



Aerodrome Safety Report 2022



**Tribhuvan International Airport
Civil Aviation Office
Kathmandu**



Aerodrome Safety Report 2022



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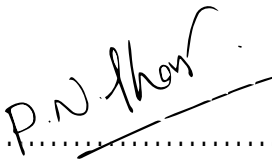
FOREWORD

The prime objective of the establishment of Civil Aviation Authority of Nepal (CAAN) is to make the air transportation services safe, efficient and to the standard. For many years this airport has remained a single international airport, serving countrymen as well as connecting Nepal to the world. Safety has been a prime concern since very beginning of the establishment of this airport. Significant change comes into effect after the certification of this airport in 2003 under rule 4 of Airport Certificate Regulation (ACR)-2004 (First Amendment 2016) and, Para 1.4 of Civil Aviation Requirements (CAR)-14 Aerodrome Design and Operations.

It is my pleasure to quote that Tribhuvan International Airport Civil Aviation Office (TIACAO) is publishing Aerodrome Safety Report (ASR), under safety promotion mission of its SMS Manual to achieve safety objectives. This Aerodrome Safety Report (ASR) is an endeavor to promote safety through sharing of aerodrome operator's safety information. It is also an attempt to reflect our priority on safety promotion and commitment.

This very first safety report of Tribhuvan International Airport Civil Aviation Office provides a summary on aerodrome safety activities, initiatives and updates on safety indicators, reactive and proactive safety information, and safety promotional activities. Information contained in this report is based on aerodrome safety data (mandatory and voluntary) collected by TIA Aerodrome Safety Office through safety reporting process from within safety reporting system as well as from aircraft operators and other stake holders in TIACAO. It is also an attempt to depict whereabouts of TIACAO's SMS Implementation phase. at this moment, I would like to thank Aerodrome Safety Office team of TIACAO especially Er. Ram Bali Mahato for his initiation and effort on publishing this safety report.

I hope this report will play an important role of inculcating safety culture through sharing and caring among our safety companions.



.....
Mr. Prem Nath Thakur

General Manager

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EXECUTIVE SUMMARY

Tribhuvan International Airport Civil Aviation Office (TIACAO) is located at mountainous region at an altitude of 1333m above the mean sea level in Kathmandu Valley which is also the capital city of Nepal. It is busiest airport of Nepal which has 108,202 number of domestic flight movement, and 24,312 number of international flight movement for the year 2022. There are 9 airlines operating domestic flights, and 31 airline companies operating international flights to and from TIACAO in the year 2022.

Every result and trend presented in this report should be understood from the vantage point of aforementioned facts and data. Regarding Hazard and Occurrence Reporting, it is one of the prime sources of safety information. On the basis of this reporting, TIACAO has identified certain categories of occurrences in the year 2021. The safety performance indicators and targets for the year 2022 have been set on the basis of those categories of occurrences. 258 numbers of hazard and occurrences were reported in 2022. Analyzing the type of hazard and occurrences based on number and severity of the occurrences, it has been revealed that five areas seem to posing risk to aerodrome significantly for the year 2022; and namely they are FOD on Movement Area, Wildlife Activities, Wildlife Strike, Airfield Lighting Fault and Missed Approach.

Continuous effort has resulted a gradual progress on safety reporting culture - voluntary reporting of Hazard, Occurrence; and incident reporting. This is outcome of various activities conducted by Aerodrome Safety Office. This office is focusing on activities like aerodrome safety awareness, hazard identification, risk management programme, foreign object debris cleaning/removing campaign etc. In addition to that, inspection and number of planned and follow up safety meeting is being conducted regularly with concerned units and stakeholders.

This report also categorizes types of incident and accident occurred in TIACAO along with aircraft type involved from the date 2008 to 2022. An attempt has been made to portray patterns of each safety performance indicators based on available data. There are 11 lagging safety performance indicators identified, and 3 leading safety performances indicators targeted for the year 2023.

Chapter-1

AIRLINES IN OPERATIONS

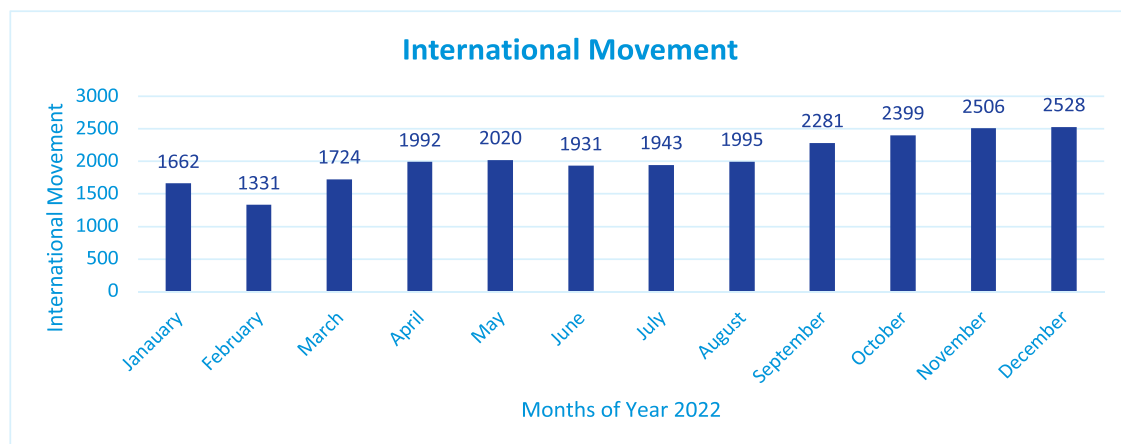
Total 31 airlines are operating international flights from TIACAO including Nepalese flag carrier and foreign registered airline companies. And, 9 airline companies are operating as domestic operations in TIACAO. Below is the list of both categories of airline company currently operating in TIACAO.

International (31)	
Nepal Airlines Corp.	Himalaya Airline
Buddha Air	Yeti Airlines
Shree Airlines	Air Arabia
Air Arabia Abu Dhabi	Air India
Qatar Airways	Turkish Airlines
Vistara Air	Thai Lion
Srilankan Airlines	Biman Bangladesh Airlines
Bhutan Airlines	Air China
Cathey Pacific Airways	Sichuan Airlines
China Southern	Druk Air
Fly Dubai	Salam Air
Indigo Air	Jazeera Airways
Kuwait Air	Korean Air
Malaysian Airlines	Malindo Air
Thai Smile Airways	Singapore Airlines
Spice Jet	
Domestic (9)	
Nepal Airlines Corp.	Buddha Air
Guna Airlines	Saurya Airlines
Shree Airlines	Sita Air
Summit Air	Tara Air
Yeti Airlines	

Chapter-2 AIR TRAFFIC MOVEMENT

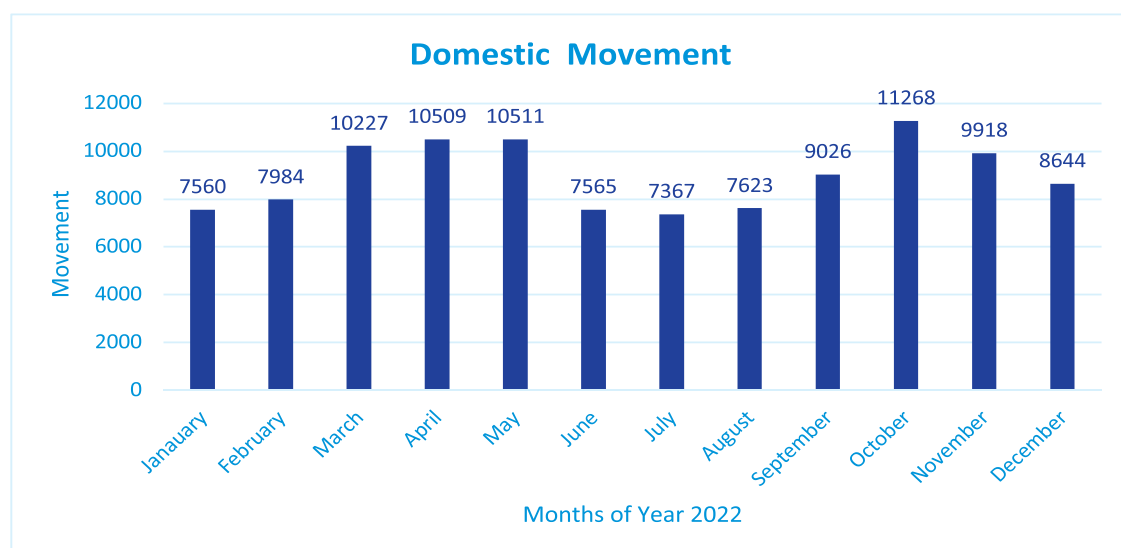
International

In this category, total air traffic movement in TIACAO is 24,312 in the year 2022. The data is depicted in the following chart. The chart indicates that December is the month having highest air traffic movement and February having lowest air traffic movements; and the average air traffic movement for the year 2022 is 2026.



Domestic

To the Domestic side, total air traffic movement segregated in 12 months in the year 2022 is 108,202. As the chart below indicates October is the month having highest air traffic movement; and July is the month having lowest air traffic movement. In average the year 2022 is having 9016.8



Chapter-3

AIRCRAFT INCIDENT/ACCIDENT (2008 TO 2022)

Following are the incident/accident of aircraft occurred in from 2008 to 2022.

S. N.	Date	Aircraft Types	Description
1	December 24, 2008.	9N-ABT (Twin Otter, Nepal Airlines)	A Nepal Airlines Twin Otter aircraft (9N-ABT) lies in a ditch as people gather near the crashed airplane at Tribhuvan International Airport in Kathmandu on December 24, 2008. The Twin Otter aircraft of the state-owned Nepal Airlines skidded off the runway towards east near taxiway E of runway 02 while trying to take off during training flight. Both of the pilots escaped unhurt.
2	September 8, 2012	Dornier 228-202 Sita Air Flight 601 (ST601)	A Dornier 228-202 passenger plane, operated by Sita Air, was crashed on the bank of Manohara river shortly after takeoff from the. All passenger and crew (total 19) on board were died.
3	March 4, 2015	TC-JOC (Airbus 330-303, Turkish Airlines)	Airbus 330-303 (registered TC-JOC, Turkish Airlines) with 11 crew member and 224 passengers skidded off to the left of RWY 02 between Taxiways D and C on landing roll. There were no fatalities.
4	March 12 2018	S2-AGU (DHC-8-402, US Bangla Airlines)	Bombardier Aircraft heading to south east, landed 1700 meters down the threshold runway 20 and touched left of the runway center line, then veered southeast, out of the runway, then broke into the inner perimeter fence along the rough down about 442 meters southeast from the first touchdown point on the runway. 49 passengers including 4 crew members were died and 22 passengers were rescued. The aircraft caught fire after 6 seconds of touchdown which engulfed major portions of the aircraft.

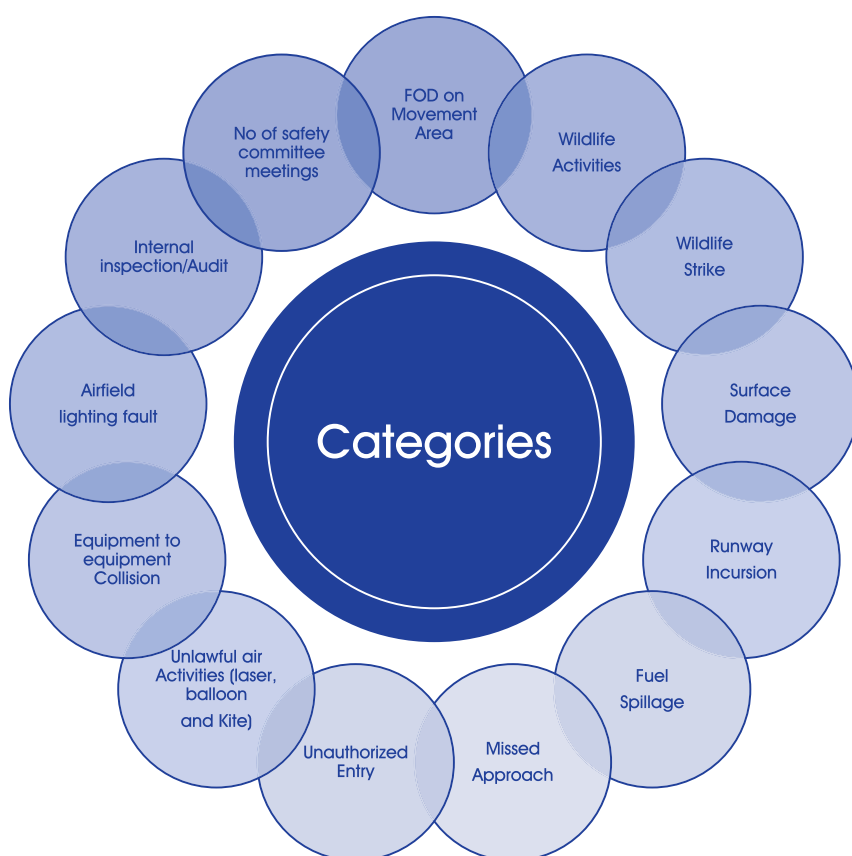
5	April 19, 2018	Malindo181 (Boeing 737-900 Registered in Malaysia 9M-LMJ)	Malindo Airways carrying 7 crew and 132 passengers was departing for Kuala Lumpur using RWY20 abandoned take off. However, the aircraft was not able to stop on the runway and overrun around 50m beyond the threshold of RWY02. There were no fatalities.
6	September 1, 2018	9N-AHU(Jet Stream, Yeti Airlines)	Yeti Airlines Jet Stream while landing from runway 02 skidded off to the west of runway between taxiway D and C at around 20:30 carrying 21 passengers including crew members. All passengers and crew members were evacuated safely.
7	July 12, 2019	9N-AMM (ATR 72-200, Yeti Airlines)	A Yeti Airlines ATR-72-212A, with registration 9N-AMM coming from Nepalgunj to Kathmandu with 66 passengers and 3 crews, landed on runway 02 but veered right off the runway. The aircraft came to a stop with all gear on, on the soft ground east of the runway near taxiway D. There were no fatalities or injuries; but, the aircraft received minor damage.



Chapter- 4

SAFETY PERFORMANCE INDICATORS

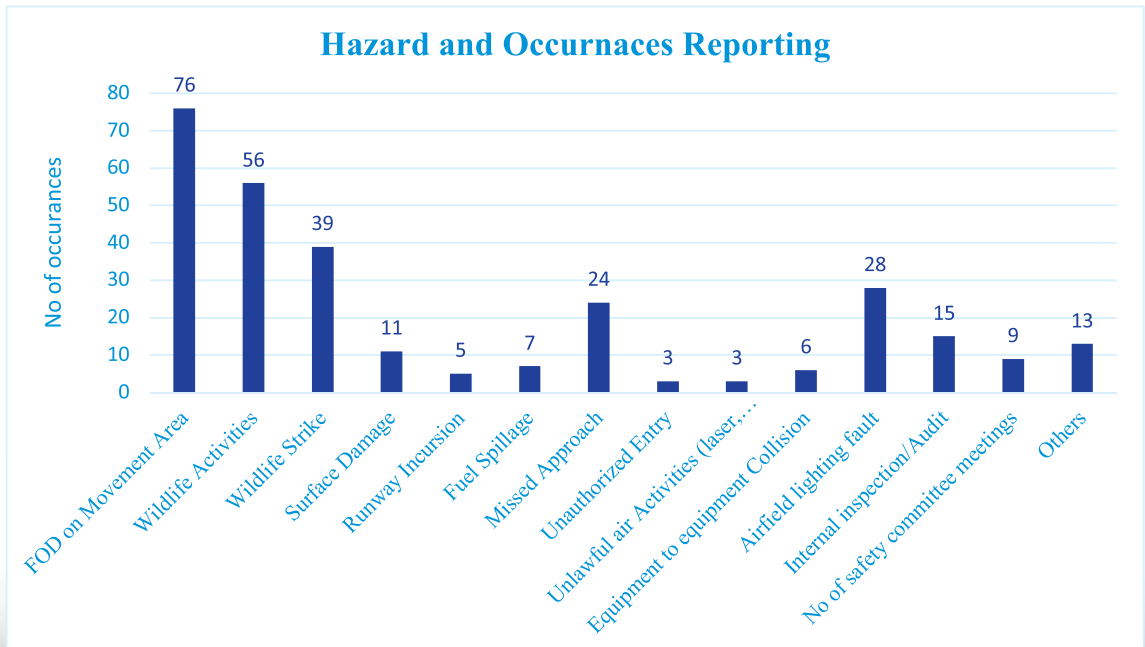
TIACAO has identified safety performance indicators that are characterized as lagging and leading indicators. Considering the nature of occurrences reported in 2021, TIACAO has identified categories of hazards and occurrences. Safety Performance Indicators listed in this report are based on these reports; indicated hazards and occurrences types. TIACAO has collected 258 hazards and occurrences as indicated in the incident report. TIA Aerodrome Safety Office is receiving hazards and occurrence information through Internal reporting system as well as from aircraft operators and other stakeholders of TIACAO. Internal reporting includes mainly from Airside Management Division, Electro-mechanical Division, Civil Engineering Division, Rescue and Fire-fighting Division and so on. These divisions and units report occurrences within their area of responsibility.



Chapter - 5

OCCURRENCE REPORTING

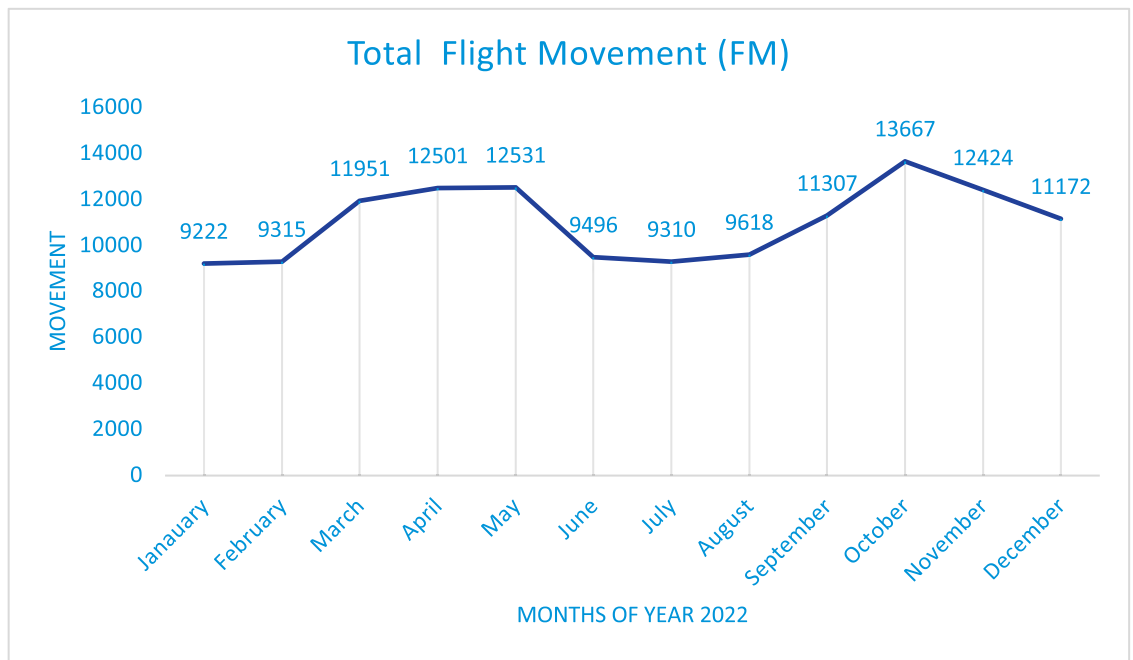
As stated earlier, total number of occurrences reported in 2022 are 258. They are categorized into 13 groups as suggested by ICAO. Beside these, TIACAO is experiencing another type of safe concern incidents which is categorized as 'others'. Now, we have total 14 categories of Safety Performance Indicators.



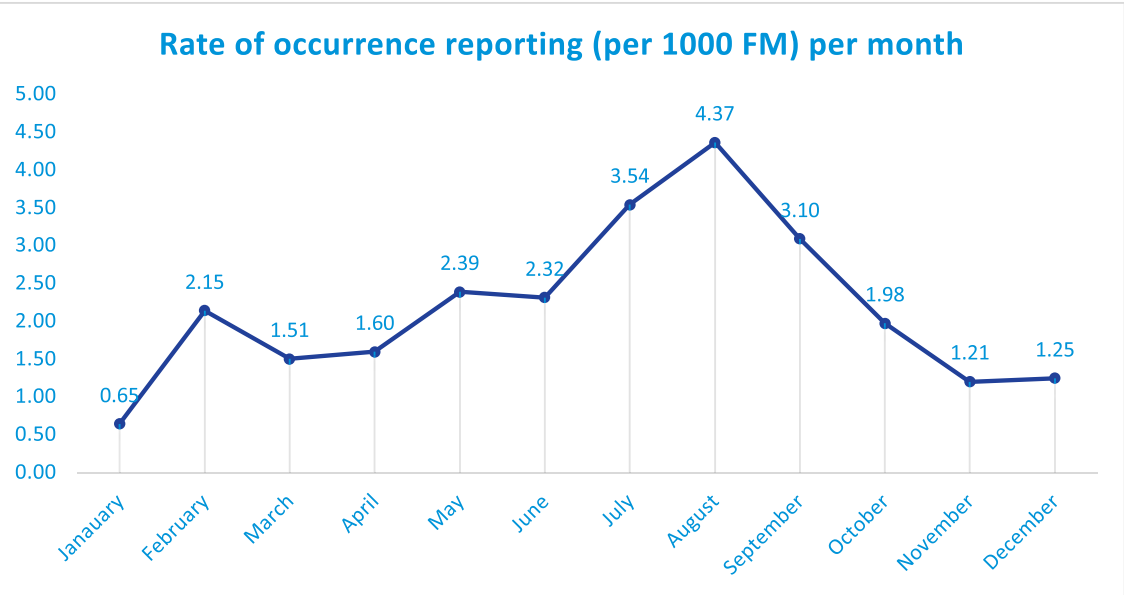
Followings are month wise hazard and occurrence. The chart below reveals that August has highest number of occurrences and January has lowest number of occurrences.



Followings are total flight movements of TIACAO in the year 2022.



Following chart depicts rate of hazard and occurrences reporting per 1000 flight movement (FM) per month.



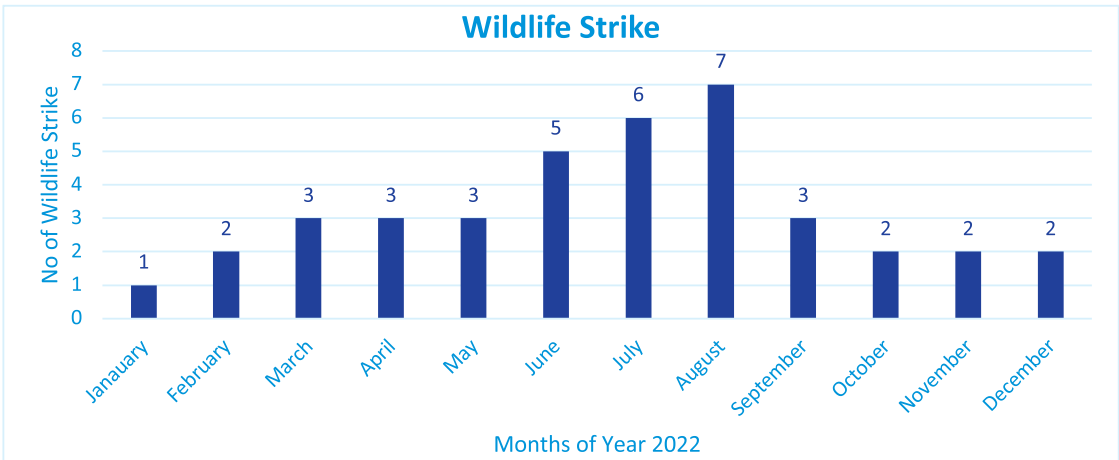
Wildlife Activities

TIACAO has collected log of wildlife activities (wildlife and flying wildlife) observed at movement area; approach, landing and take - off path of an aircraft. These wildlife activities are recorded and reported to Aerodrome Safety Office. The data related to wildlife (animal and bird) activities are presented in the chart below. This chart indicates that the month of September is having highest number of wildlife activities, and January, February, April and December having lowest number of wildlife activities in TIACAO.



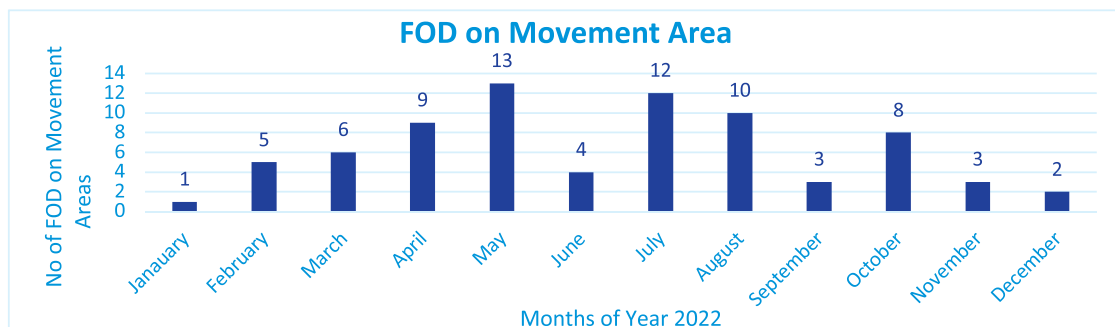
Wildlife Strike

TIACAO has collected the log of wildlife Strike (wildlife and flying wildlife) which were stroke at aircraft movement area; approach, landing and take - off paths of an aircraft. Such Wildlife Strike is considered to be serious Hazards. Almost all wildlife strike is bird strike. The data related to wildlife (animal and bird) strikes have been presented in the following chart.



FOD on Movement Area

TIACAO has collected log of FOD on Movement Area. FODs are also considered to be serious threat to aircrafts, hence treated as hazards. These include innumerable number of objects, to cite a few- pieces of tyre, bolt & nut, dead birds, plastic bags etc. The data related to FOD on movement area has been presented in the following chart. The chart below indicates that the month of May has highest number of FOD on movement area and January has the lowest number of FOD on movement area.



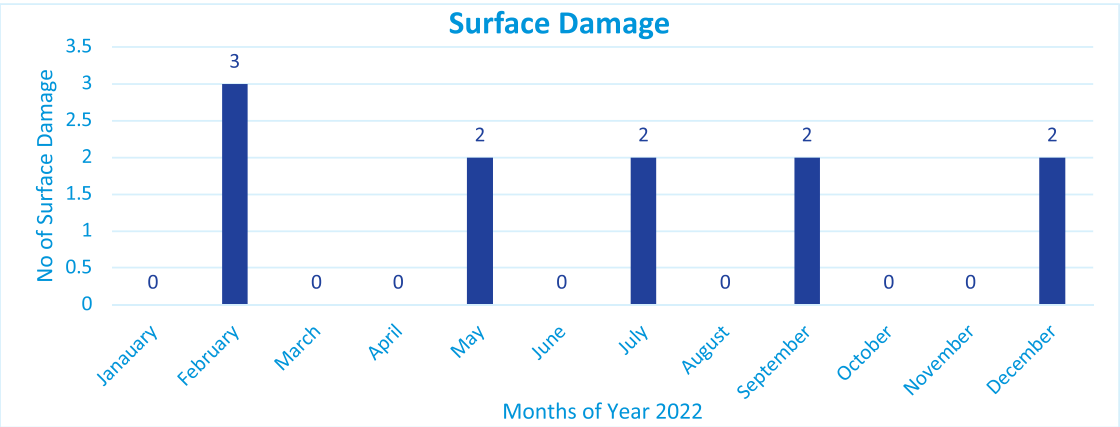
Missed Approach

TIACAO has also collected the records of missed approach that was carried out in the year 2022 and thus categorized it as one of safety performance indicators. Missed approach of aircraft was carried out mainly due to FOD on runway, wildlife activities on approach path, runway incursion etc. Missed approach is considered to be a corrective measures of consequences. The data related to missed approach have been presented in the following chart. The chart indicates that the month of August has highest number of miss approach occurrences and three months namely March, April and July have no miss approach at all.



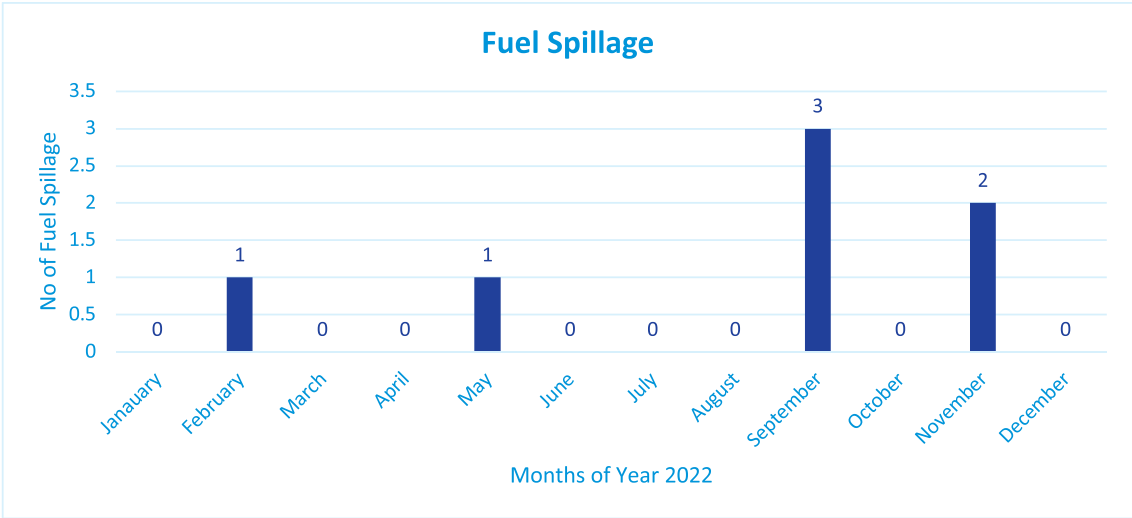
Surface Damage

TIACAO has been reported 11 number of Surface Damage categories of safety performance indicator. Cracks and irregularities of movement area are characterized as surface damage safety performance indicators. These are considered serious hazards for safe movement of aircraft. The data related to surface damage has been presented in the following chart. The chart indicates the month of February has 3 reporting of surface damage. Likewise, May, July, September and December have 2 reporting; and January, March, April, June August, October and November have no surface damage reporting.



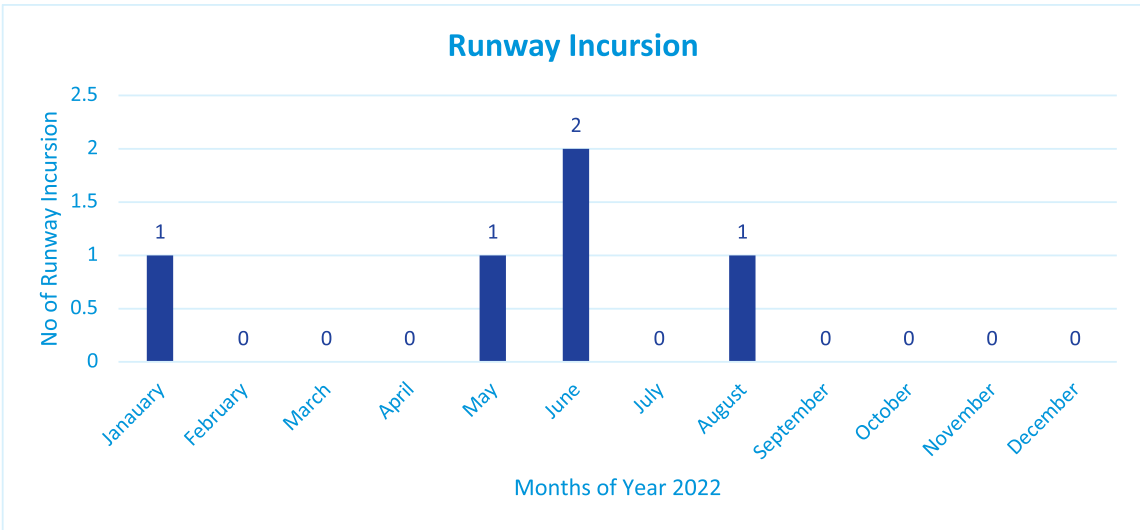
Fuel Spillage

Fuel spillage if not controlled in time, it creates quite serious consequences at airports. TIACAO has collected records of fuel spillage category of safety performance indicators and they are 7 in total. Fuel spillage may be spillage of hydraulic oil or oil spillage from ground support equipment and/or from an aircraft on the movement area. Data related to this category have been presented in the following chart. The chart indicates that the month of September has 3 number such incidents have been occurred, November has 2 occurrences, February and May have 1 occurrences; and rest of the months have no occurrences of this kind.



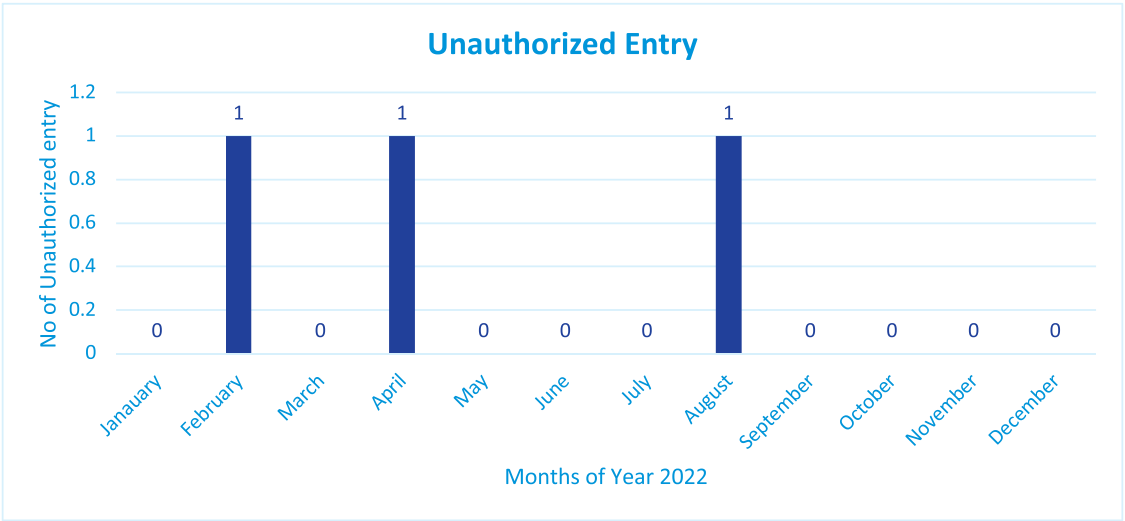
Runway Incursion

TIACAO has been reported 5 runway incursion incidents. This category of safety performance indicators includes entry of people, equipment or aircraft in active area without permission from Air Traffic Control Tower. Data related to runway incursions in have been presented in the following chart. In the year 2022, there have been 5 number of runway incursion incidents which is indicated in the chart below. Among the five 2 incidents occurred in June and one each on the months of January, May and August. Rest of the months have no runway incursion incidents.



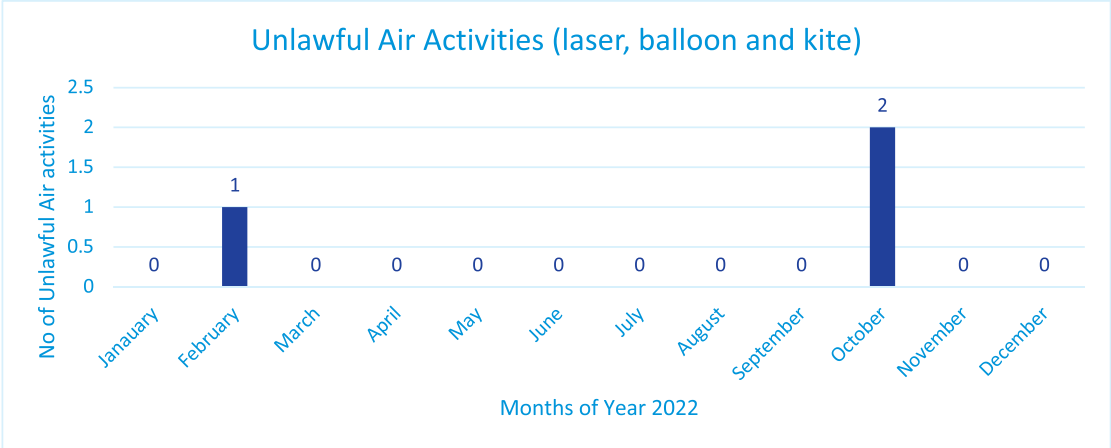
Unauthorized Entry

Unauthorized entry simply understood as people’s entry to the airside areas of an airport without authority or permissions. Airside areas often provide access to aircraft movement areas which jeopardize the safety of aerodrome. TIACAO has recognized and been reported a number of unauthorized entry as one of safety performance indicators. The data related to security breach in TIACAO have been presented in the following chart. The chart indicates that there are a few number of such cases which is not in alarming stage.



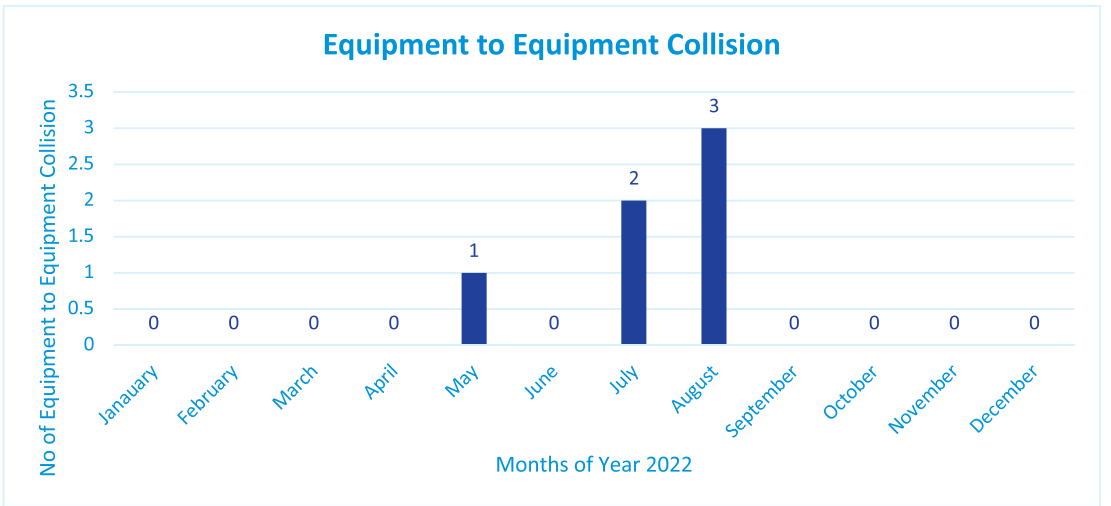
Unlawful Air Activities

TIACAO facing this category of safety challenges particularly of three kinds- Laser, Balloon and Kite activities. It has been revealed that these activities are occurring due to curiosity and lack of knowledge of its harmful effect and observed especially during festive seasons like Dashain. In recent years such activities have reduced significantly. Data related to unlawful air activities in TIACAO have been presented in the following chart. The chart indicates that there are only three number of such activities and two of them occurred in the month of October in which month Dashain is observed.



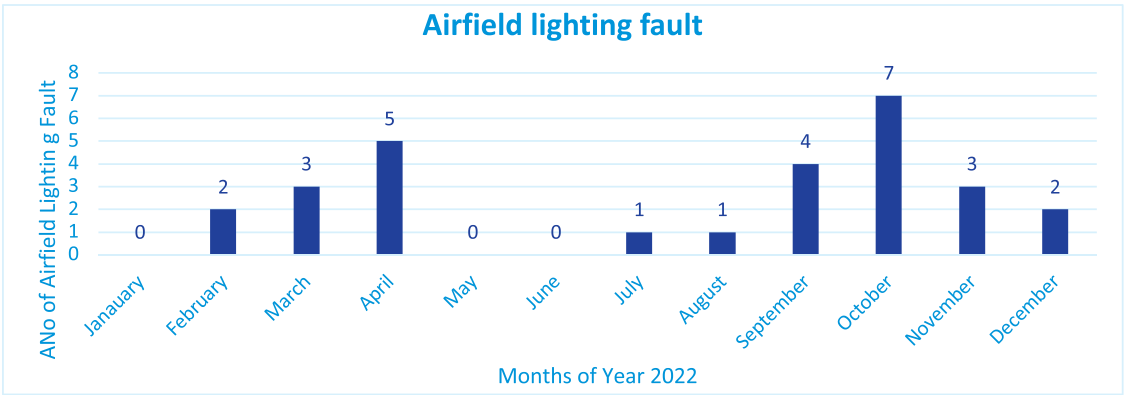
Equipment to Equipment Collision

Airport operation requires many kinds of equipment and vehicles to facilitate it. Frequent movements of these machines create possibility of hit and collision if handled recklessly. TIACAO has collected records of equipment to equipment collision incidents. Hence, it is also considered as one of safety performance indicators. Collisions of vehicles to vehicles, poles and ground support equipment are defined as equipment to equipment collision safety performance indicator. Data related to equipment to equipment collision in TIACAO have been presented in the following chart. The chart below shows that there are six number of such incidents and half of it happened in the month of August.



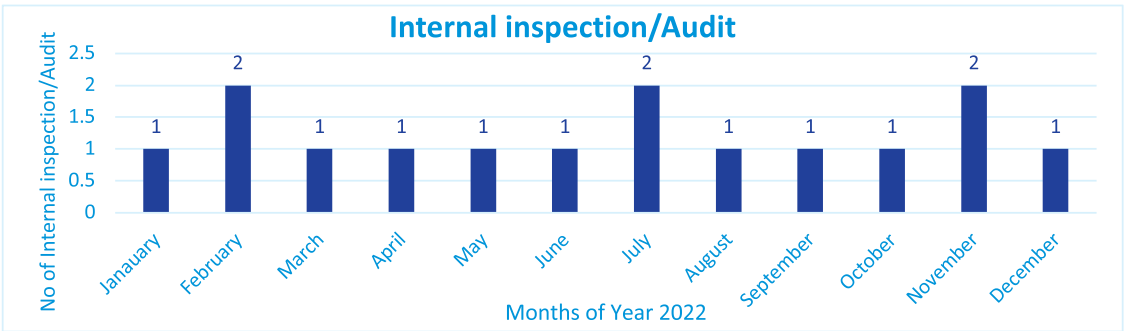
Airfield Lighting Fault

TIACAO has collected records of airfield lighting fault as one of the categories of safety performance indicators. Data related to airfield lighting fault have been presented in the following chart. As the chart below indicates there are 28 number of such incidents recorded in the year 2022. The month of October has highest number of such incidents.



Internal Inspection/Audit

Inspection/audit like activities has visible effect on incidents or accidents. So, considering it as one of controlling tool audit/inspection are recognized as one of the safety performance indicators. Generally, Internal Inspection/ Audit is carried out by Airside Management Division, Civil Engineering Division, Electromechanical Division and obviously, by Aerodrome Safety Offices. It also includes scheduled audit from Aerodrome Safety Standard Department. Data related to Internal Inspection/Audit have been presented in the following chart.



Safety Meetings

TIACAO Aerodrome Safety Manual has prescribed different kinds and levels of safety committees and their meetings; and they are Safety Action Group; Runway Safety Team; Safety Review Board etc. These meetings are also taken as safety performance indicators. Hence, TIACAO has maintained records of safety meetings being conducted for aerodrome safety purposes. In the year 2022, TIACAO has conducted 9 numbers of such meetings. Data related to safety meetings in have been presented in the following chart.



Chapter- 6

SAFETY PERFORMANCE INDICATORS (SPIS) AND SAFETY PERFORMANCE TARGET (SPTS) FOR 2023

A. Lagging Indicators

FOD on Movement Area

SPI: Number of occurrences related to FOD on Movement Area per 1000 FMs

SPT for 2023: Reduce the number of occurrences related to FOD on Movement Area by 10% over the value of 2022

Wildlife Activities

SPI: Number of occurrences related to Wildlife Activities per 1000 FMs.

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

Wildlife Strike

SPI: Number of incidents related to Wildlife Strike per 1000 FMs.

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

Missed Approach

SPI: Number of occurrences related to Missed Approach per 1000 FMs.

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

Runway Incursion

SPI: Number of occurrences related to Runway Incursion per 1000 FMs.

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

Surface Damage

SPI: Number of occurrences related to Surface Damage per 1000 FMs.

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

Fuel Spillage

SPI: Number of incidents related to Fuel Spillage per 1000 FMs.

SPT for 2023: Reduce the number of occurrences related to Fuel Spillage by 12% over the value of 2022

Unauthorized Entry

SPI: Number of occurrences related to Unauthorized Entry per 1000 FMs.

SPT for 2023: Reduce the number of occurrences related to Unauthorized Entry by 12% over the value of 2022

Unlawful Air Activities (Laser, Balloon & Kite)

SPI: Number of occurrences related to Unlawful air Activities (laser, balloon and kite) per 1000 FMs.

SPT for 2023: Reduce the number of occurrences related to Unlawful air Activities (laser, balloon and kite) by 10% over the value of 2022

Equipment to Equipment Collision

SPI: Number of incidents related to Equipment to Equipment Collision per 1000 FMs.

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

Airfield Lighting Fault

SPI: Number of incidents related to Airfield Lighting Fault per 1000 FMs.

SPT for 2023: Reduce the number of occurrences related to Airfield Lighting Fault by 10% over the value of 2022

B. Leading Indicators

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

Number of Safety Committee Meetings

SPI: Number of safety meetings

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

Safety Trainings and Workshops (SMS and HIRM related)

SPI: Number of safety trainings & workshops

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

Chapter-7

AERODROME SAFETY ACTIVITIES IN 2022

Following safety activities were conducted by TIACAO in 2022

- FOD Campaign in TIA in association with Airline Operator Committee, Nepal; and Airlines Operators Association of Nepal in July, 2022
- Seminar on Hazard Identification and Risk Assessment/Mitigation (HRM) organized by TIACAO Aerodrome Safety Office at TIA in July, 2022.
- Workshop on Aerodrome Safety Awareness was conducted at TIA in November, 2022.







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