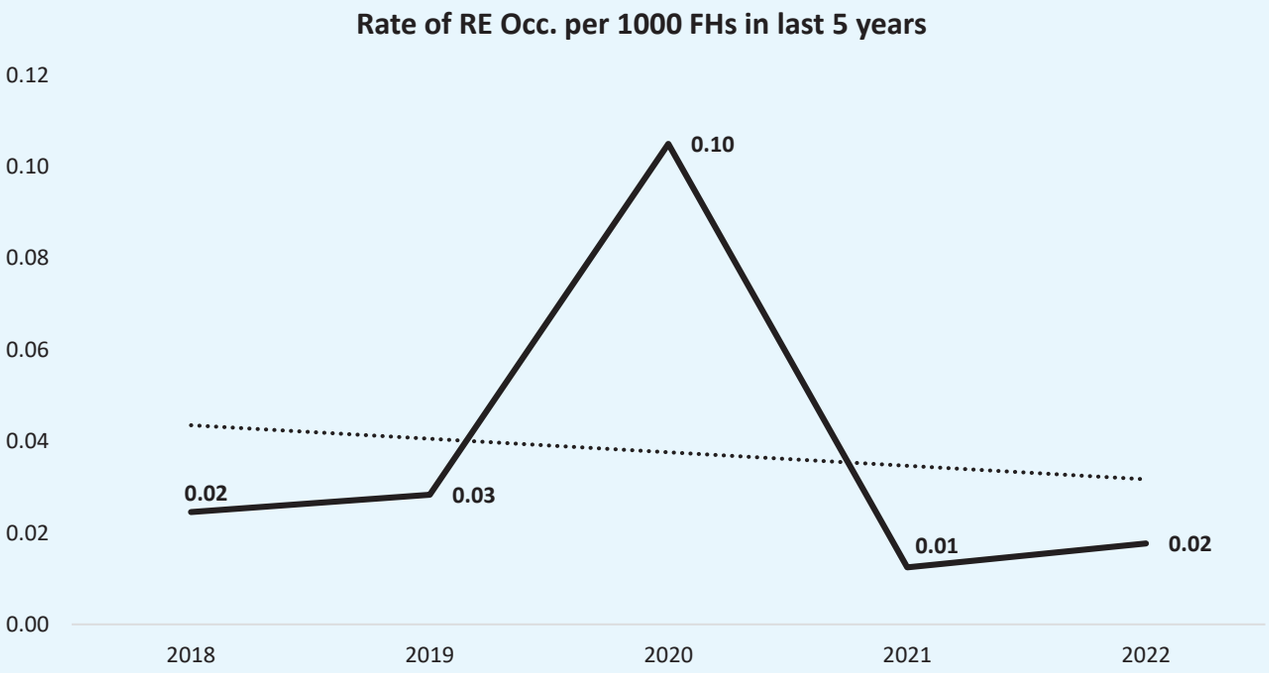

Rate of SCF-NP Occ. per 1000 FHs in last 5 years
1.00
0.90
0.80
0.70
0.60
0.50
0.40
0.30
0.20
0.10
0.00
0.66
0.35
0.46
0.80
0.95
2018
2019
2020
2021
2022


Rate of ARC Occ. per 1000 FHs in last 5 years
0.25
0.20
0.15
0.10
0.05
0.00
0.09
0.10
0.19
0.20
0.13
2018
2019
2020
2021
2022

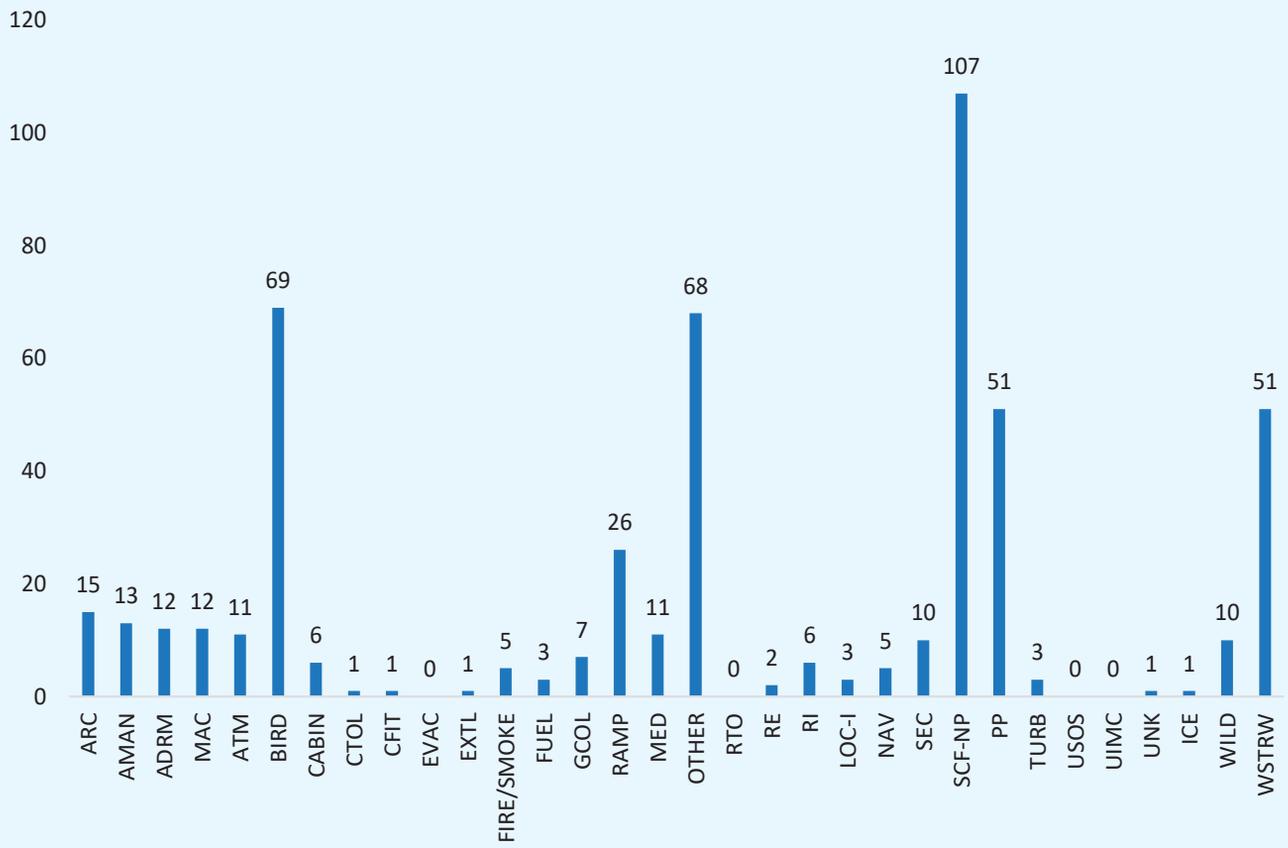

Rate of Rate of SCF-PP Occ. per 1000 FHs in last 5 years
1.00
0.90
0.80
0.70
0.60
0.50
0.40
0.30
0.20
0.10
0.00
0.60
0.17
0.15
0.46
0.95
2018
2019
2020
2021
2022


Rate of ATM Occ. per 1000 FHs in last 5 years
1.00
0.90
0.80
0.70
0.60
0.50
0.40
0.30
0.20
0.10
0.00
0.94
0.40
0.52
0.10
0.10
2018
2019
2020
2021
2022


Rate of MAC Occ. per 1000 FHs in last 5 years
0.40
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.00
0.38
0.20
0.29
0.07
0.11
2018
2019
2020
2021
2022


Rate of RE Occ. per 1000 FHs in last 5 years
0.12
0.10
0.08
0.06
0.04
0.02
0.00
0.02
0.03
0.10
0.01
0.02
2018
2019
2020
2021
2022

Occurrence Reporting in 2022



Total number of occurrences reported in 2022 were 513 against the 453 in 2021.

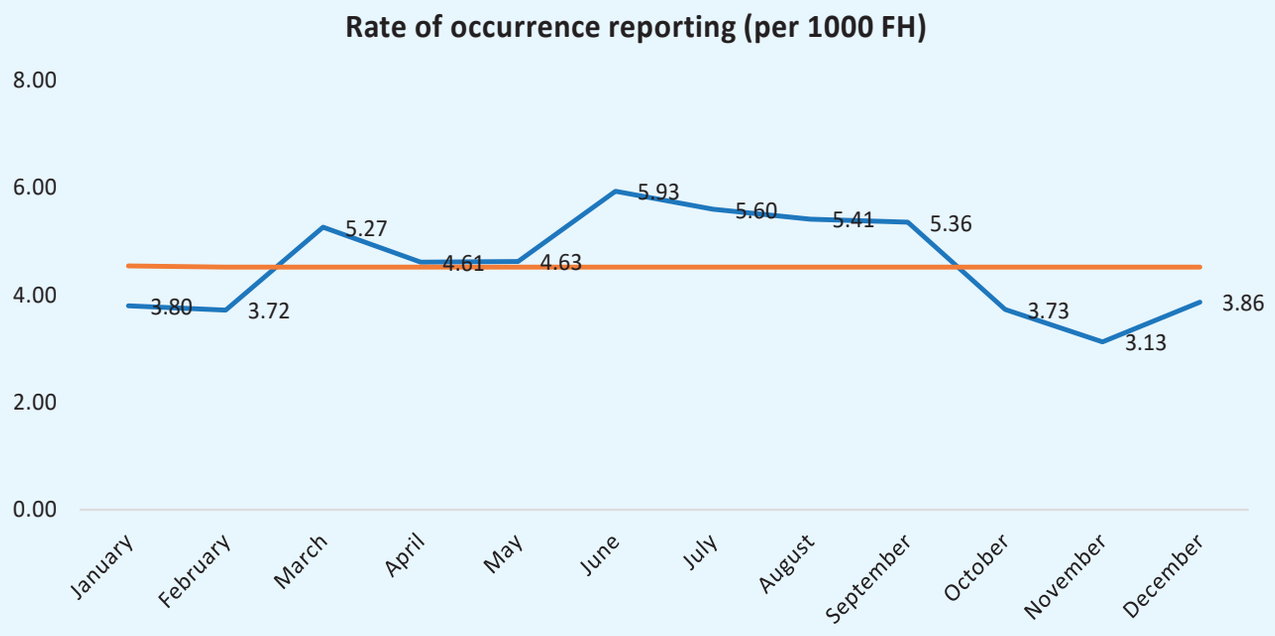
The 68 occurrences fallen in category “OTHER” are not directly related to any category defined in the CAST/ ICAO Common Taxonomy Team (CICTT) Taxonomy.

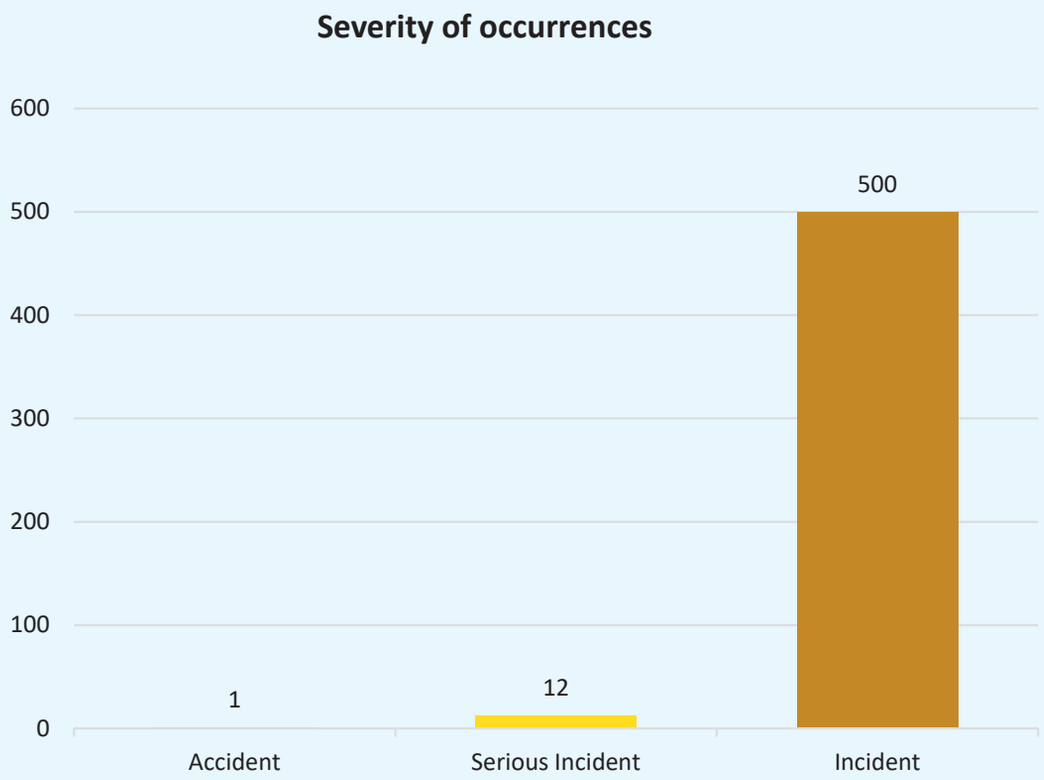
The Taxonomy adopted for the purpose of deriving information related to mandatory and voluntary occurrences was developed by CICTT. The CICTT includes experts from several air carriers, aircraft manufacturers, engine manufacturers, pilot associations, regulatory authorities, transportation safety boards,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

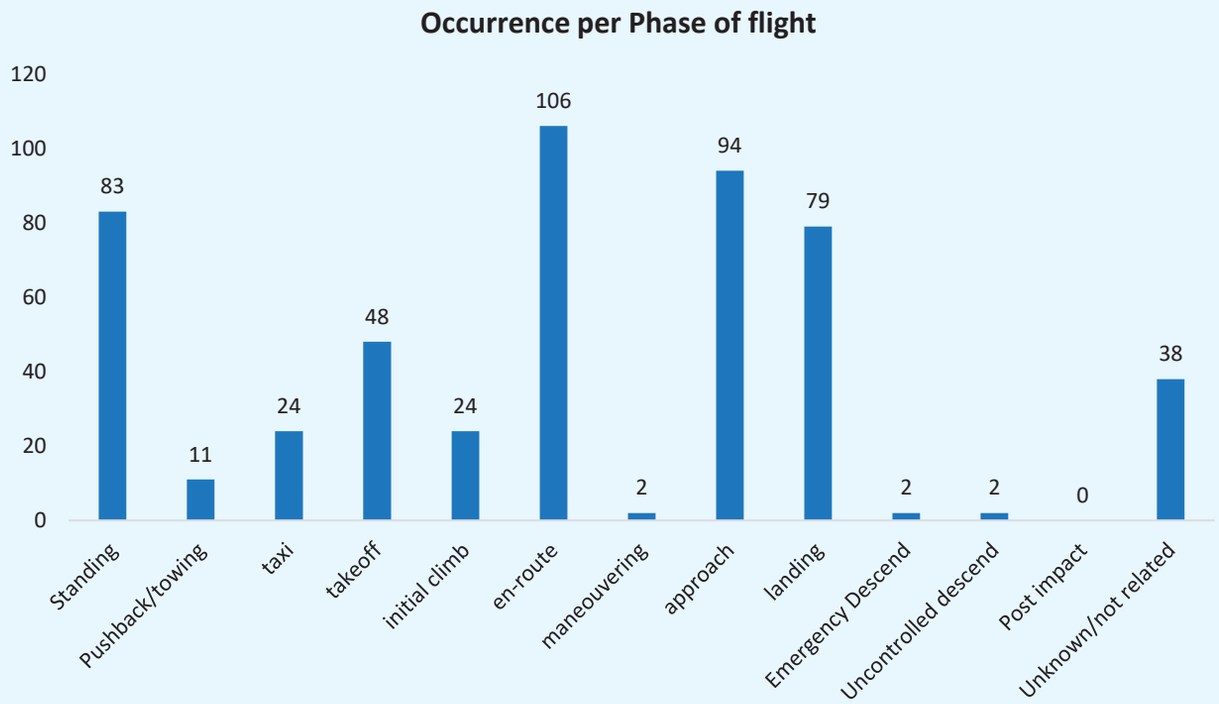
The taxonomy for occurrences has been given below:

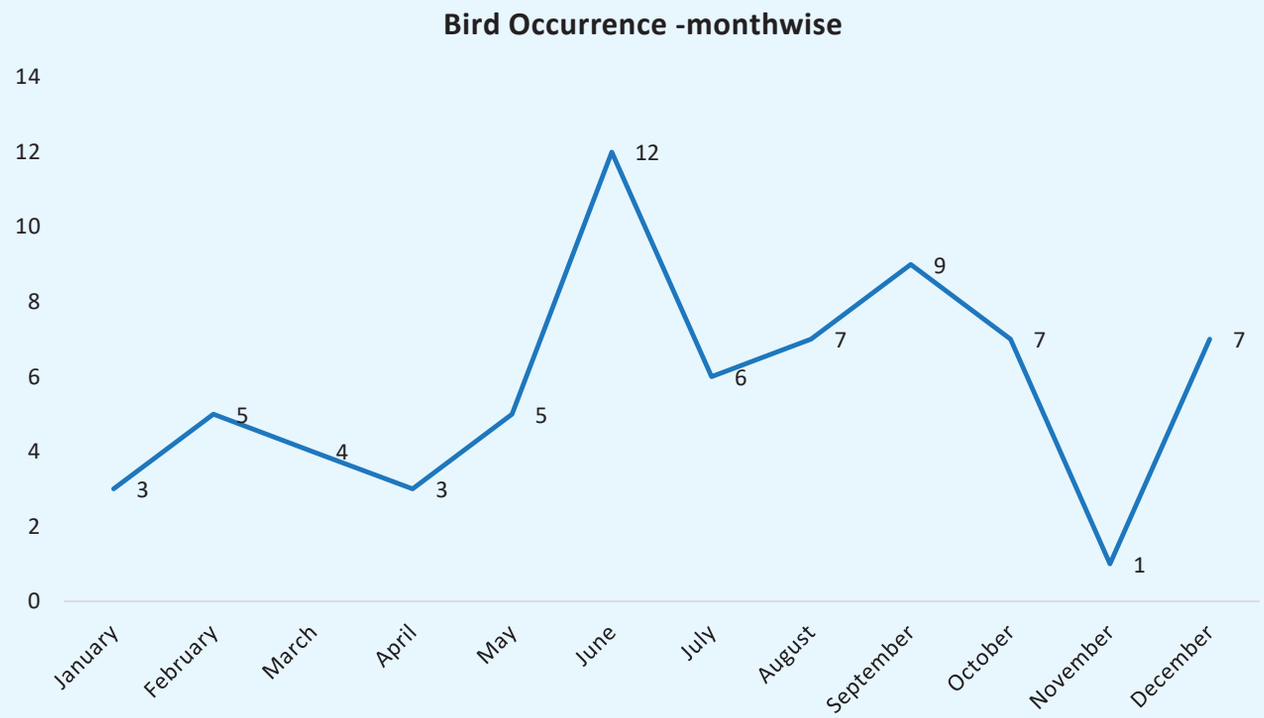
ICAO/CAST Taxonomy for Occurrences

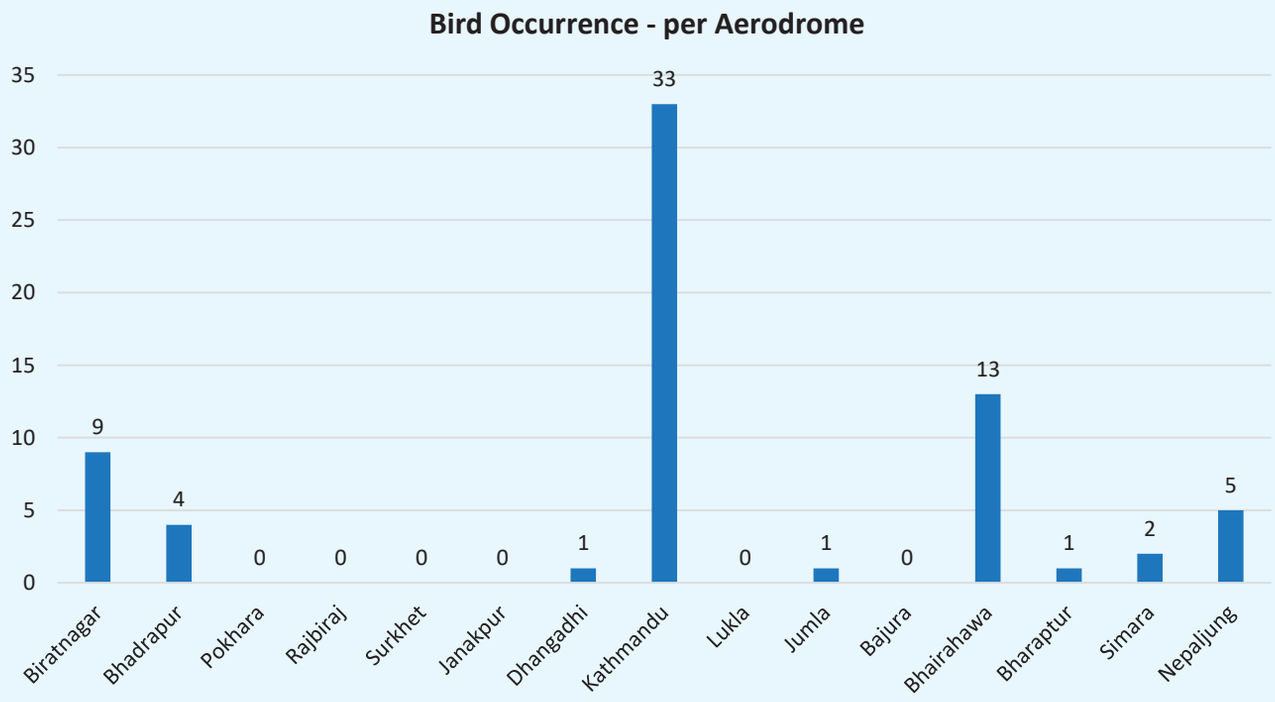
Abnormal Runway Contact (ARC)	Loss of Control-Ground (LOC-G)
Abrupt Maneouver (AMAN)	Loss of Control-In Flight (LOC-I)
Aerodrome (ADRM)	Loss of Lifting condition en route (LOLI)
Airpox, Mid Air Collision (MAC)	Low Altitude Operations (LALT)
ATM/CNS(ATM)	Medical (MED)
Bird Strike (BIRD)	Navigation (NAV)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

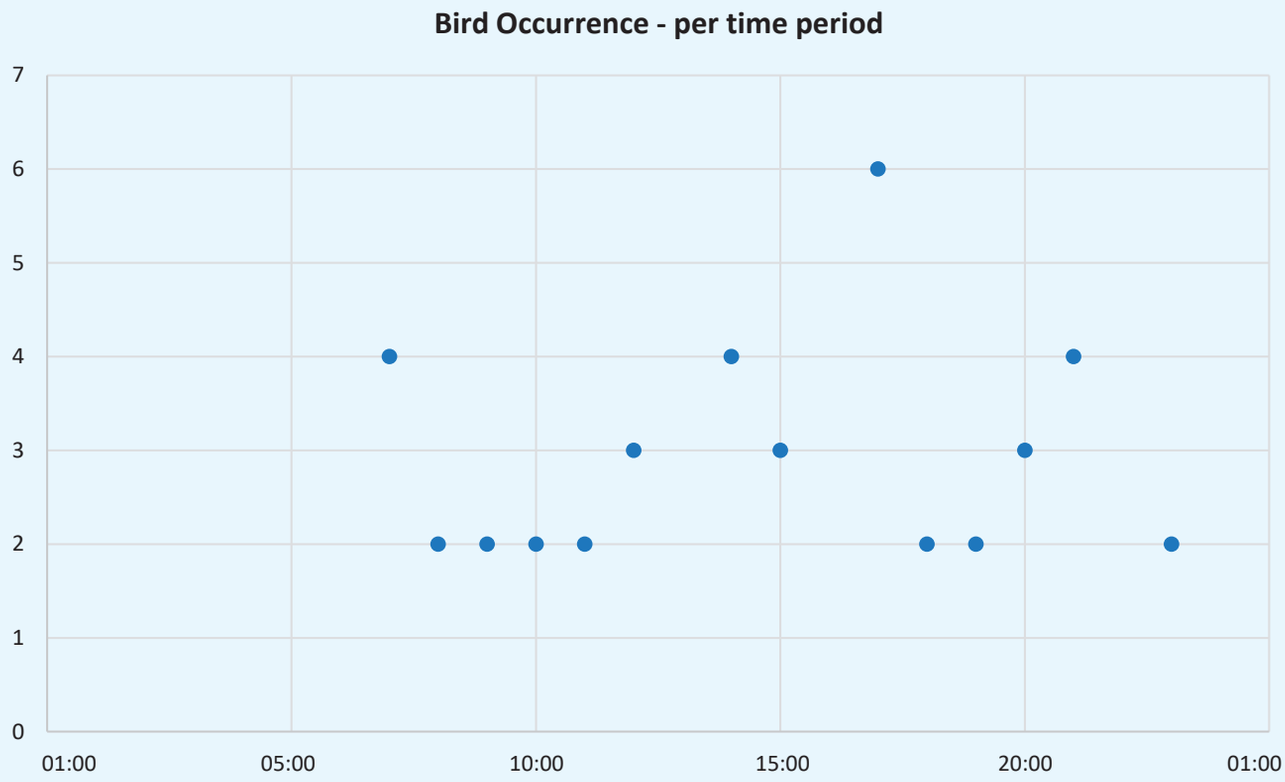


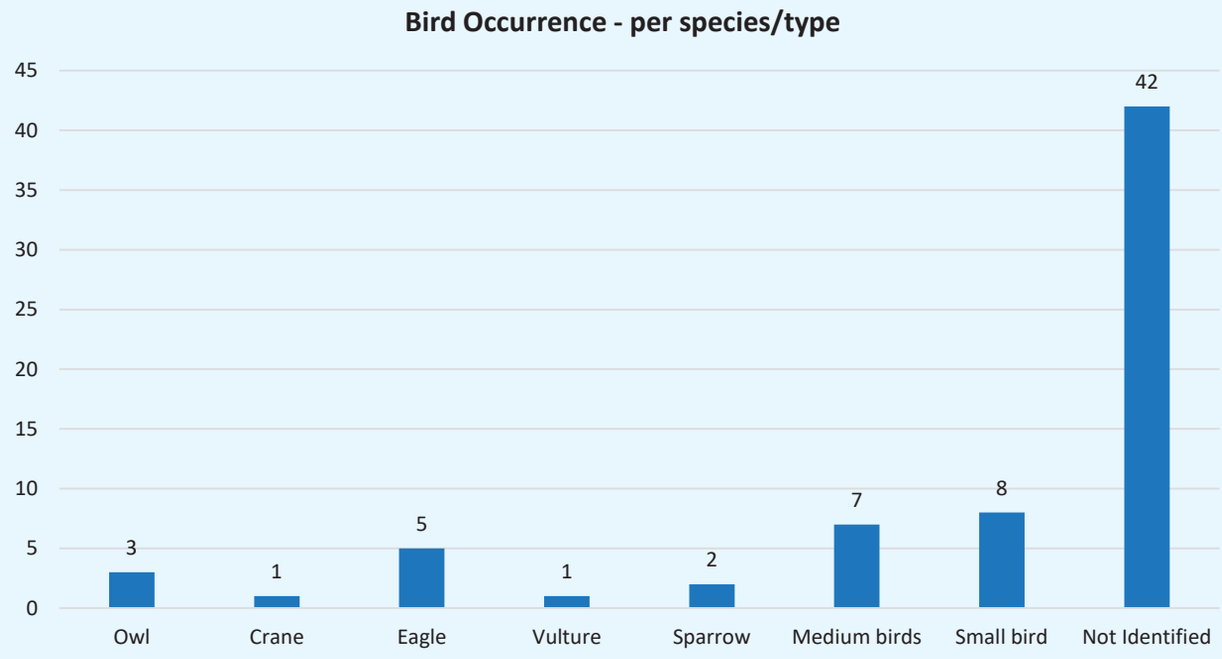

Severity of occurrences
600
500
400
300
200
100
0
1
12
500
Accident
Serious Incident
Incident

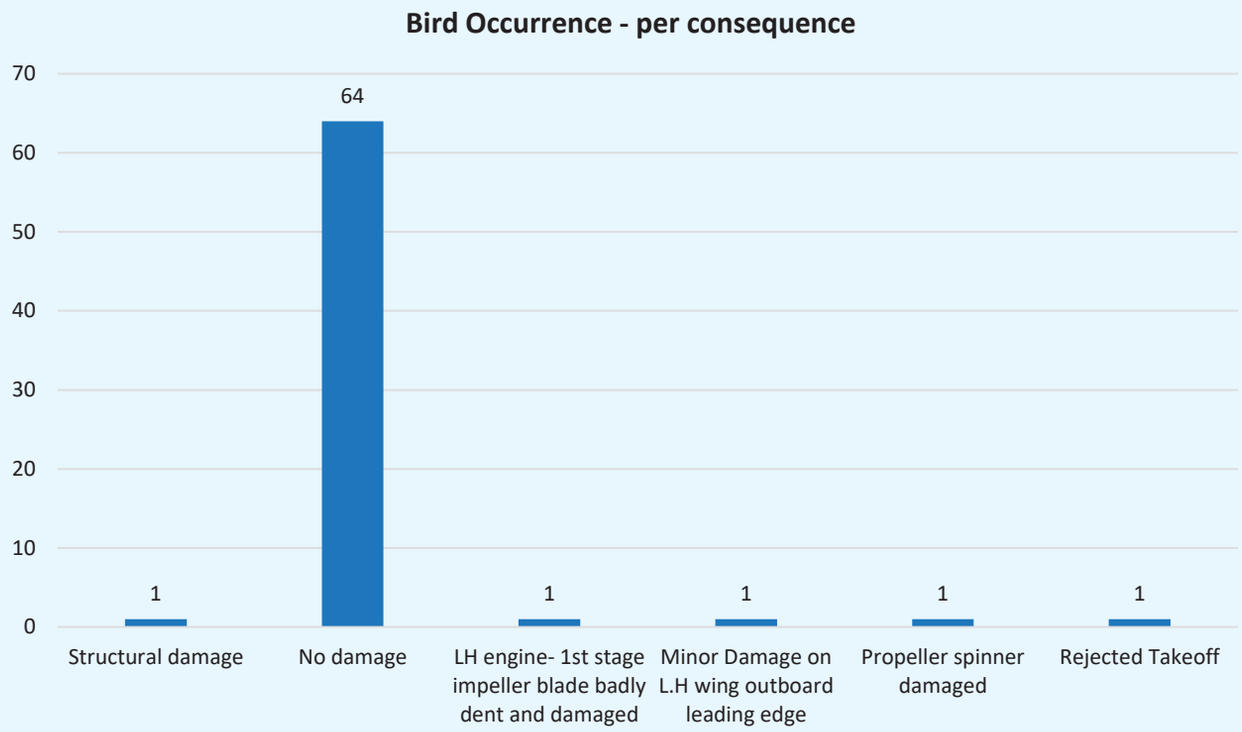

Occurrence per Phase of flight
120
100
80
60
40
20
0
83
11
24
48
24
106
2
94
79
2
2
0
38
Standing
Pushback/towing
taxi
takeoff
initial climb
en-route
maneouvering
approach
landing
Emergency Descend
Uncontrolled descend
Post impact
Unknown/not related

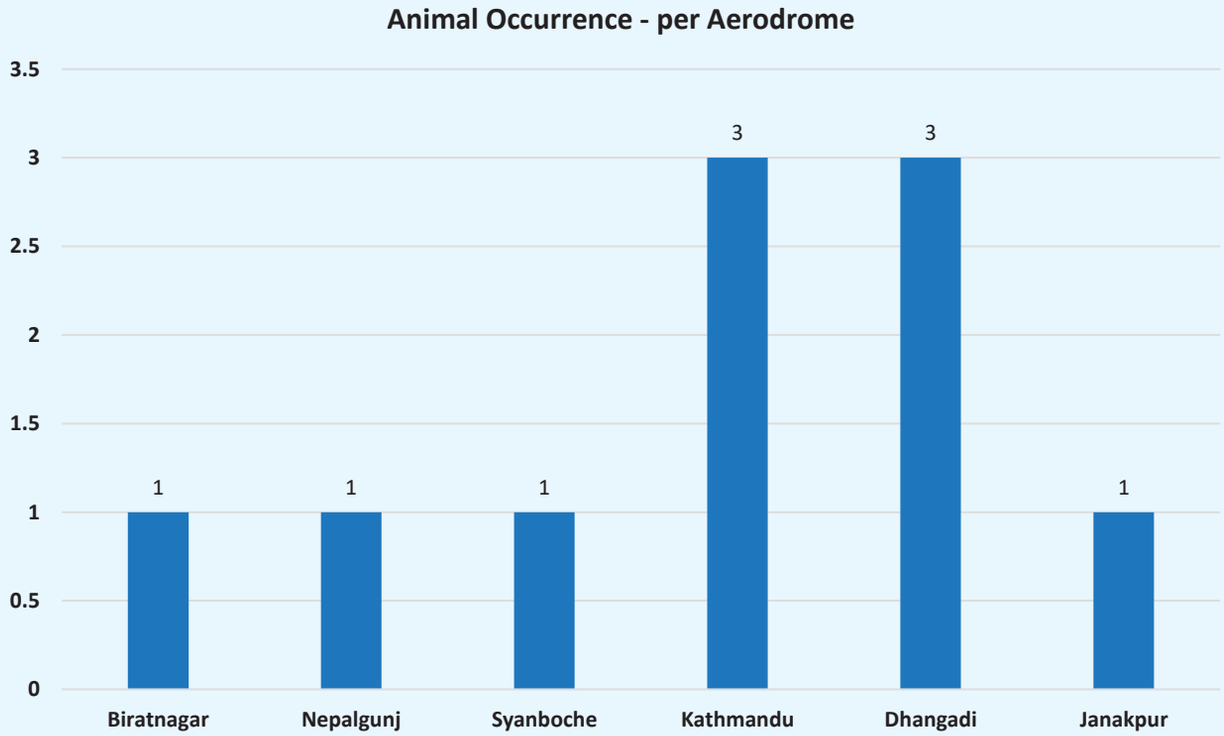

Bird Occurrence -monthwise
14
12
10
8
6
4
2
0
3
5
4
3
5
12
6
7
9
7
1
7
January
February
March
April
May
June
July
August
September
October
November
December


Bird Occurrence - per Aerodrome
35
30
25
20
15
10
5
0
9
4
0
0
0
0
1
33
0
1
0
13
1
2
5
Biratnagar
Bhadrapur
Pokhara
Rajbiraj
Surkhet
Janakpur
Dhangadhi
Kathmandu
Lukla
Jumla
Bajura
Bhairahawa
Bharaptur
Simara
Nepaljung

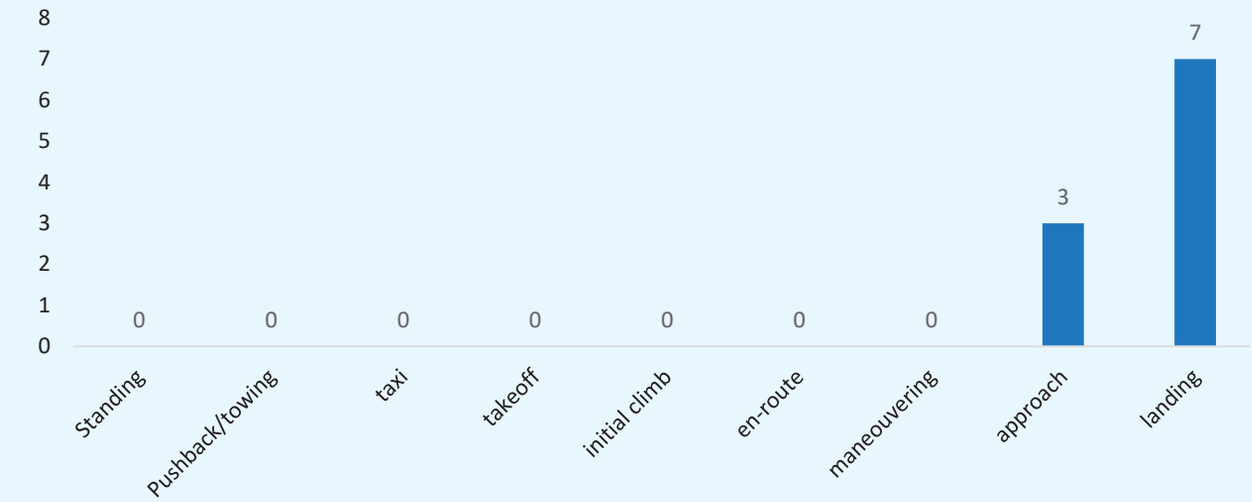

Bird Occurrence - per time period
7
6
5
4
3
2
1
0
01:00
05:00
10:00
15:00
20:00
01:00


Bird Occurrence - per species/type
45
40
35
30
25
20
15
10
5
0
3
1
5
1
2
7
8
42
Owl
Crane
Eagle
Vulture
Sparrow
Medium birds
Small bird
Not Identified

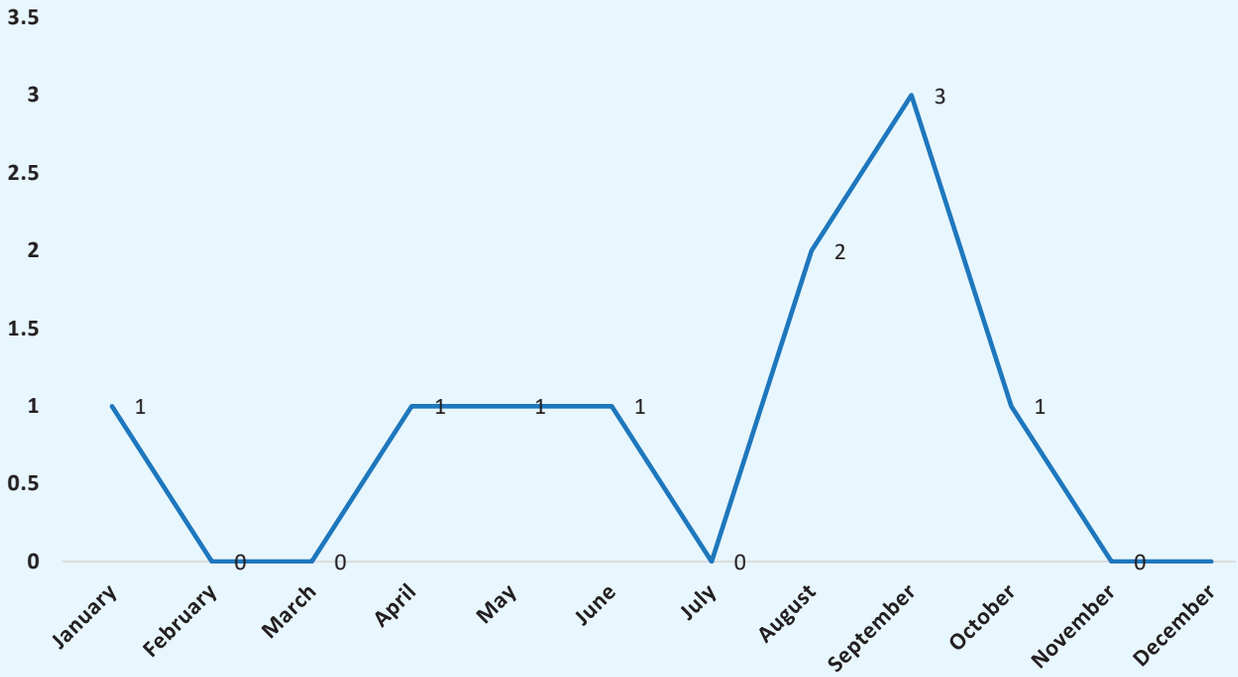

Bird Occurrence - per consequence
70
60
50
40
30
20
10
0
64
1
1
1
1
1
Structural damage
No damage
LH engine- 1st stage impeller blade badly dent and damaged
Minor Damage on L.H wing outboard leading edge
Propeller spinner damaged
Rejected Takeoff

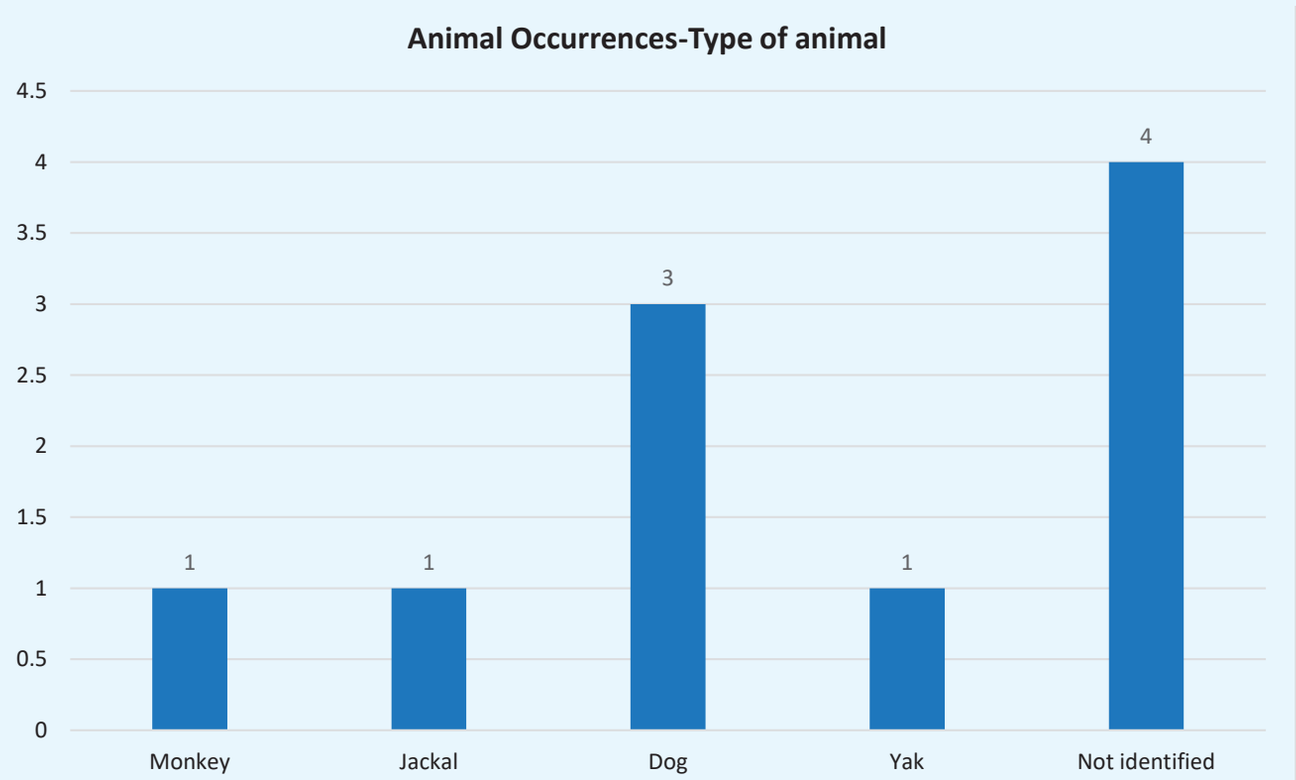

Animal Occurrence - per Aerodrome
3.5
3
2.5
2
1.5
1
0.5
0
1
1
1
3
3
1
Biratnagar
Nepalgunj
Syanboche
Kathmandu
Dhangadi
Janakpur

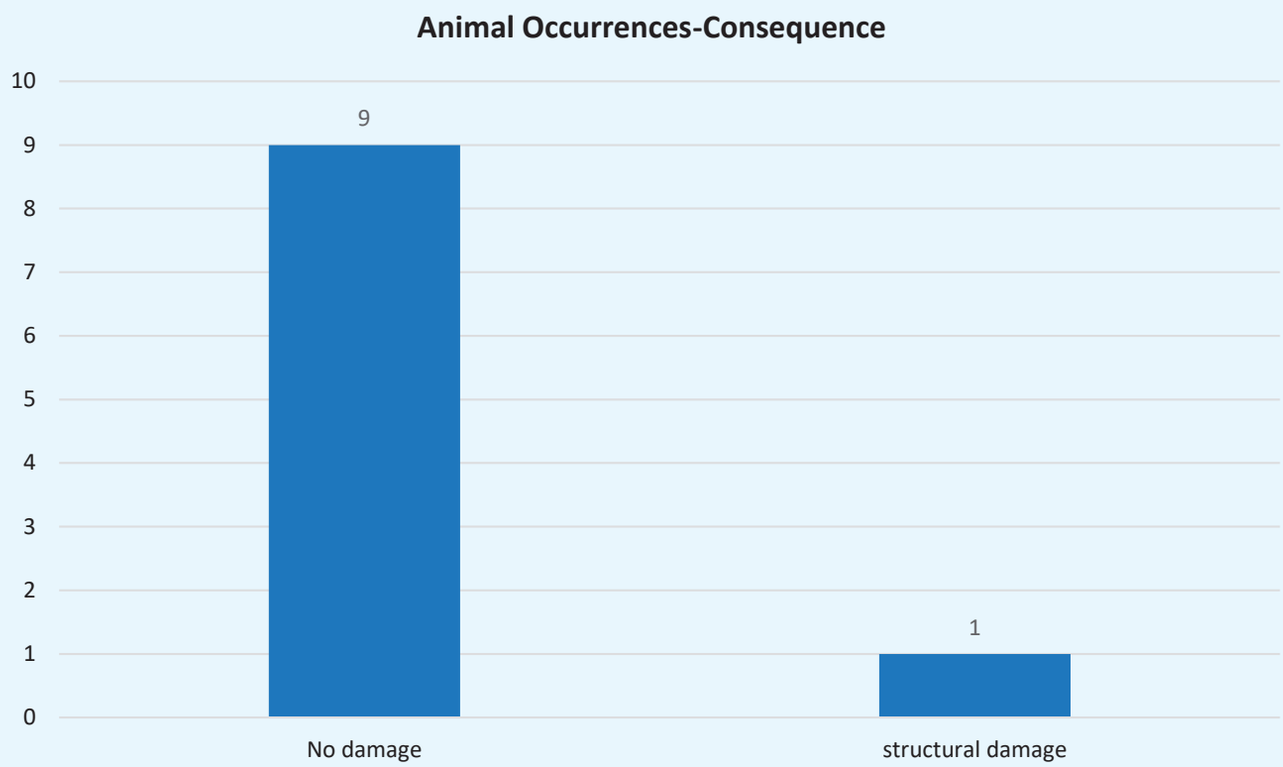
Animal Occurrences- phase of flight



Animal Occurrence-monthwise




Animal Occurrences-Type of animal
4.5
4
3.5
3
2.5
2
1.5
1
0.5
0
1
1
3
1
4
Monkey
Jackal
Dog
Yak
Not identified

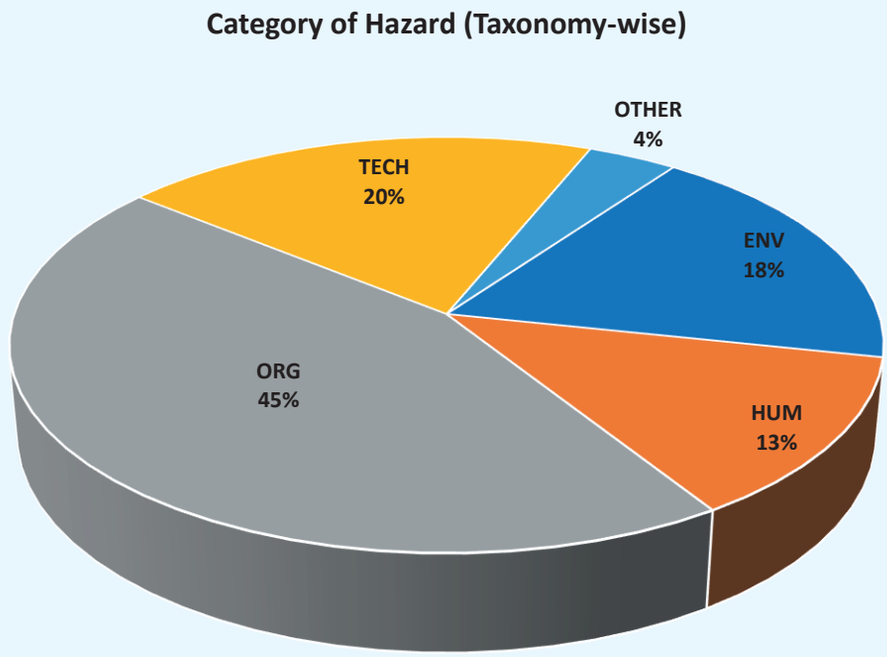

Animal Occurrences-Consequence
10
9
8
7
6
5
4
3
2
1
0
9
1
No damage
structural damage

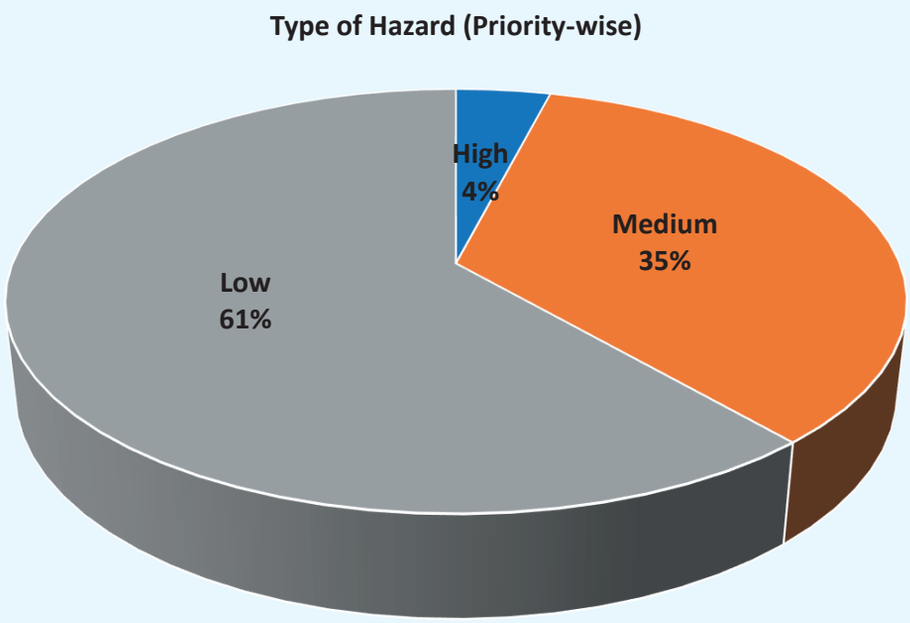
Chapter- 5

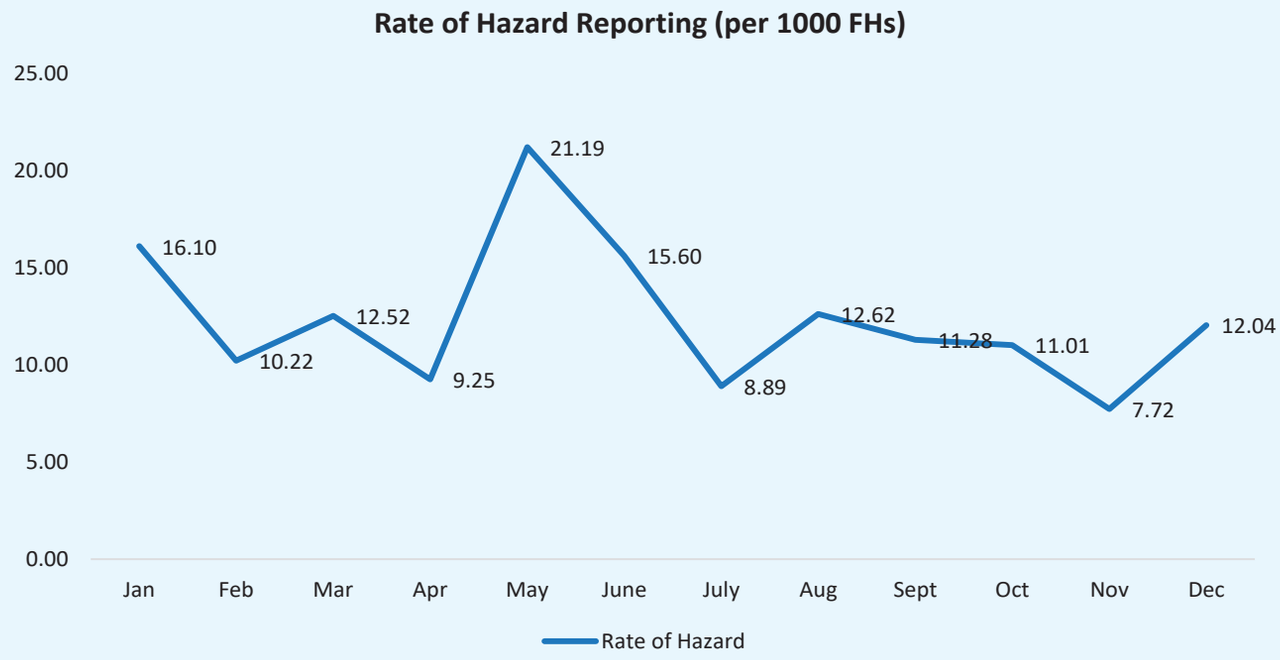
Voluntary Information Reporting

Hazard Reported in 2022

Out of total 1518 hazards reported in the year 2022, highest number of reports were related to the organization factors (45%) whereas the lowest number were associated to the Human factors.



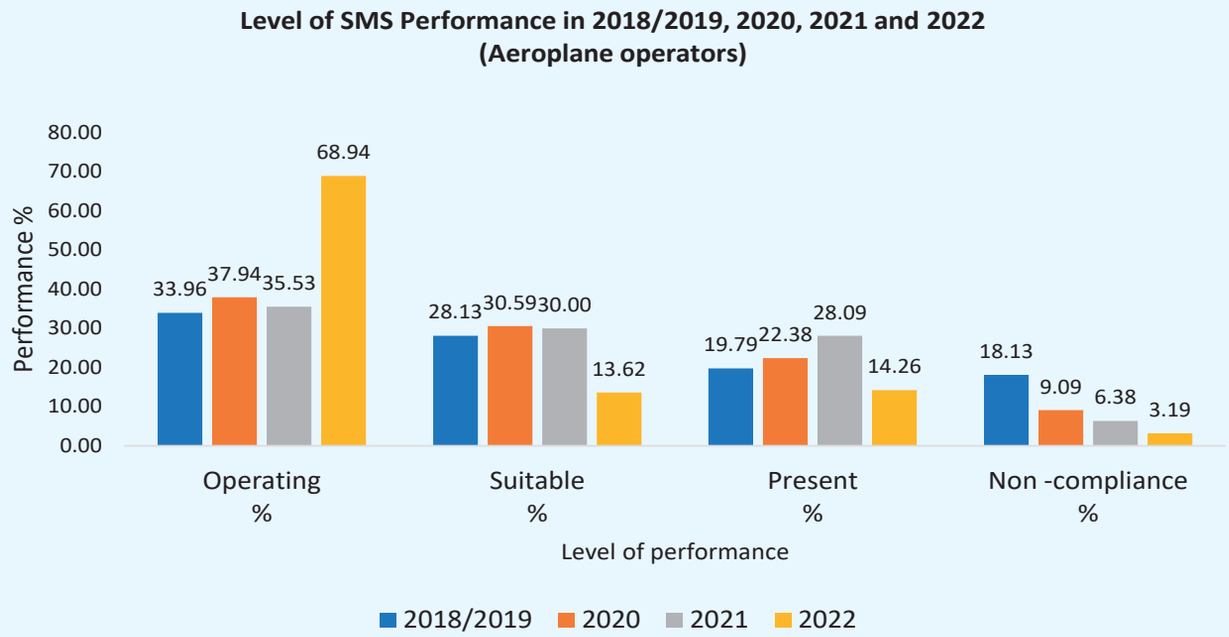


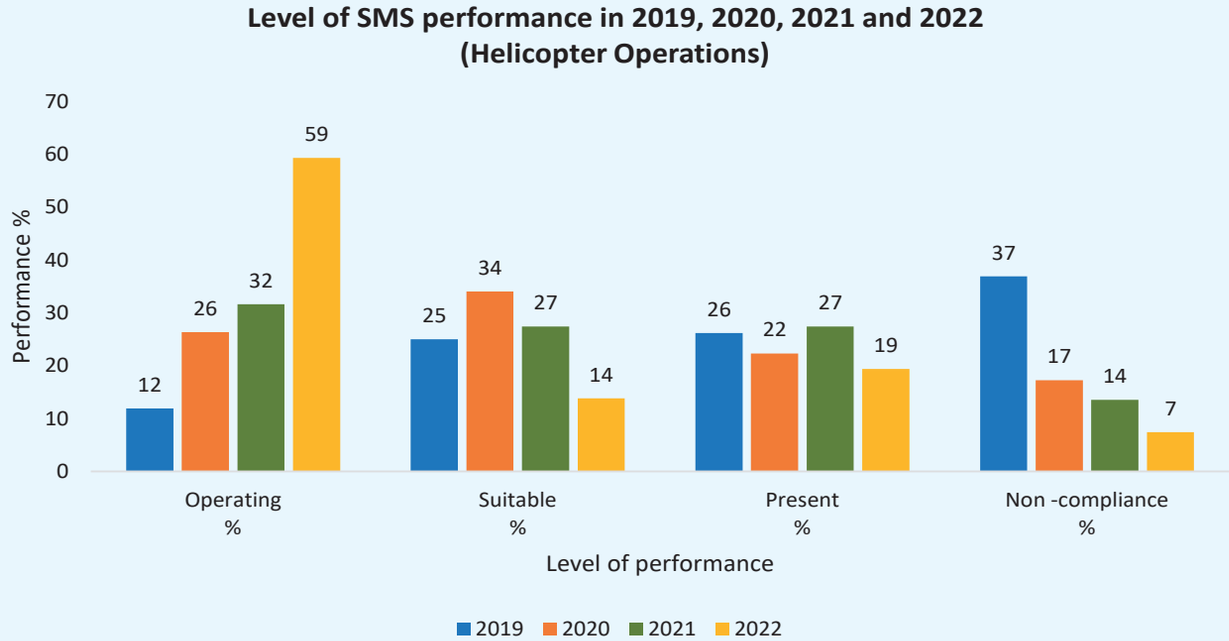

Rate of Hazard Reporting (per 1000 FHs)
25.00
20.00
15.00
10.00
5.00
0.00
16.10
10.22
12.52
9.25
21.19
15.60
8.89
12.62
11.28
11.01
7.72
12.04
Jan
Feb
Mar
Apr
May
June
July
Aug
Sept
Oct
Nov
Dec
Rate of Hazard

Chapter - 6

Status of Safety Management System Implementation in 2022

SMS performance of the operators in last four years (2019, 2020, 2021 and 2022) was analyzed basically on their SMS audit reports. The reports were prepared such that non - compliance (not documented) and 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) - not considered yet in Nepali contest.





Chapter- 7

State Safety Performance Indicators (SPIs) and Safety Performance Target (SPTs) for 2023

Safety Performance Indicators and Targets for 2023

A. Lagging Indicators

1 **Aircraft Accidents (Fatal and Non - Fatal)**

SPI: Number of Accident in a year.

SPT for 2023: Maintain the number of accident to zero.

2 **Aircraft Serious Incidents**

SPI: Number of serious incidents per 1000 Flying hours.

SPT for 2023: Reduce the annual average rate of serious incidents by 50% over the annual average rate of 2022.

Indicators identified through occurrence reporting system (ORS)

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

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

SPT for 2023: Reduce the number of occurrences related to BIRD by 15% over the value to 2022.

2 **System Component Failure or Malfunction (Non - Power plant) related occurrences (SCF-NP)**

SPI: Number of occurrences related to SCF-NP per 1000 FHs.

SPT for 2023: Reduce the number of occurrences related to SCF-NP by 10% over the value to 2022.

3 **System Component Failure or Malfunction (Power - plant) related occurrences (SCF-PP)**

SPI: Number of occurrences related to SCF-PP per 1000 FHs.

SPT for 2023: Reduce the number of occurrences related to SCF-PP by 10% over the value to 2022.

4 **Wildlife (WILD)**

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

SPT for 2023: Reduce the number of occurrences related to WILD by 15% over the value to 2022.

5 **Fire/Smoke (NON-IMPACT (F-NI)**

SPI: Number of occurrences related to F-NI per 1000 FHs.

SPT for 2023: Reduce the number of occurrences related to F-NI by 10% over the value to 2022.

6 Fuel (FUEL)

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

SPT for 2023: Reduce the number of occurrences related to FUEL by 20% over the value to 2022.

7 Windshear and Thurderstorm (WSTRW)

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

SPT for 2023: Reduce the number of occurrences related to WSTRW by 10% over the value to 2022.

8 Ground Handling (RAMP)

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

SPT for 2023: Reduce the number of occurrences related to RAMP by 15% over the value to 2022.

9 Abnormal Runway Contact (ARC)

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

SPT for 2023: Reduce the number of occurrences related to ARC by 10% over the value to 2022.

10 Abrupt Manoeuvre (AMAN)

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

SPT for 2023: Reduce the number of occurrences related to ARC by 10% over the value to 2022.

11 Aerodrome (ADRM)

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

SPT for 2023: Reduce the number of occurrences related to ADRM by 10% over the value to 2022.

12 AIRPROX/TCAS alert/Loss of Separation/Near Midair Collision /Midair Collision (MAC)

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

SPT for 2023: Reduce the number of occurrences related to MAC by 20% over the value to 2022.

13 Medical (MED)

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

SPT for 2023: Reduce the number of occurrences related to MED to zero.

14 CNS / ATM (ATM)

SPI- 1: Number of occurrences related to controller errors and deviations in traffic controlling yearly.

SPI -2: Number of occurrences related to communication yearly.

SPI -3: Number of occurrences related to navigation yearly.

SPI -4: Number of occurrences related to surveillance yearly.

SPT for 2023: Maintain the number of occurrences related to ATM and CNS as were in 2022

15 Security (SEC)

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

SPT for 2023: Reduce the number of occurrences related to SEC by 50% over the value to 2022.

16 Ground Collision (GCOL)

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

SPT for 2023: Reduce the number of occurrences related to GCOL by 10% over the value to 2022.

17 Cabin Safety (CABIN)

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

SPT for 2023: Reduce the number of occurrences related to CABIN by 15% over the value to 2022.

18 Runway Incursion (RI)

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

SPT for 2023: Reduce the number of occurrences related to RI by 8% over the value to 2022.

19 Turbulance (TURB)

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

SPT for 2023: Reduce the number of occurrences related to TURB by 10% over the value to 2022.

20 Loss of Control- in Flight (LOC-I)

SPI: Number of occurrences related to LOC-I per 1000 FHs.

SPT for 2023: Reduce the number of occurrences related to LOC-I by 10% over the value to 2022.

21 Runway Excursion (RE)

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

SPT for 2023: Reduce the number of occurrences related to RE by 8% over the value to 2022.

B. Indicators Identified through hazard reporting system (HRS)

22 Low Altitude Operations (LALT)

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

SPT for 2023: Reduce the number of occurrences related to LALT by 10 % over the value to 2022.

23 Collision with Obstacles during Take off and Landing (CTOL)

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

SPT for 2023: Reduce the number of occurrences related to CTOL by 10% over the value to 2022.

C. Leading Indicators

1 Number of hazards

SPI: Number of Hazards from multiple sources including surveillance activities

SPT for 2023: Increase the hazards reporting over the value of 2022.

2 Safety awareness workshops and seminars

SPI: Number of safety awareness workshops and seminars.

SPT for 2023: Increase the number of safety workshops and seminars over the value of 2022.

3 Safety Trainings (SMS and SSP related)

SPI: Number of safety trainings.

SPT for 2023: Increase the number of safety trainings over the value of 2022.

4 Number of Safety Committee Meetings

SPI: Number of safety trainings.

SPT for 2023: increase the number of safety committee meeting over the value of 2022.

5 Number of audit/inspection

SPI: Number of audit/inspections.

SPT for 2023: Increase the number of regular and random audits and inspections over the value of 2022.

C. Indicators identified through NASP 2023 to 2025

Goal No. 1: Achieve a continuous reduction of operational safety risks.

1 National Accident Rate

SPI-I: Number of accident (fatal and non - fatal) per 10,000 departures.

SPI-II: Number of Fatalities per passengers carried (Fatality rate).

SPI-III: % of occurrences related to High Risks Categories (HRCs)

SPT: Maintain a decreasing trend of the national accident rate.

Goal No: 2 : Strengthen State's Safety Oversight Capability

2 State's Effective Implementation (EI) %

SPI- I: % of priority PQs related to a safety oversight system implemented

SPI- II: % of required CAPs submitted using OLF

SPI- III: % of CAPs submitted using OLF

SPT: increase the EI %, with focus on priority PQs to 75% by 2024, 85% by 2026 and 95% by 2030

Goal No. 3: Effective SSP implementation

3 SSP foundation

SPI: % of SSP foundation implementation

SPT: increase the % of SSP foundation implementation to 100% by 2023

4 SSP implementation

SPI: Level of SSP implementation

SPT: attain Present level of SSP implementation by 2023 and Present and Effective level by 2025

Goal 4: Increase collaboration at the regional level

5 Safety data and information including SSP SPIs collection, analysis and sharing in Regional Level

SPI: Number of Safety data and information shared, collected and analysed with AP-RASG.

SPT: Establish a mechanism and start sharing, collecting and analysing safety data and information with AP-RASG by 2023

Goal 5: Expand the use of industry programme

6 Contribution of information to RASG

SPI: Amount of information contributed to RASG

SPT: Increase contribution of information on operational safety risks, including SSP safety performance indicators (SPIs), and emerging issues, to the Asia Pacific Regional Aviation Safety Group (AP- RASG) each year.

7 Use of Industry Programme

SPI: Amount of safety information sharing with industry.

SPT: Increase amount of information sharing with industry for effective implementation of NASP.

Goal No. 6: Ensure the appropriate infrastructure is available to support safety operations.

8 Air Navigation and Aerodrome infrastructure

SPI: level of implementation of Air Navigation and Aerodrome core infrastructure elements.

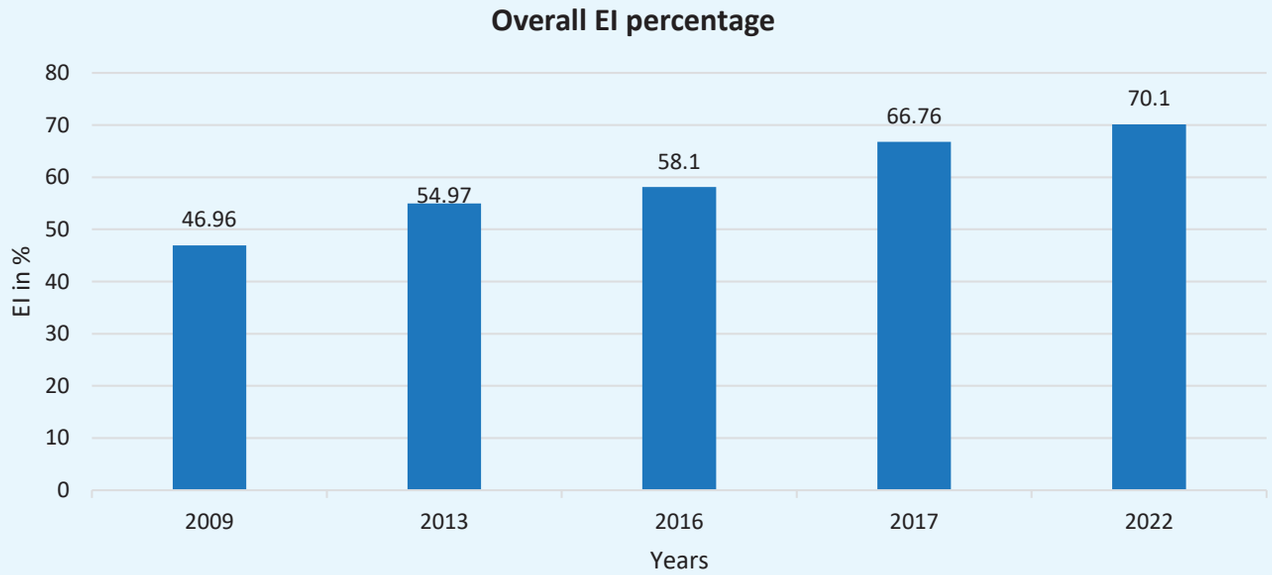
SPT: increase the Air Navigation and Aerodrome core infrastructure in Nepal.

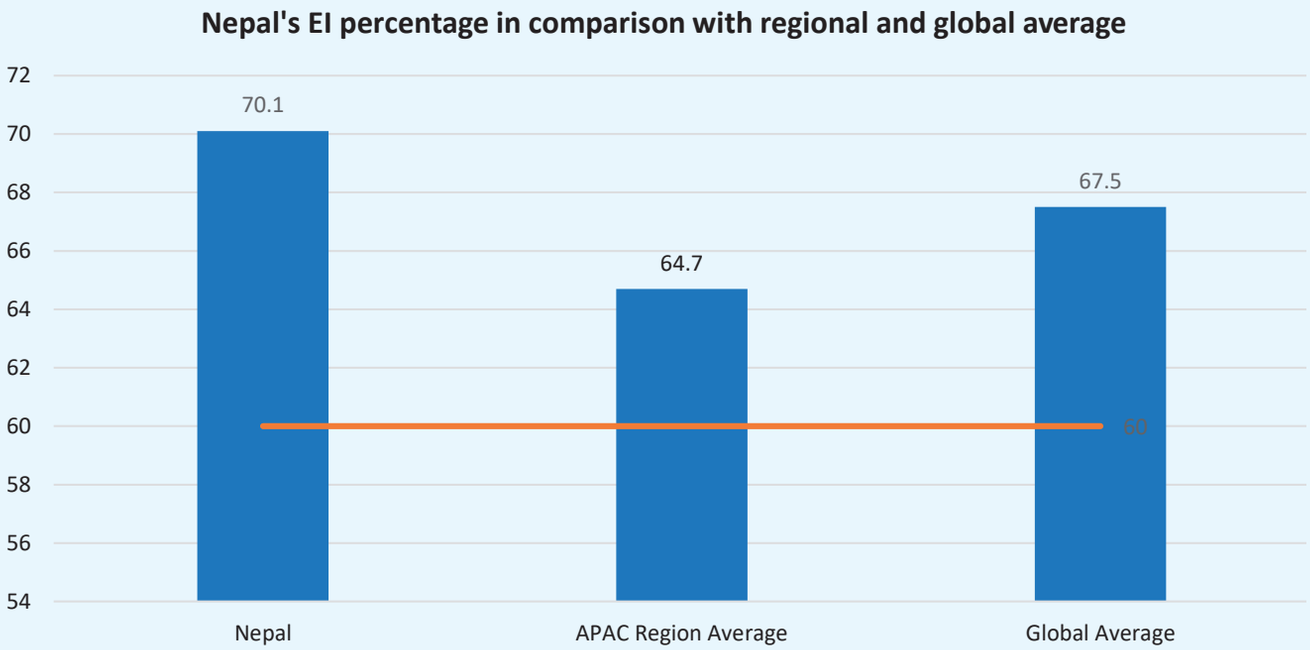
Chapter- 8

State Safety Oversight Information

Nepal's State Safety Oversight Capability

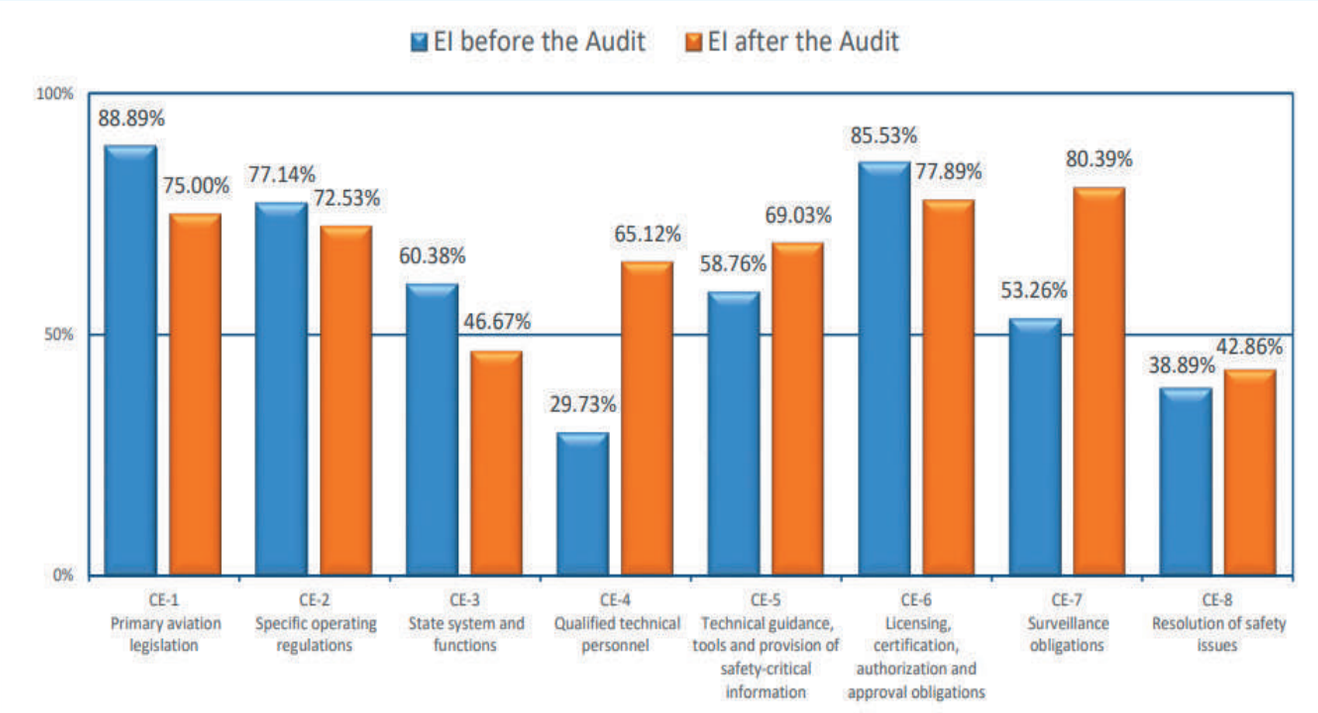
The latest ICAO USOAP audit of Nepal was conducted from 13 to 25 April 2022. In this audit State Safety Oversight Capability including 8 Areas and 8 Critical Elements were audited. In this audit Nepal has achieved the Effective Implementation Rate of 70.10% which is above the ICAO Target (60%), Global 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%.



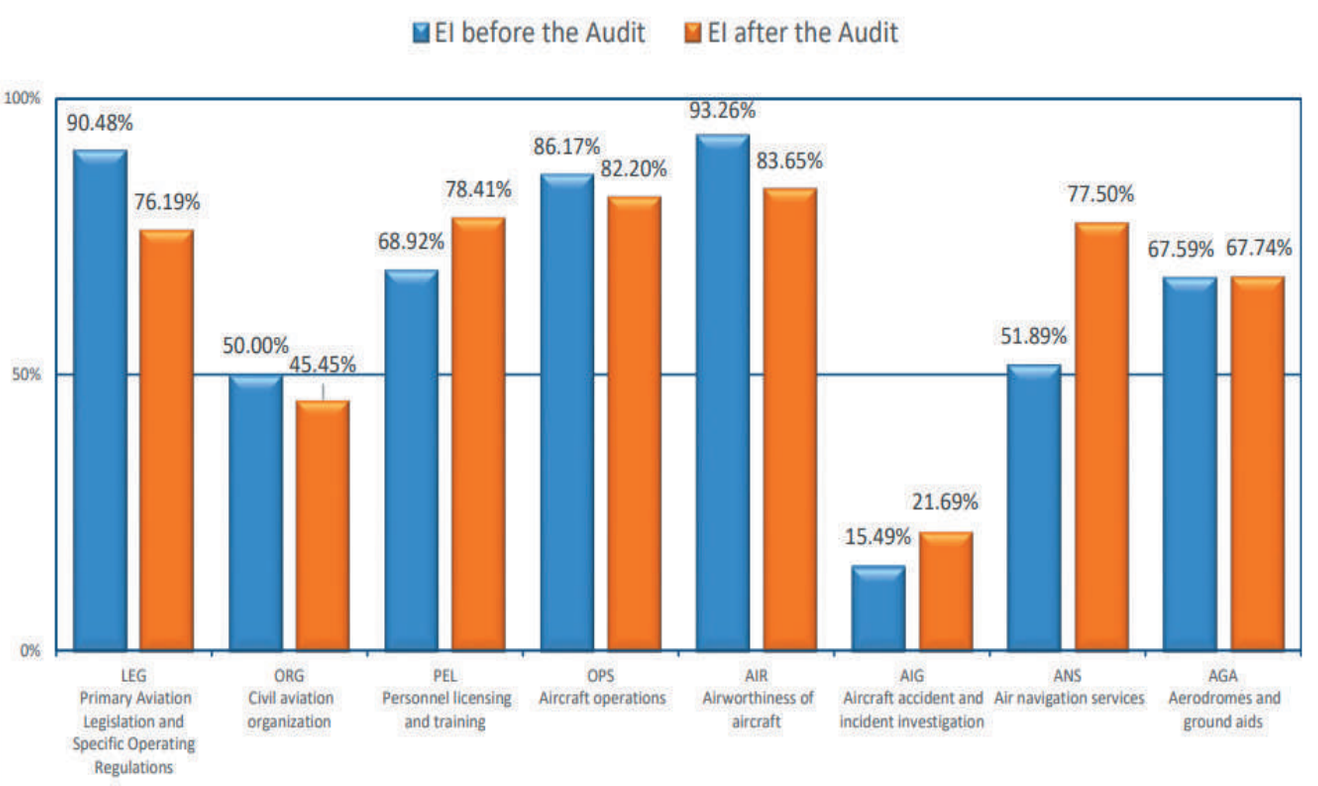


(Global and APAC regional average source: ICAO USOAP State Profile- Nepal, date: 2 November 2022)

EI percentage according to the Critical Elements

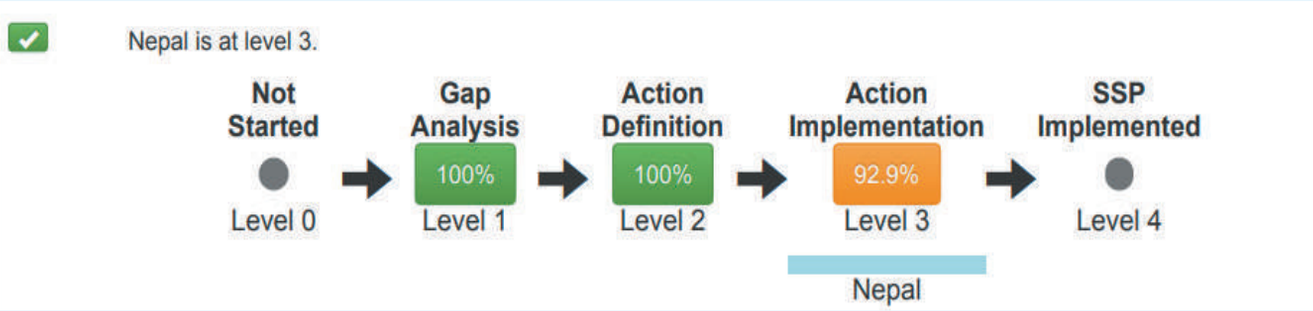


EI Percentage according to the Audit Areas



SSP implementation in Nepal

Nepal is at SSP implementation Level 3 (92.9% completed) well satisfying 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

Chapter- 9

Operational Safety Risks in Nepal

Nepal Aviation Safety Plan (NASP), 2023-2025 developed in congruence with the Global Aviation Safety Plan (GASP), Doc.10004 and Regional Aviation Safety Plan (RASP). NASP (2023-2025) has identified Seven 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), Abnormal Runway Contact (ARC) and Wild life Strike (WS).

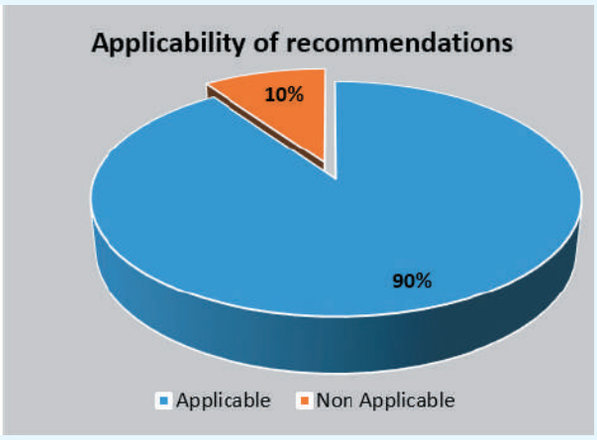
Chapter- 10

Accident Investigation Recommendation Implementation Status

(Recommendations issued from 2013 to 2022 by Government of Nepal)

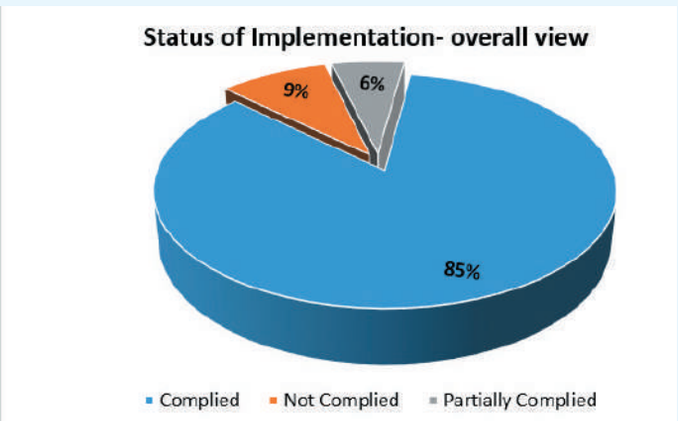
Applicability of Accident Investigation recommendations

Total Recommendations:	**145**
Applicable	131
Not Applicable:	14

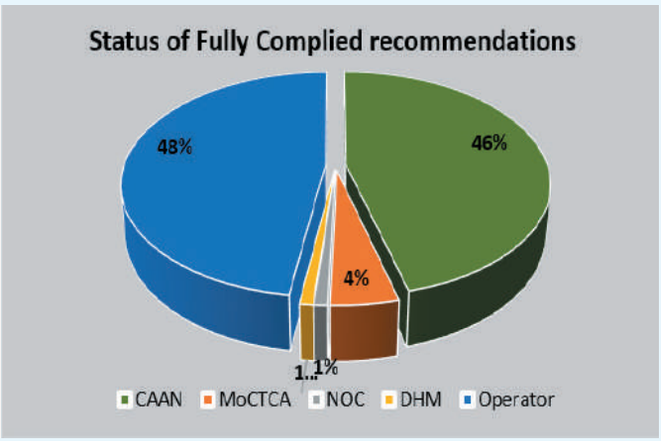


Status of Implementation of Applicable Recommendations

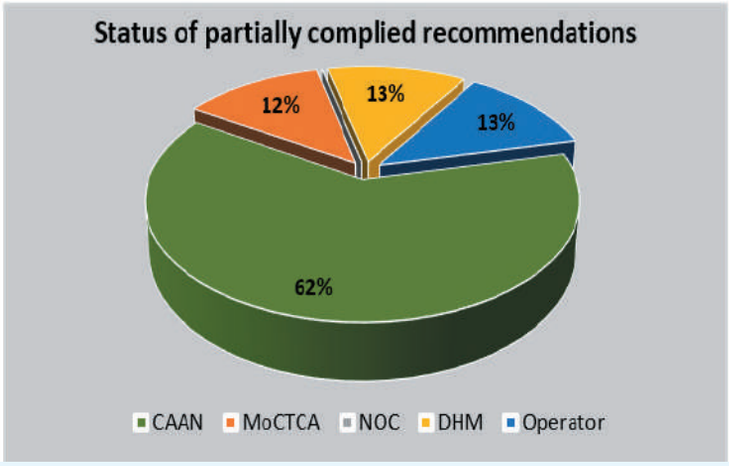
Total Recommendation:	**131**
Complied:	111
Partially complied:	8
Not Complied:	12



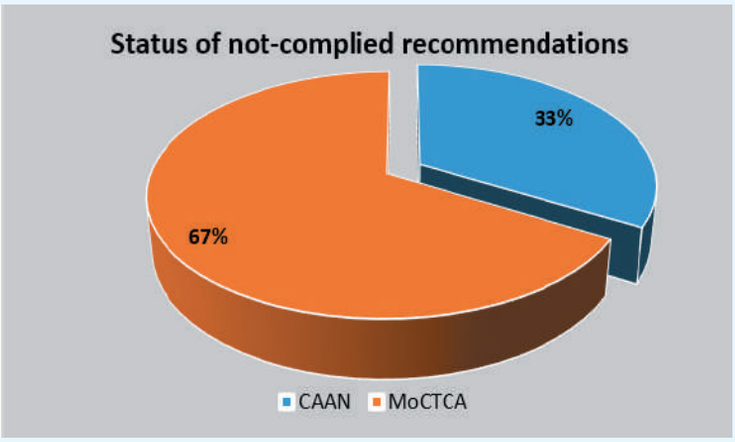
Total Complied:	**111**
CAAN:	51
MOCTCA:	5
Operator:	53
NOC:	1
DHM:	1



Total Partial Complied:	**8**
MOCTCA:	1
CAAN:	5
DHM	1
Operators	1
NOC	0

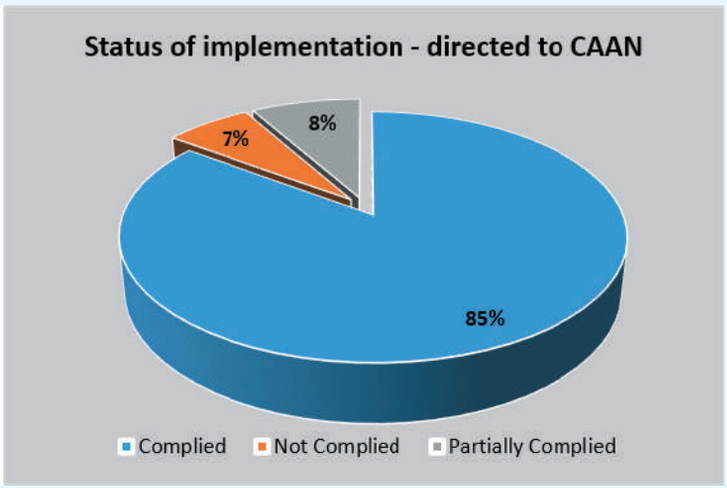


Not Complied:	**12**
CAAN:	4
MOCTCA:	8
Airline Operators:	0
NOC:	0
DHM:	0

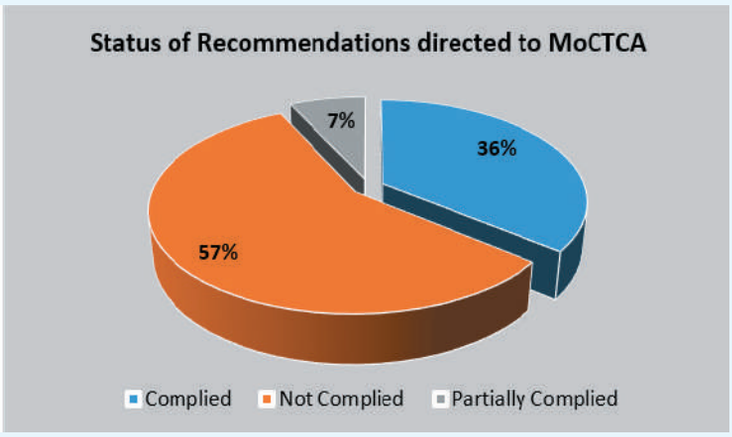


Status of Implementation of Applicable Recommendations directed to CAAN, MOCTCA and Airline Operators.

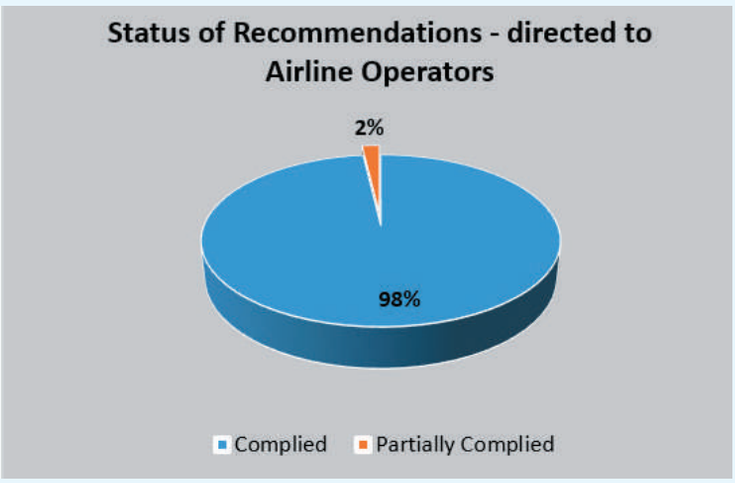
Directed to CAAN	
Total Recommendations:	60
Complied:	51
Partially complied:	5
Not Complied:	4



Directed to MOCTCA	
Total Recommendations:	14
Complied:	5
Partially complied:	1
Not Complied:	8



Directed to Airline Operators	
Total recommendations:	54
Complied:	53
Partially complied:	1
Not Complied:	0



Note:

Recommendation given for Czech Republic has not been counted in this analysis
Recommendations directed to both CAAN and Airline Operators have been counted to CAAN

Chapter- 11

National Aviation Safety Plan (Nasp), Nepal (2023 To 2025)

National Aviation Safety Plan, Nepal

2023 to 2025

Civil Aviation Authority of Nepal

Goals of NASP

Goal 1
- Achive a continuous reduction of operational safety risks.

Goal 2
- Strengthen safety oversight capabilities of Nepal.

Goal 3
- Implement the State Safety Programme (SSP).

Goal 4
- Increase collaboration at the regional level.

Goal 5
- Expand the use of industry programmes.

Goal 6
- Ensure the appropriate infrastructure is available to support safe operation.

NASP's Goals with Targets

Goal 1

Target 1.1**:** maintain a decreasing trend of the national accident rate.

Goal 3

Target 3.1: Nepal to implement the foundation of its SSP by 2023.

Target 3.2: Nepal to work towards an effective SSP as follows:

a. By 2023- Present
b. By 2025- present and Effective

Goal 5

Target 5.1: Maintain an increasing trend in industry's contribution in safety information sharing networks to State and region to assist in the development and update of NASP and RASP by 2025

Goal 6

Target 6.1: Maintain an increasing trend with Air Navigation and Aerodrome Infrastructure that meet relevant ICAO Standards by 2025.

Goal 2

Target 2.1: Nepal to improve score for the EI of CEs of the Nepal's safety oversight system with focus on priority PQs as follows:

By 2024- 75%
By 2026- 85%
By 2030- 95%

Goal 4

Target 4.1**:** Nepal to use a regional safety oversight mechanism, another State or other safety oversight organization's ICAO recognized functions in seeking assistance to strengthen its safety oversight capabilities by 2023.

Target 4.2: Nepal to contribute information on operational safety risks, including SSP Safety Performance Indicators (SPIs) and emerging issues to Asia Pacific Aviation Safety Group (AP-RASG) by 2025.

Chapter 12

Safety Promotional Activities in 2022

ANS Safety Awareness Program and brief Information about Reporting Culture in Dhangadhi Airport.
ANS Safety Awareness Program and ICAO USOAP CMA Preparedness in TIACAO.
ANSSD Briefing about ICAO USOAP CMA Preliminary Report and Reporting Culture in Biratnagar.
ANS Briefing about ICAO USOAP CMA Preliminary Report in Kathmandu.
ANS Safety Awareness program on Airspace Classification for Flight Crews in TIACAO.
Awareness Program on ANSSD Regulatory Framework in GBIA.
Adoption of ICAO SARPs in National Regulations and Briefing of ICAO USOAP CMA Report in TIACAO.
SMS and SRM Workshop at Simara in Simara CAO.
Safety promotion workshop based on ICAO SMS principles in GBIA.
A training on Aerodrome Certification and Safety Oversight Inspectors (Aerodrome) course in Kathmandu.
Safety Awareness/workshop Programs in Dhangadi.
Post Monsoon operation safety review in Kathmandu.
Monsoon safety awareness programme in Kathmandu.
STOL Operational Safety Programme in Kathmandu.
UAV/UAS safety interaction in Kathmandu.
Aviation Enforcement awareness programme in Kathmandu.
Preflight risks assessment in Kathmandu.
Awareness programme about recreational aviation safety in Nepal.
CCTM awareness programme.
CAR-9 Awareness programme.
ELP Refresher programme.
Helicopter operational safety programme.

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	TulachanDhuri	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	Chuchche Khark, Myagdi	18
20	05 Sept	9N-AEG	HS-748	Necon Air	Scheduled	Thankot,Kathmandu	15
1999	1999	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 May 2004	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 July 2006	9N-AFE	DHC-6/310	Yeti Airlines	Scheduled	Bajura Airport	None
34	08 Oct 2008	9N-AFE	DHC-6/300	Yeti Airlines	Scheduled	Lukla Airport	18
35	24 Aug 2010	9N-AHE	DO-228	Agni Air	Scheduled	Sikharpur, Makawanpur	14
36	15 Dec 2010	9N-AFX	DHC-6/300	Tara Air	Scheduled	Okhaldhunga,	22
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	16 Feb 2014	9N-ABB	DHC-6/300	Nepal Airlines	Scheduled	Masinelek, Arghakhanchi	18
44	24Feb 2016	9N-AHH	DHC-6/400	Tara Air	Scheduled	Dana, Myagdi	23
45	27May 2017	9N-AKY	Let410	Summit Air	Cargo	Lukla Airport	2
46	28 Nov 2017	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
50	January 15, 2023	9N-ANC	ATR 72-500	Yeti Airlines	Scheduled	Pokhara valley, Seti River	72

Appendix -2

Record of single Engine Aeroplane Accidents in Nepal

S.N.	Date	Registration	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	TalchaAirport	None
6	26 Feb 2016	9N-AJB	PAC750XL	Air Kashthamandap	Charter	ChilkhayaKalikot	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	Type	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	Thupten Choling	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)	Asian Airlines	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 HeliService	Thhose VDC, Ramechhap	3
17	02 Jun 2005	9N-AND	MI-17	Shree Airlines	Everest Base Camp.	None
18	07 May 2006	9N-ADT	MI-17 MTV1	Heli Hansa 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 DynastyHeli Service	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	YamunaDanda,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
38	5-May-23	9N-AJZ	AS350B3e	Simrik Air	Chumrung, Sankhuwasabha	1
39	11-Jul-23	9N-AMV	AS350 B3e	Manang Air	Chholing, Lamjura, Solukhumbu	6

Appendix – 4

Record of foreign - registered aircraft accidents in Nepal

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

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

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