SOUTH AFRICAN CIVIL AVIATION AUTHORITY

THE NATIONAL AVIATION CONFERENCE 2023

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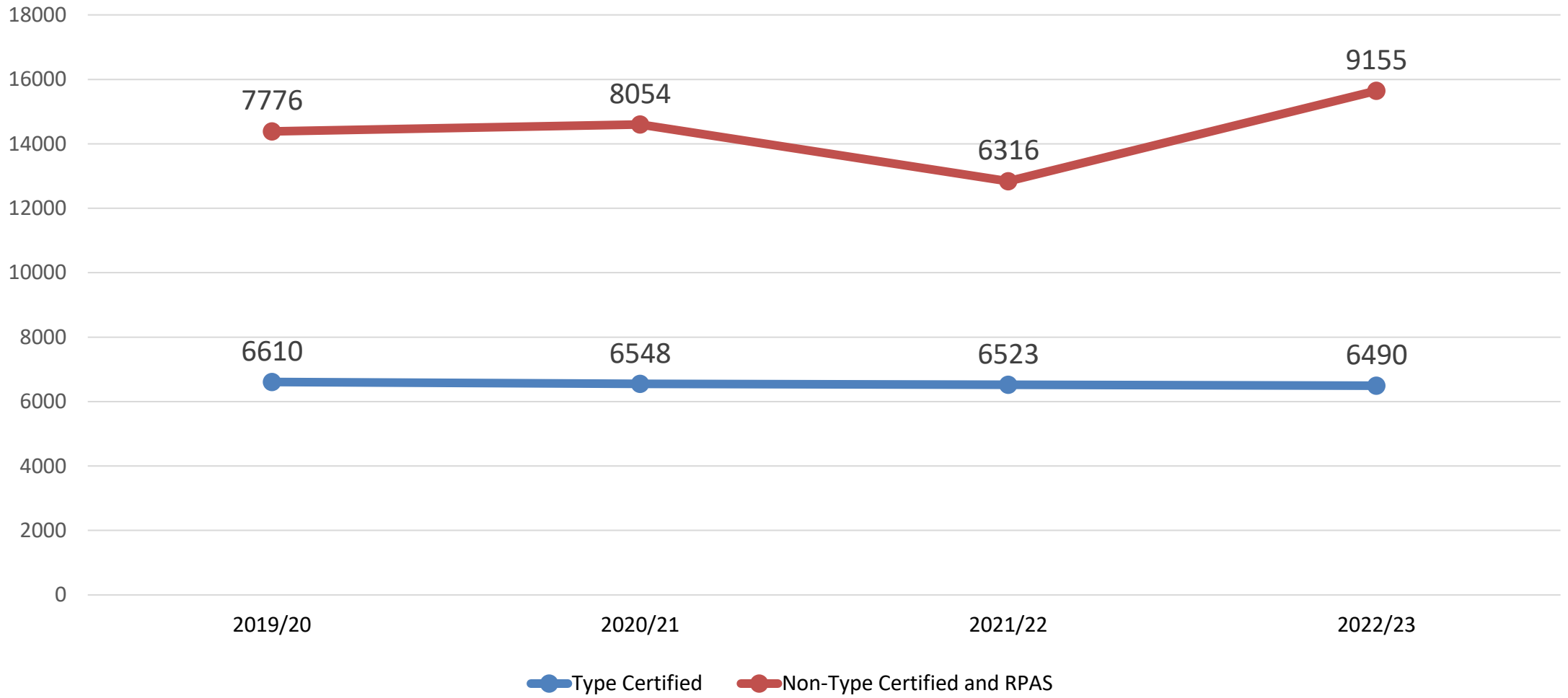
Executive: Accident and Incident Investigation
South African Civil Aviation Authority

Flight Report

- South African Aircraft Register
- Aircraft Accident Statistics
- Fatal Accident Statistics
- Causal Factors
- Serious Incident Statistics
- Incident Statistics
- CAHRS Statistics
- Safety Priorities

South African Aircraft Register



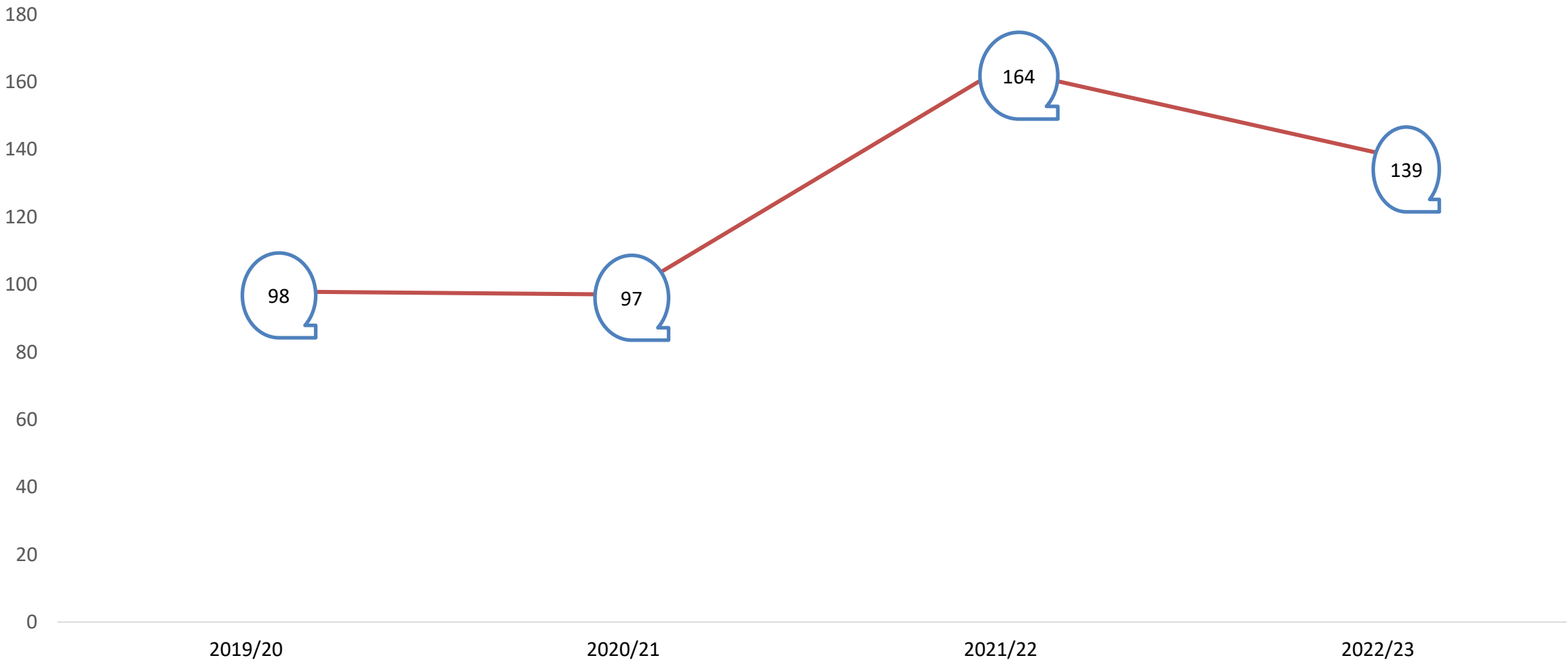
- **NTCAs and RPAS account for 58% of registered aircraft, while TCA is 42%**

4-year Comparison of Reported Aviation Occurrences between 2019/20 and 2022/23 FY

Reported Aviation Occurrences				
Occurrence Category	**2019/20**	**2020/21**	**2021/22**	**2022/23**
Accidents	**98**	**97**	**164**	**139**
Serious Incidents	**55**	**30**	**52**	**15**
Incidents	**3542**	**1183**	**2324**	**2799**
CAHRS	**50**	**34**	**59**	**52**
TOTAL	**3745**	**1344**	**2599**	**3005**

- A total of **3005** aviation occurrences were reported in the current **2022/23** financial year.
- Monthly occurrence management averages:
  - 2022/23 FY is **16% higher** than the previous year.
  - But **20% lower** than pre-COVID 19 data.
- Context:
  - Flight hours: 424 323 hours ⇨ 634 970 hours,
  - Only **2 accidents**, **2 serious incidents** by scheduled operator.

4-year Comparison of Cumulative Accidents between 2019/20 and 2022/23 FY

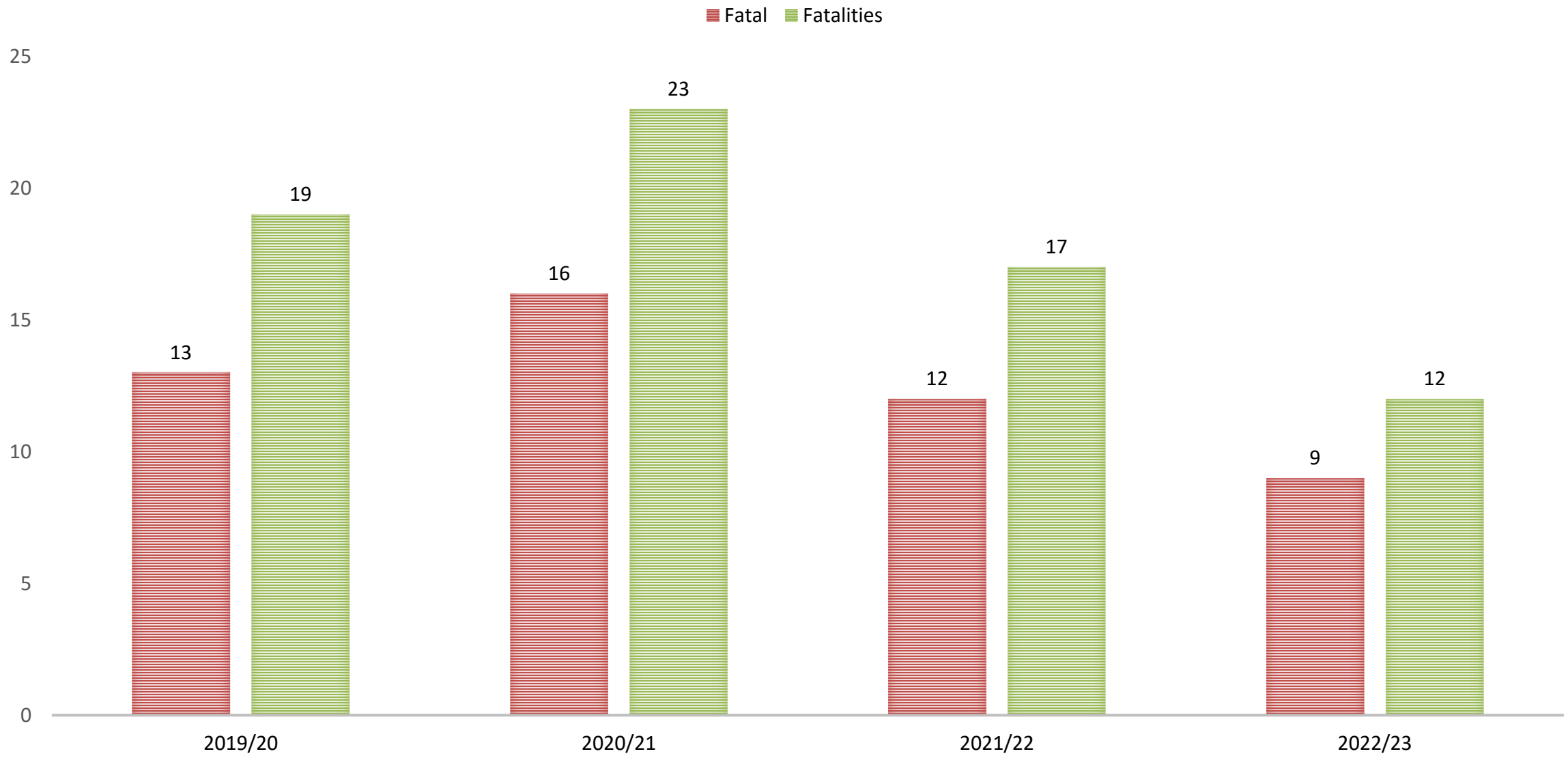


- **A 29% decrease would need to be realised to achieve pre-COVID-19 data.**

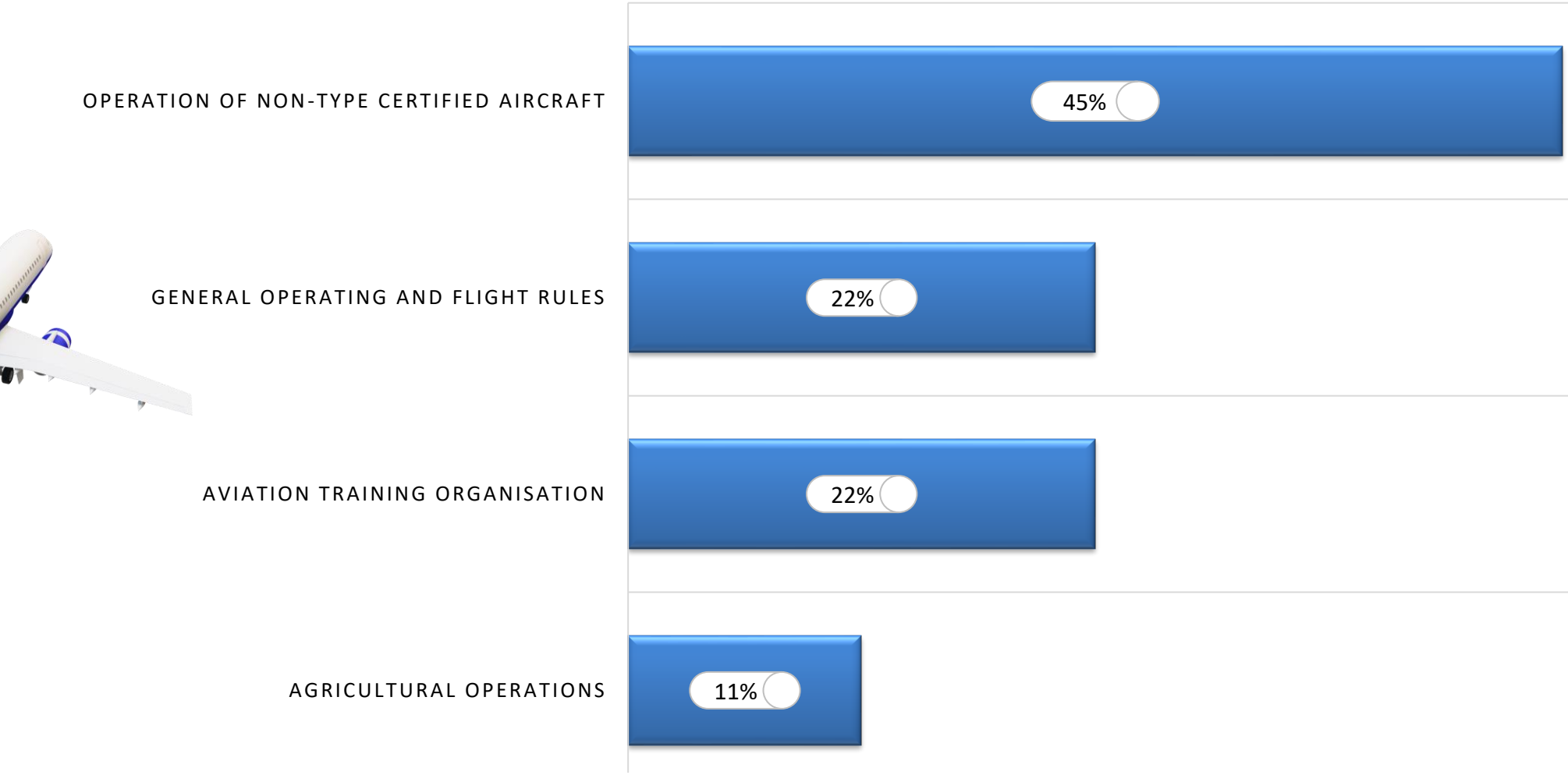
Accidents Per Operations Category

Operations Category	2020/21	2021/22	2022/23
Agricultural Operations	12	11	8
Air Ambulance Operations	1	0	0
Air Transport Operations: Carriage on aeroplanes of more than 19 passengers	0	2	0
Air Transport Operations: Small Aeroplanes	0	1	2
Aviation Training Organisations	23	38	38
Commercial Helicopter Operations	1	1	0
Commercial Operation of Non-Type-Certified Aircraft	1	1	0
General Aviation and Operating Flight Rules	25	39	28
General Maintenance Rules	0	2	0
Operation of Non-Type-Certified Aircraft	33	51	36
Helicopter Aerial Work and Other Operations	0	1	0
Parachute Operations	0	0	1
Remotely Piloted Aircraft Systems	1	17	26
Grand Total	**97**	**164**	**139**

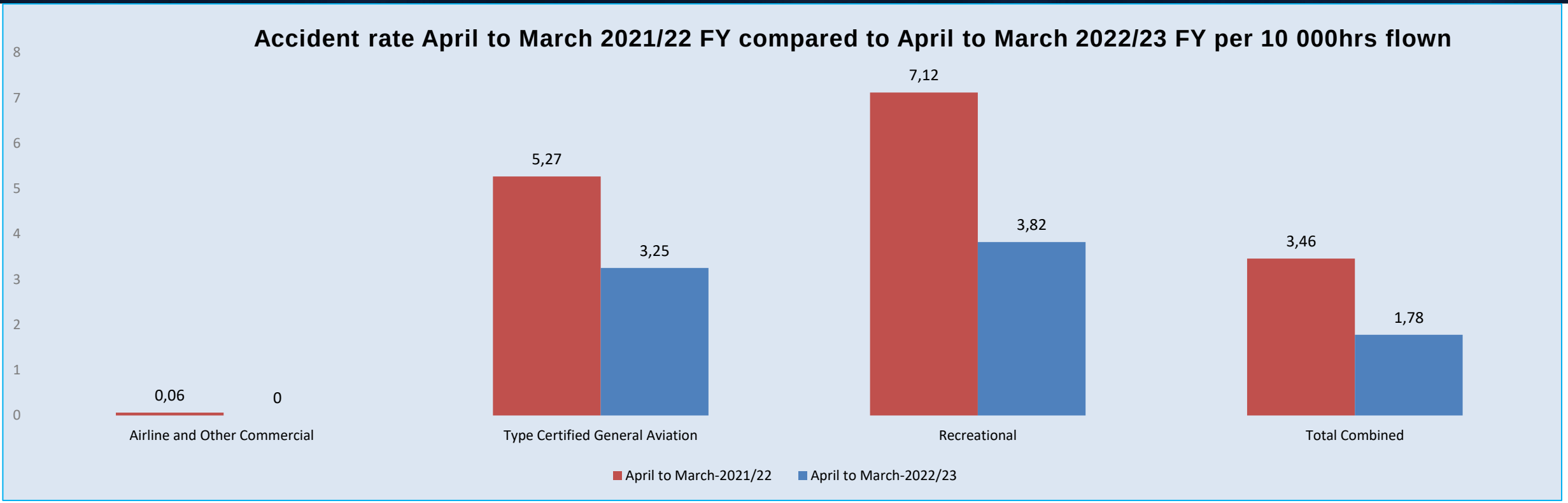
4-year Comparison of Cumulative Accidents, Fatal and Resulting Fatalities between 2019/20 and 2022/23 FY



Fatal Accidents Per Operations Category

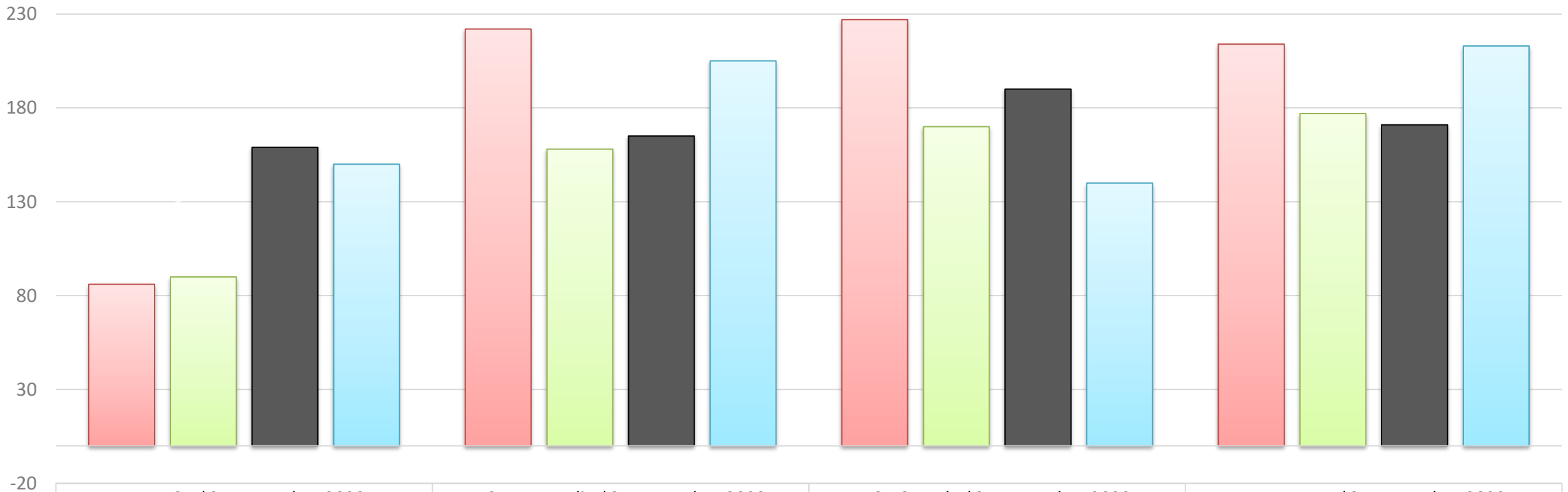


Accident Rate



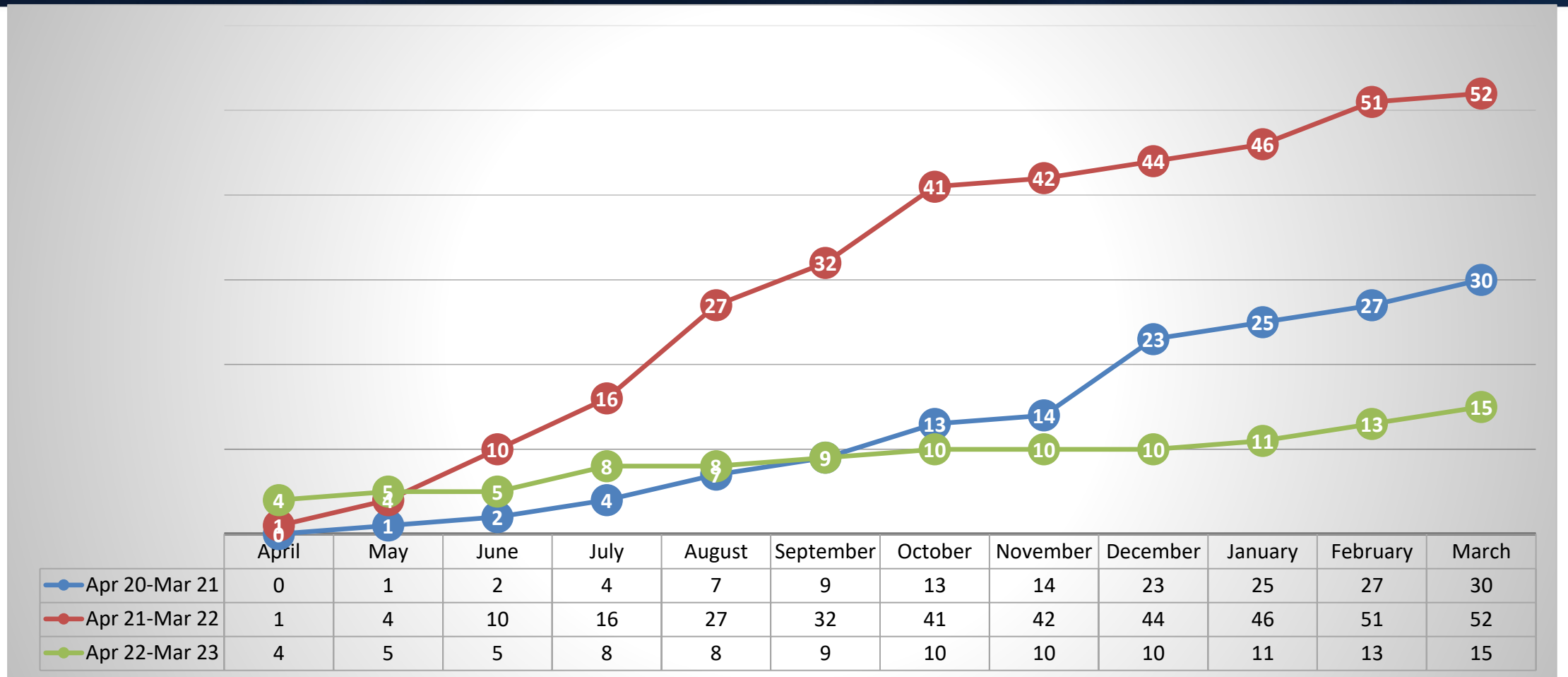
	April to March 2021/22	April to March 2022/23
Airline and Other Commercial	177 760	307 090
Type Certified General Aviation	159 455	215 440
Recreational	87 108	112 440

International Comparison



	AIID RSA *31 December 2022	ASTB Australia *31 December 2022	TSB Canada *31 December 2022	BEA France *31 December 2022
2019	86	222	227	214
2020	90	158	170	177
2021	159	165	190	171
2022	150	205	140	213

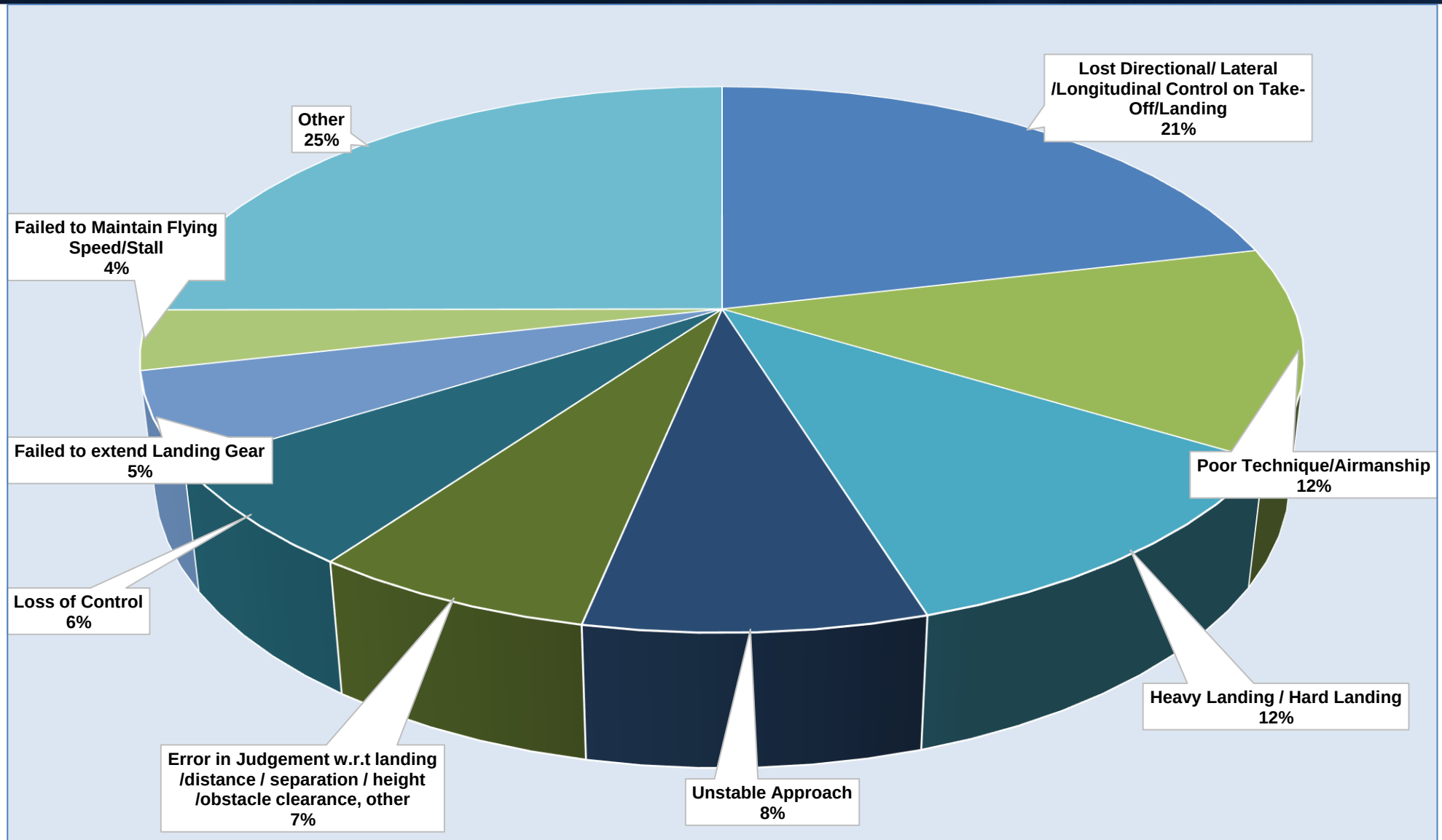
Aircraft Serious Incidents



	April	May	June	July	August	September	October	November	December	January	February	March
Apr 20-Mar 21	0	1	2	4	7	9	13	14	23	25	27	30
Apr 21-Mar 22	1	4	10	16	27	32	41	42	44	46	51	52
Apr 22-Mar 23	4	5	5	8	8	9	10	10	10	11	13	15

- The comparison of reported Serious Incidents between 2020/21, 2021/22 and 2022/23 respectively shows that for the current FY fifteen **(15) serious incidents were recorded**.
- This shows a **decrease of 71% as compared to 2021/22 FY.**

Flight Crew/Pilot Causal Factor

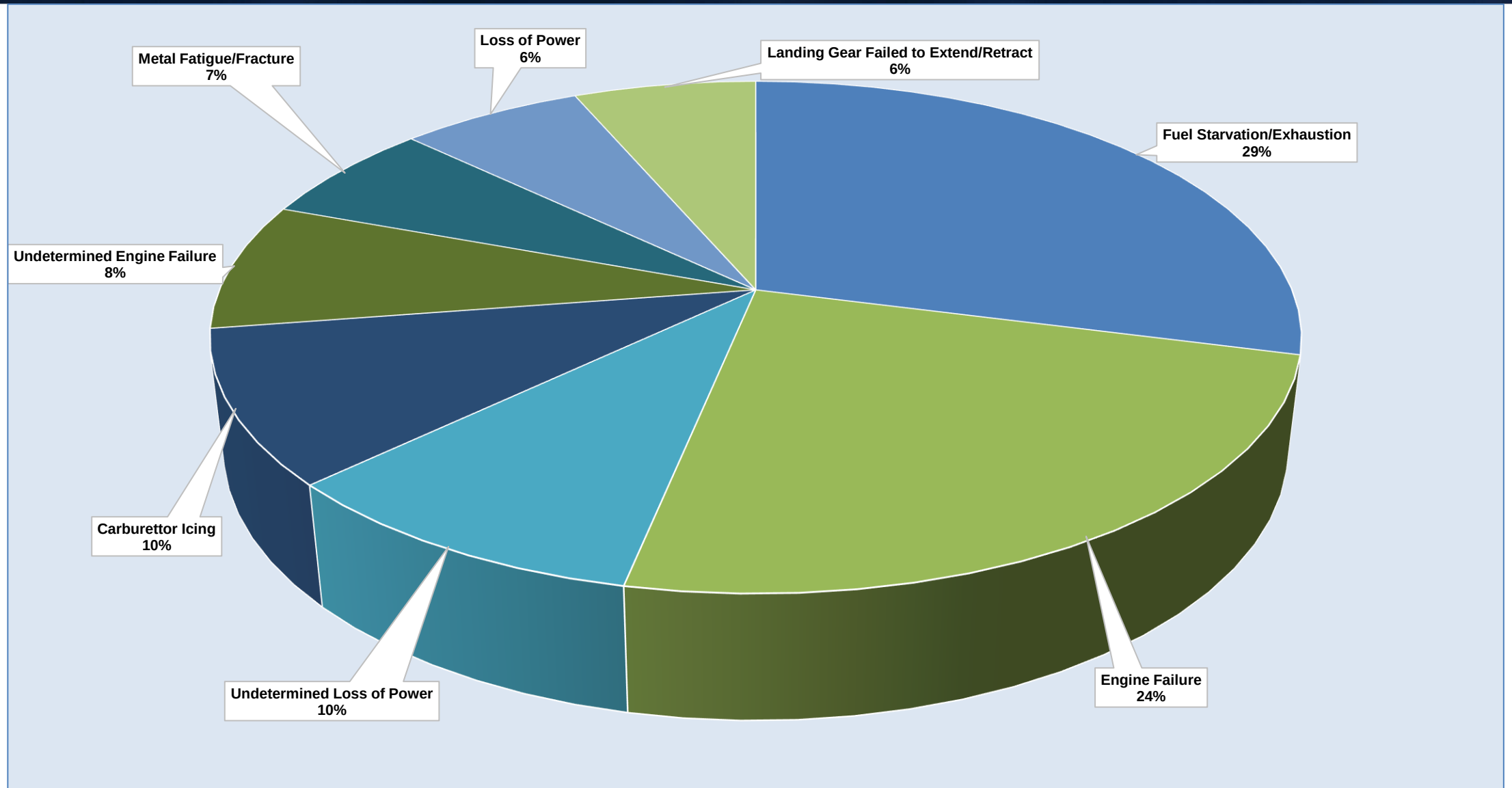


Flight Crew/Pilot Avoidable Accidents

- **Avoidable Accident 1: Loss of control**
  - **Causal Factor:** Pilot's inability to maintain control of the aircraft in flight, resulting in an unrecoverable deviation from the intended flight path.
  - **Proposed Remedial Actions:** Can be rectified through training and information provided to ATO and Associations.

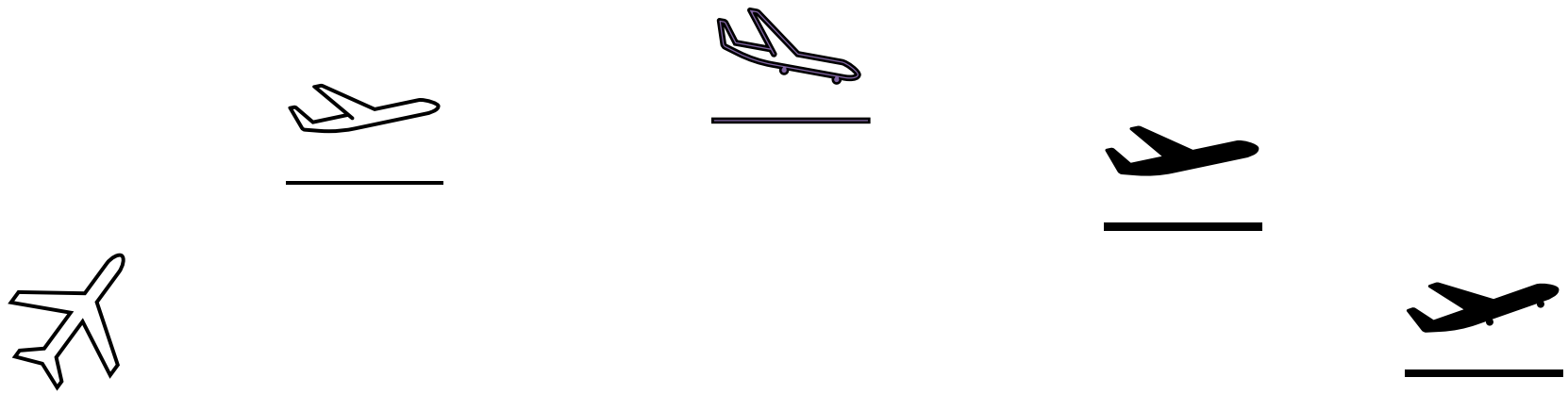
- **Avoidable Accident 2: Accidents induced by adverse weather conditions**
  - **Causal Factor:** Of all things which influence the safety of flight, the weather - the characteristics and behaviour is the most uncertain.
  - **Proposed Remedial Actions:**
    - Obtaining weather information during the briefing and prior to the flight,
    - Detailed study of the weather map and/or area.

Mechanical/Engine/Powerplant Causal Factor

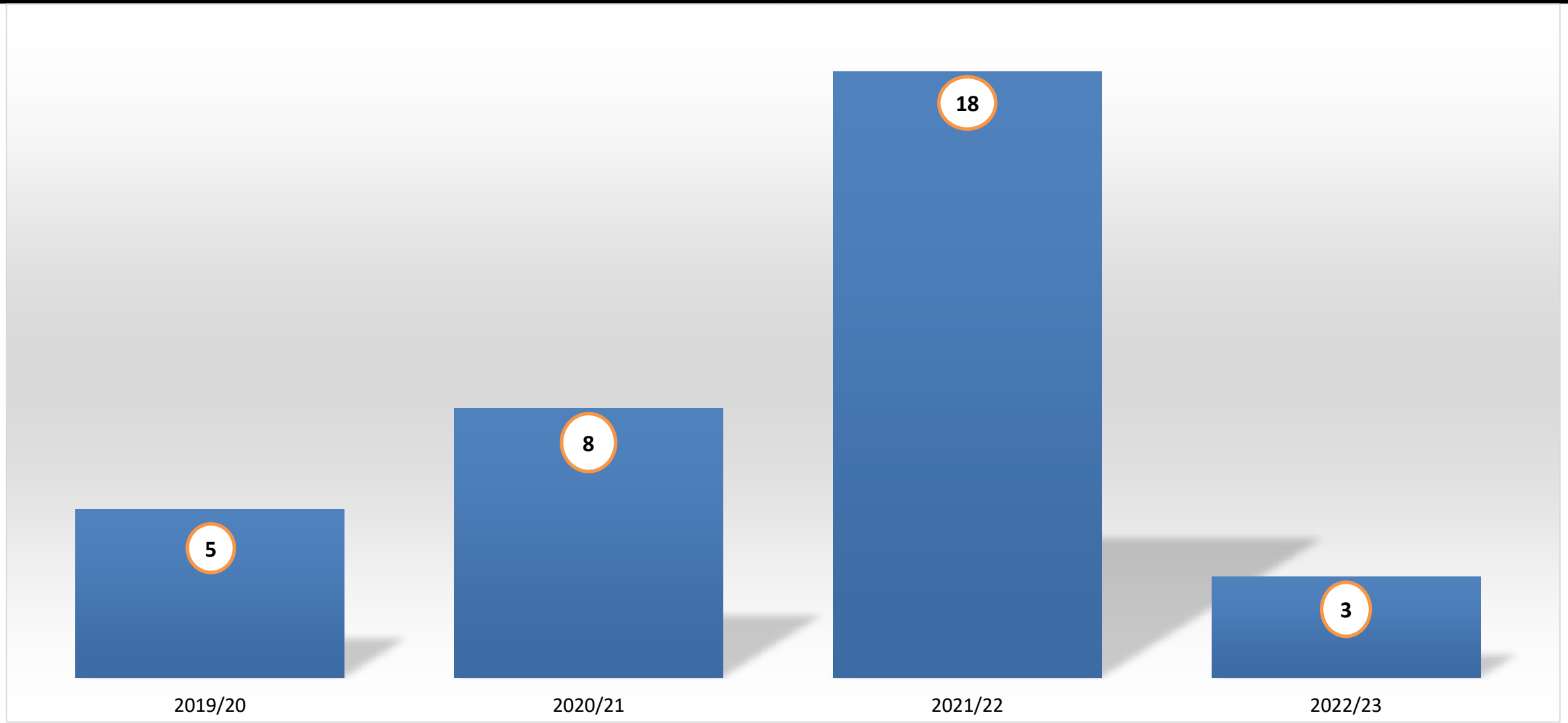


Mechanical/Engine/Powerplant Avoidable Accidents

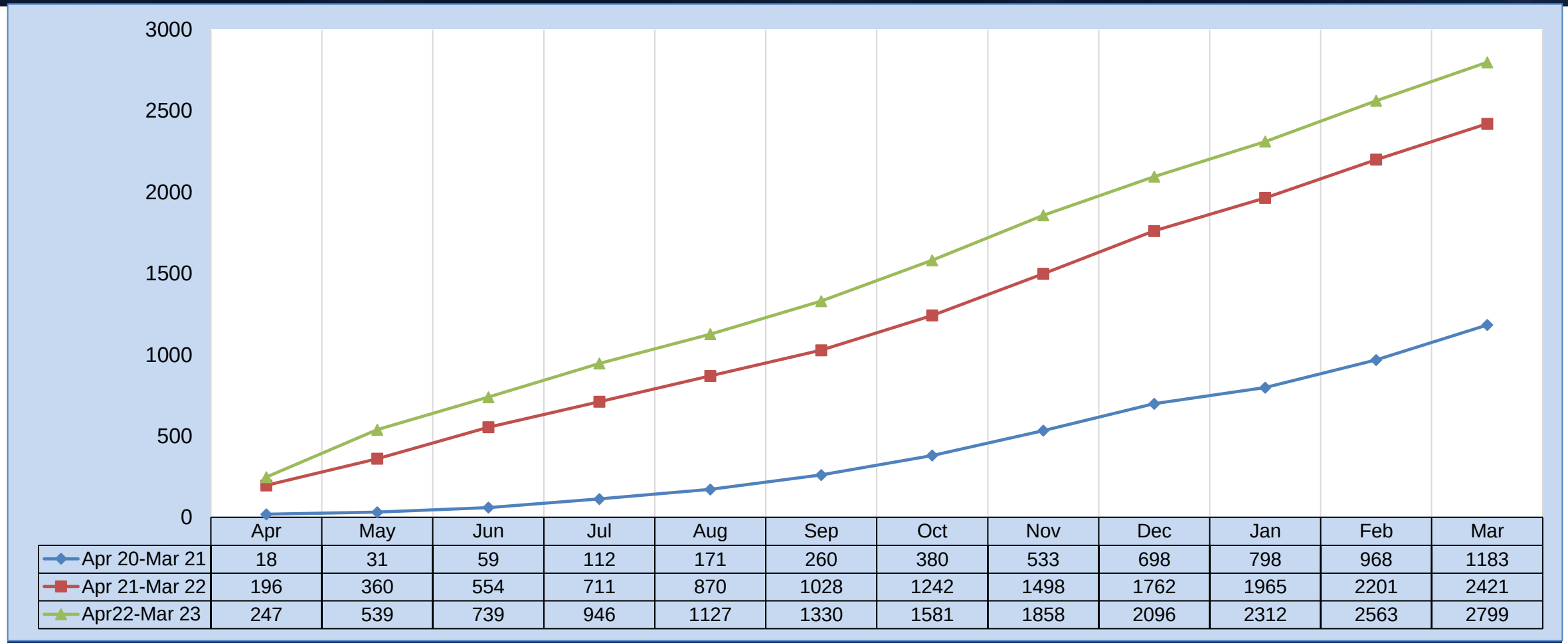
- **Avoidable Accident 3: Fuel-related (Starvation and Exhaustion**)
- **<u>Causal Factor:</u>** Exhaustion of fuel occurs when there is no longer any usable fuel available to supply the engine(s). If there is adequate fuel aboard, but the supply of fuel to the engine is interrupted, fuel starvation may occur.
- **<u>Proposed Remedial Actions:</u>**
  - Improved discipline with flight planning and fuel management
  - Pilot must be familiar with both normal and abnormal operations of the fuel system.



Collision Causal Factor Per FY



Aircraft Incidents



	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar
Apr 20-Mar 21	18	31	59	112	171	260	380	533	698	798	968	1183
Apr 21-Mar 22	196	360	554	711	870	1028	1242	1498	1762	1965	2201	2421
Apr22-Mar 23	247	539	739	946	1127	1330	1581	1858	2096	2312	2563	2799

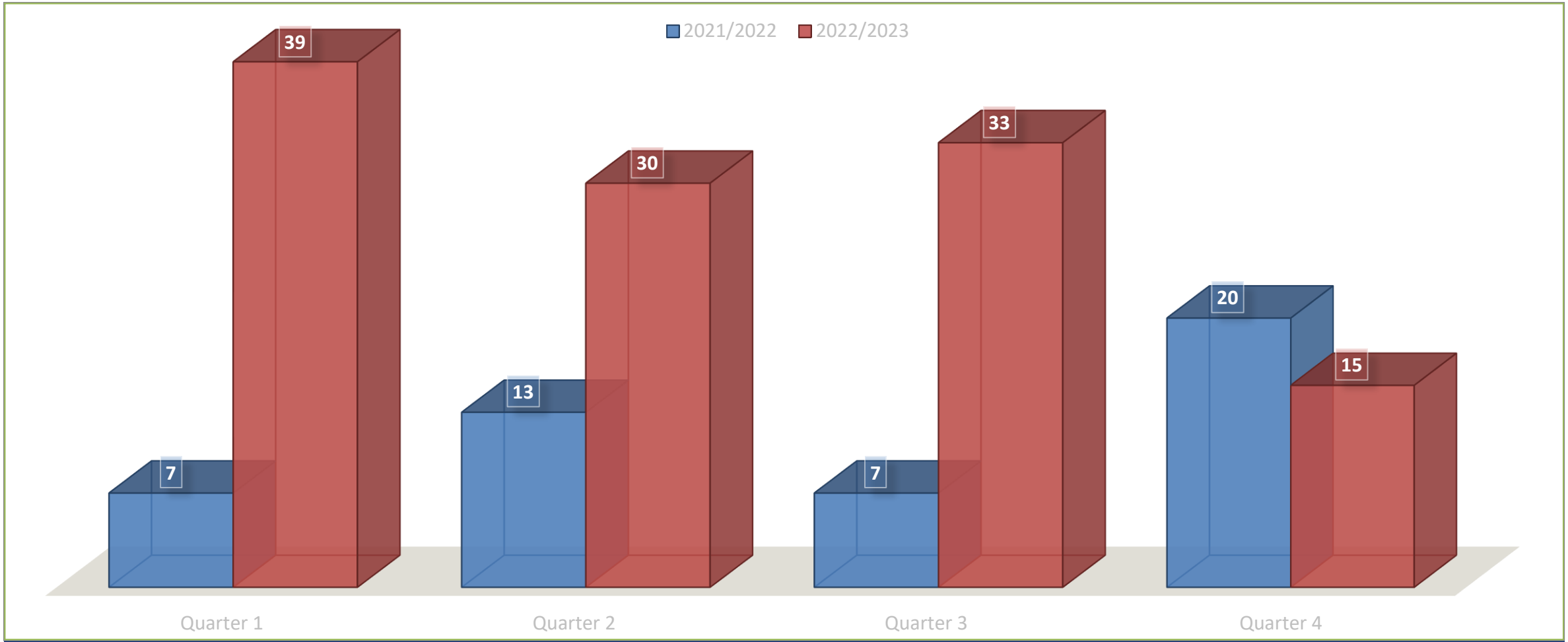
- The comparison of reported incidents between 2020/21, 2021/22 and 2022/23 respectively shows that for the current FY, aircraft **incidents increased by 15%** when compared to the previous FY.
- 66% of all reported incidents are related to scheduled commercial operations and 34% is related to general aviation.

Airprox Description

- An Airprox is a situation in which, in the opinion of a pilot or air traffic services personnel, the distance between aircraft as well as their relative positions and speed have been such that the safety of the aircraft involved may have been compromised. (ICAO Doc 4444: PANS-ATM).

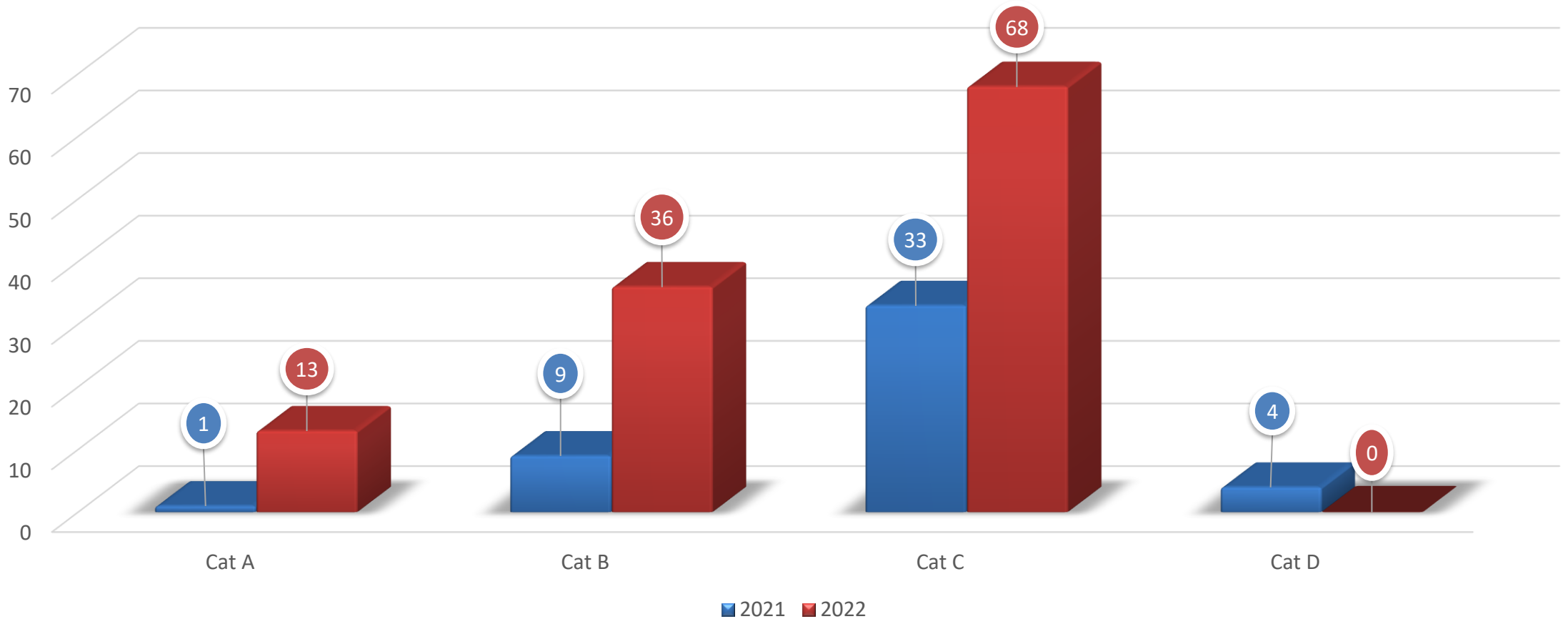
- There has been a worldwide trend of increased Airproxes and Near Misses.

FY Airprox Comparison



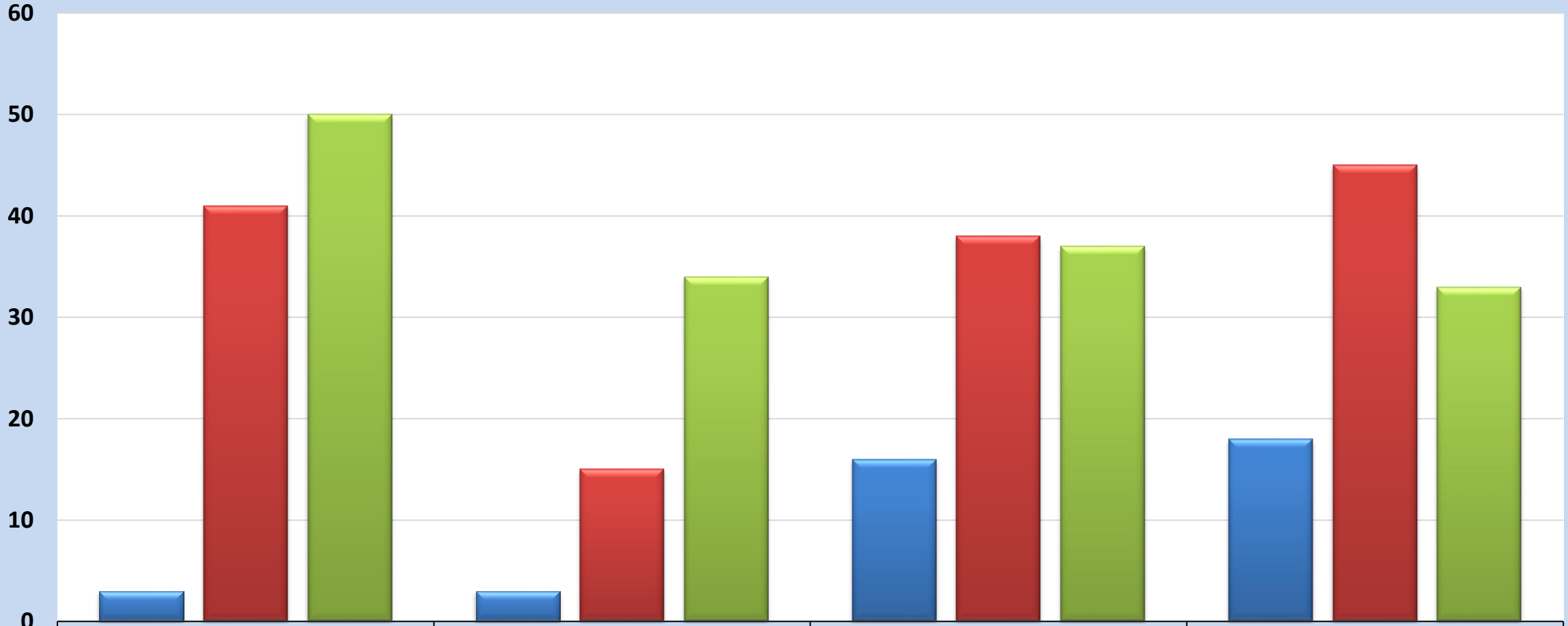
- The above representation shows that 47 Airproxes were recorded in FY 21/22 and in 22/23 FY, we recorded 117; this is a **149% increase**.

FY Airprox Risk Category



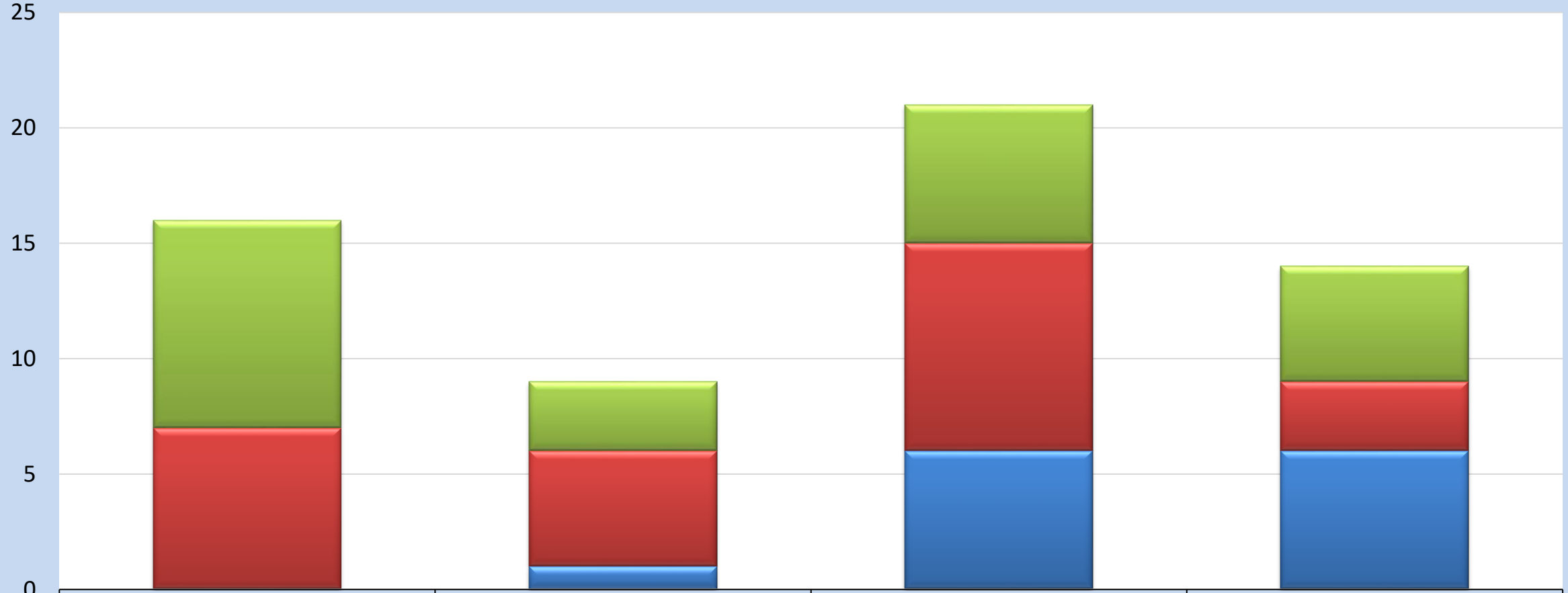
- AIID evaluated 117 risk-bearing Airprox occurrences:
  - 68 were classified as Category C (CAT C),
  - 36 were classified as Category B (CAT B) and
  - 13 were classified as Category A (CAT A).

Drone Infringements



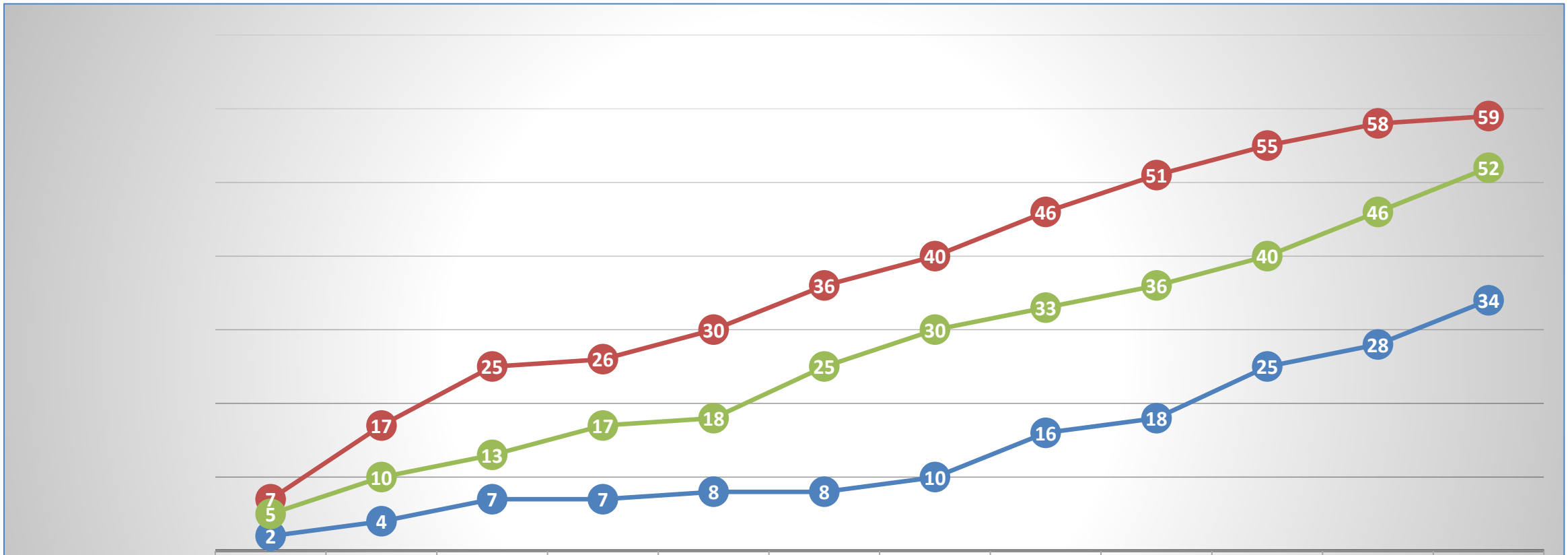
	Quarter 1	Quarter 2	Quarter 3	Quarter 4
2020/2021	3	3	16	18
2021/2022	41	15	38	45
2022/2023	50	34	37	33

Laser Infringements



	Quarter 1	Quarter 2	Quarter 3	Quarter 4
2022/2023	9	3	6	5
2021/2022	7	5	9	3
2020/2021	0	1	6	6

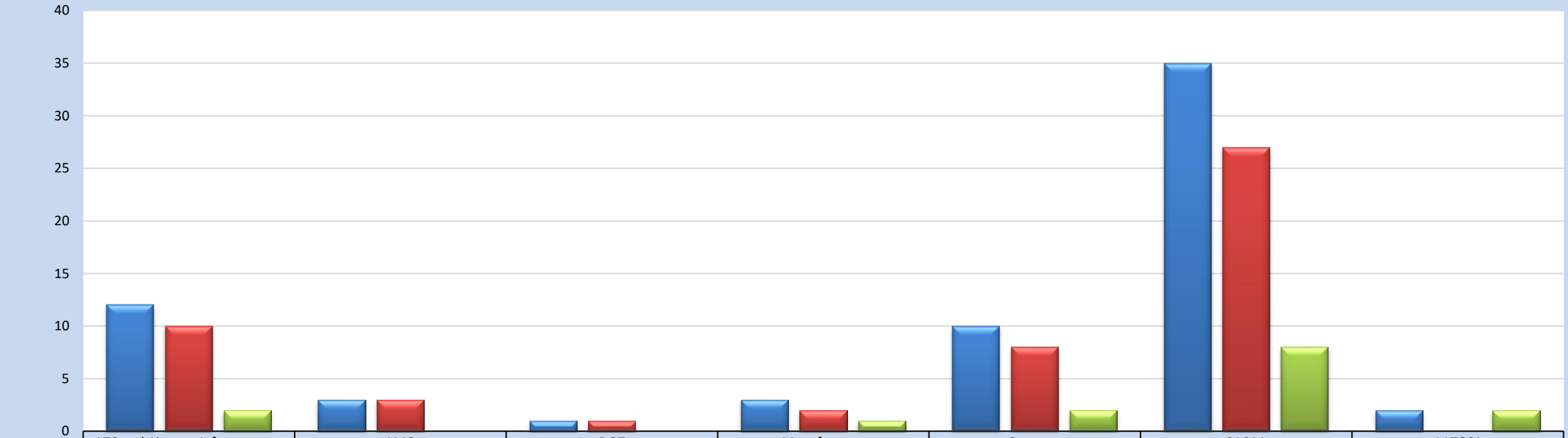
Three-year Accumulative CAHRS Statistics



	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR
Apr 20-Mar 21	2	4	7	7	8	8	10	16	18	25	28	34
Apr 21-Mar 22	7	17	25	26	30	36	40	46	51	55	58	59
Apr 22-Mar 23	5	10	13	17	18	25	30	33	36	40	46	52

- There has been a 12% decrease in the number of CAHRS recorded as compared to the previous FY.

Aircraft Safety Recommendations



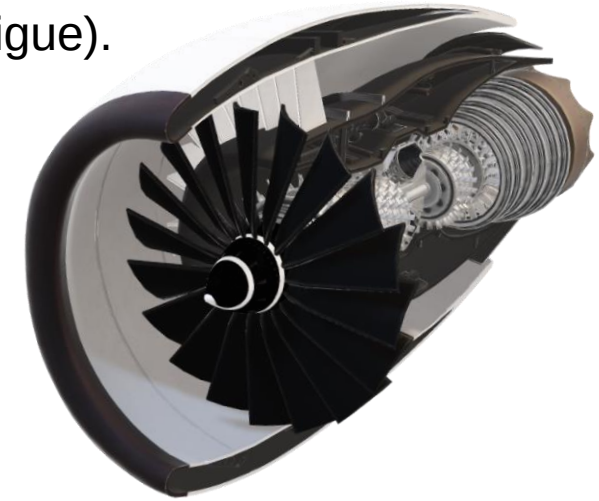
	ATC and Airports Infrastructure	AMO	DOT	Manufacturer	Operator	SACAA	AATOSA
Recorded	12	3	1	3	10	35	2
Closed	10	3	1	2	8	27	0
Open	2	0	0	1	2	8	2

- Regulatory improvements and oversight are well-established tools for reducing accidents worldwide; therefore, most safety recommendations are issued to the State of Operator, such as SACAA.
- 77% of the overall safety recommendations issued by AIID have been addressed and closed.
- ATSB = 75% of 40.
- TSB Canada = 85% of 26.
- NTSB = 72% of 43.
- BEA =75% of 20.

Safety Priorities / Permissible Action Plans

Priorities to achieve the Pre-COVID accident rate (<100 accidents)?

- SACAA to continue to extract the maximum value from the GASS.
- Increase the number of Safety Collaborations between SACAA and specific sectors/groups (e.g. ATOs, RPAS).
- Implementation of Airprox Workgroup.
- AIID and SACAA to launch an Awareness Drive to redress underreporting of serious incidents.
- AIID, SACAA and Industry to implement mechanisms to eradicate "avoidable accidents".
- AIID to ensure that safety recommendations systematically address underlying causals.
- Attain a better understanding of Human Factors in accident causals (pressure, fatigue).
- Training to deal with emergencies and upset situations.
- Runway safety for the reduction of runway incursions and excursions.
- Better usage of available tools (Renewed importance of Checklist Fatigue/Failures, Weather Information).
- Specific actions to reduce laser infringements.




The End