Twenty Second Meeting of the Africa-Indian Ocean Planning and Implementation Regional Group (APIRG/22)
(Accra, Ghana, 29 July – 02 August 2019)

Agenda Item 3.1: Regional Activities (APIRG/RASG-AFI/AFI Plan)

AIAG16 REPORT

(Presented by IATA)

SUMMARY
This WP provides high level feedback on the outcomes of the sixteenth Africa and Indian Ocean (AFI) Air Traffic Service (ATS) Incident Analysis Group (AIAG16) meeting. The AIAG16 meeting analyzed the reported AIRPROX and related Air Safety Reports for the period 01 January to 31 December 2018. The 16TH AIAG meeting took place in Johannesburg on the 6th and 7th of March 2019. The full AIAG16 Report is attached to this working paper ass appendix A.
REFRENCE(S): • AIAG16 Final Report – Appendix A • AIAG Terms of Reference • Air Navigation Targets
Related ICAO Strategic Objective(s): Safety, Air Navigation Capacity and Efficiency

1. INTRODUCTION

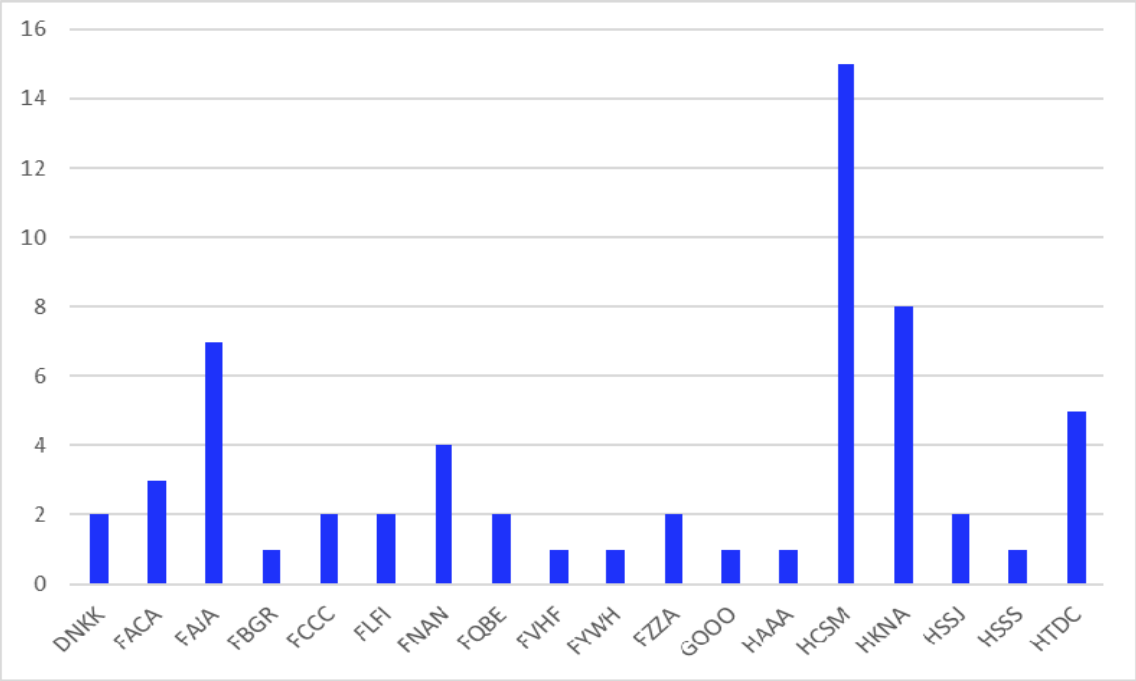
1.1 The Africa and Indian Ocean (AFI) Air Traffic Service (ATS) Incident Analysis Group (AIAG) is a multi-stakeholder collaboration aimed at identifying and addressing the causal factors, for aviation safety occurrences resulting in the loss of separation in the AFI region.

1.2 The AIAG provide recommendations to all AFI states, ANPS's, Aerodromes, Airspace Users, etc. as may be applicable, based on the AIAG analysis results that should be implemented in order to reduce the number of the occurrences to zero or as low as reasonably possible.

1.3 Indeed, Air Navigation Targets embodied under Abuja Targets state that all States should progressively reduce the rate of aircraft proximity (AIRPROX) occurrences in their managed airspaces by at least 50% annually from Dec. 2017 baseline, in order to attain and maintain a level of zero (0) Airprox by correspondingly reducing errors in the following areas: coordination between ATS; Airspace Organization and ATC Procedures; Mobile Communications and Poor Crew discipline on board aircraft.

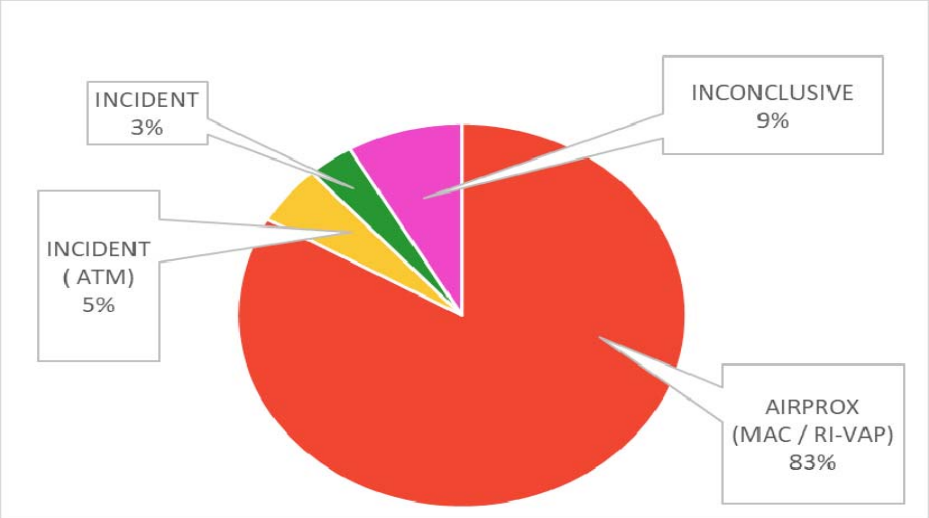
2. DISCUSSION

2.1 The AIAG16 meeting analyzed a total of 60 UCR's which occurred during the period 01 January to 31 December 2018 as received from 18 States in the AFI Region.



Graph 1 – Analyzed Reports by FIR

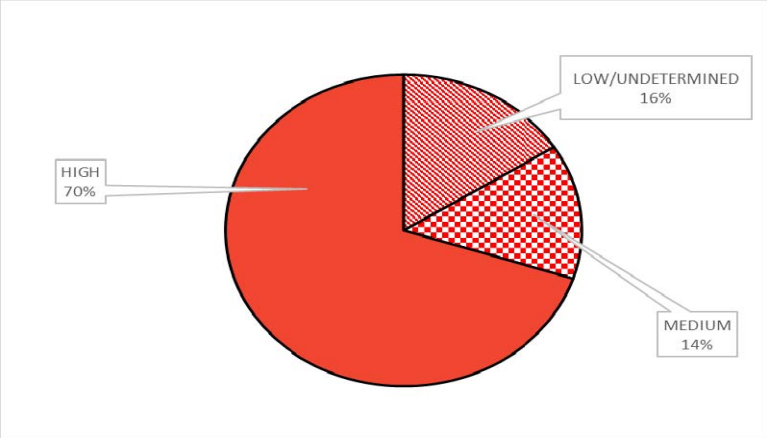
2.2 The analysis found that 50 of the 60 reported AIRPROX events were confirmed to be MAC1 or RI-VAP2 events. The majority of the MAC / RI-VAP events were classified high risk, whilst 14% were medium risk. The risk classification for the remaining 16% of MAC/RI-VAP events could not be determined.



Graph 2 – AIAG analysis classification

[1] MAC - Airprox / ACAS/TCAS alerts / loss of separation / near mid-air collisions

[2] RI-VAP - Any occurrence at an aerodrome involving the incorrect presence of an aircraft, vehicle, or person on the protected area of a surface designated for the landing and take-off of aircraft, where such presence leads to the potential collision with an aircraft either on ground or in the air (approach / take off).



Graph 3 – MAC / RI-VAP Risk classification

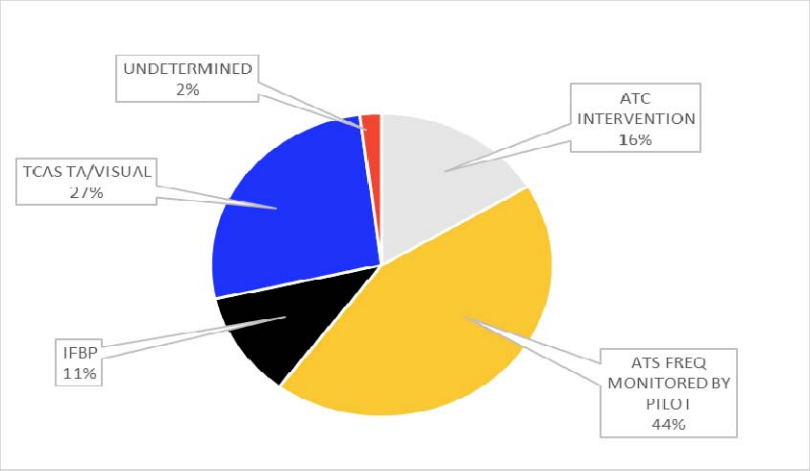
2.3 Analysis indicated that in the 50 MAC / RI-VAP events analyzed, the separation minima was compromised, but timeously restored by means of one, or a combination of, the following:

a) ATS frequency monitoring by the pilot,
b) TCAS TA / visual,
c) ATC intervention,
d) IFBP and
e) Undetermined.

2.4 A marked improvement is noted with respect to the separation being restored by undetermined means; 2% compared to 50% in 2017. It should also be considered that this has been achieved despite an almost 20% reduction in the feedback rate.

2.5 IFBP remains an important safety net, especially in the North East AFI Region where IFBP remains critical, having played a part in the restoration of separation in 10 of the 11 MAC events in this area.

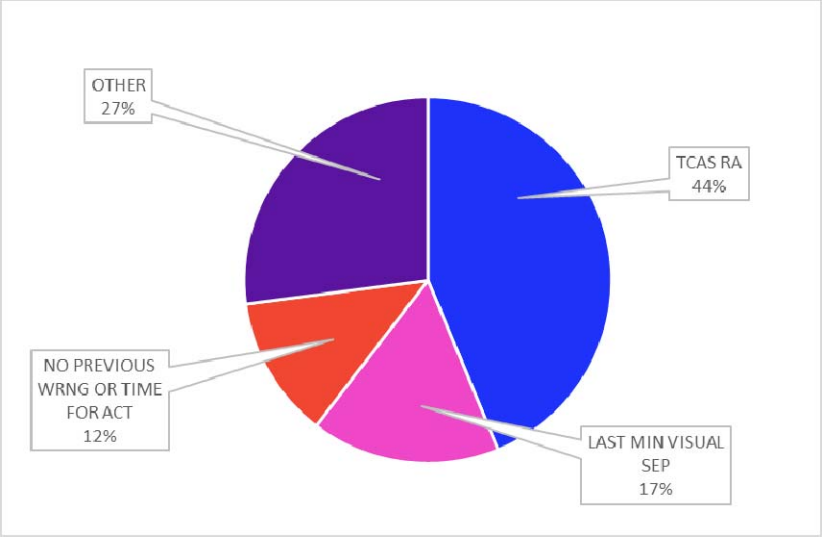
2.6 The upward trend where separation is restored by crew through the monitoring of the ATS frequency (18% to 44%) and TCAS TA / VISUAL (14% to 27%) over the past year, is a concern in that the crew is effectively doing the work of the ATS.



Graph 4 – Means through which separation was timeously restored.

2.7 When separation was compromised, despite initial intervention, the value of TCAS RA has proved vital in collision avoidance in 21 of the 50 MAC / RI-VAP events, which is a 14% improvement when compared to the 58% of last year. The decrease in the use of TCAS RA however, is not indicative of an improvement in the safety nets.

2.8 The avoidance of collision was achieved through last minute visual separation in 8 events while the remaining 19 events were avoided through what can be interpreted as providence (no warning, no action or undetermined means). This is a 14% increase from 2017 and is indicative of extremely high risk in the safety management system.



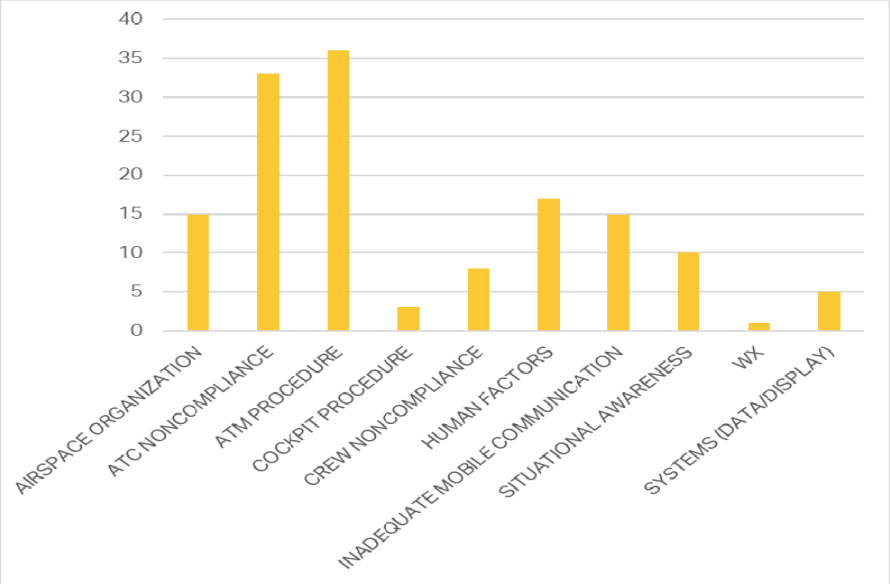
Graph 5 – Means through which last minute separation was restored

2.9 In line with a more holistic systems approach to analysis going forward the AIAG has combined causes and contributory factors into a single subject category - Causal Factors. Analysis history has shown that there is never a single cause to any event; and that errors are symptoms of a greater problem in the system. For the effective addressing of safety issues all causal factors require addressing.

2.10 The following causal factors were identified through the 2018 analysis:

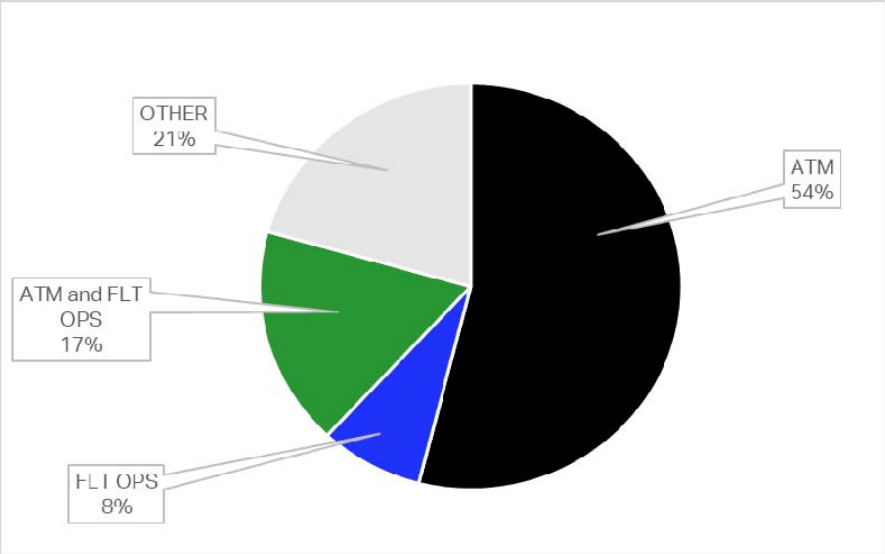
a) ATM procedures,
b) ATC non-compliance,
c) Human factors,
d) Inadequate mobile communications,
e) Airspace organization,
f) Situational awareness,
g) Crew non-compliance,
h) Systems – data and display and
i) Weather.

2.11 Analysis indicates that ATM Procedures and ATC non-compliance were the biggest causal factors in 2018. This is disappointing considering the reported improvement in staffing levels and training in the region which were previously thought to be the biggest contributory factors. This is certainly indicative that there are underlying causal factors that are not being adequately addressed.



Graph 6 – Causal Factors

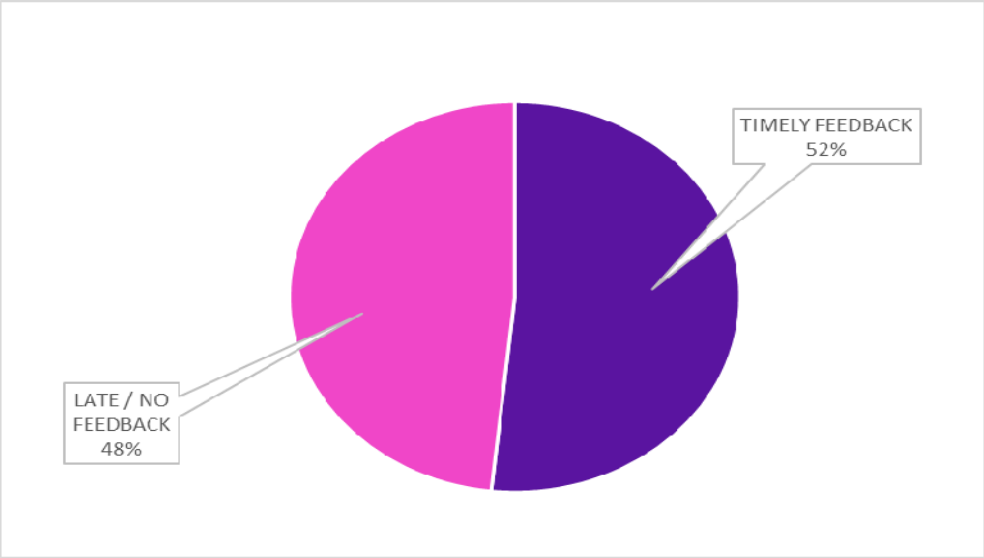
2.12 The analysis showed that 54% of the causal factors are found in the ATM domain and 17% in a combined ATM / flight operation (FLT OPS) environment; while 8% are found only in-flight operations.



Graph 7 – Causal factor domains

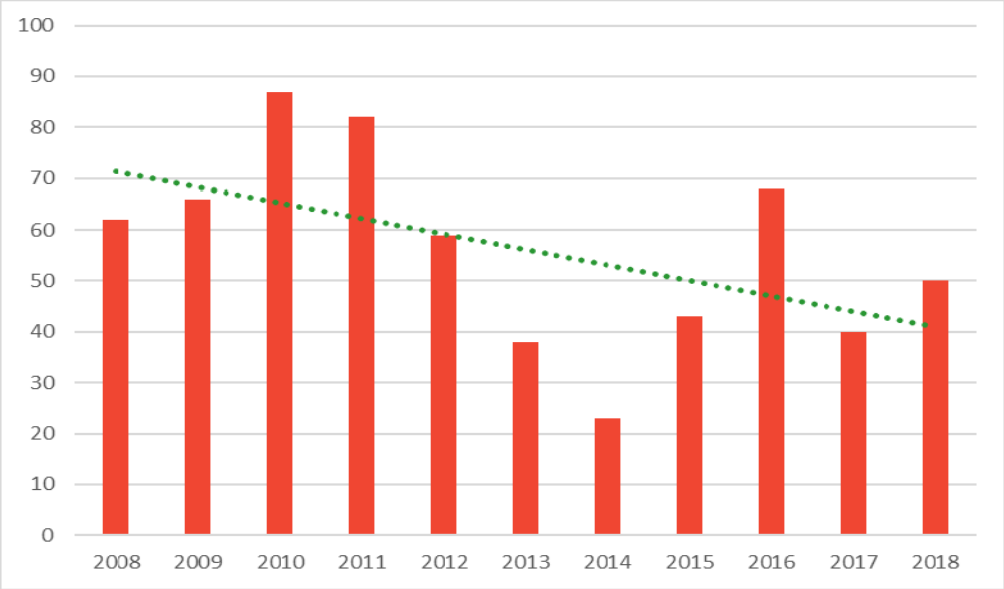
2.13 The overall feedback rate has reduced to a low of 52% in 2018, including late feedback provided during the AIAG Meeting. This is largely a result of no investigation feedback being provided. Some States only provided feedback on 50% or less of the events that took place.

2.14 The success of AIAG and the improvement of ATS safety in the AFI Region hinges critically on the quality of the investigations and feedback reports, which should be completed and forwarded to the secretariat (asrafi@iata.org) in the shortest time possible and definitely well before the AIAG meeting commences.



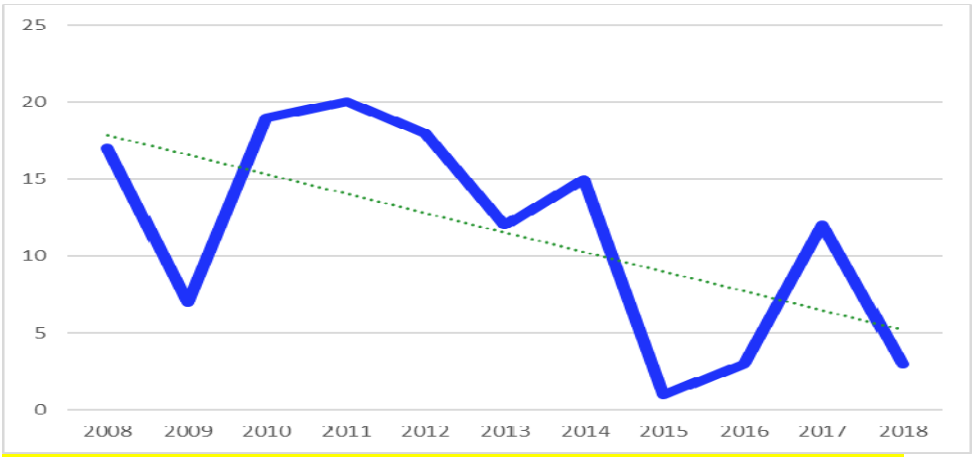
Graph 8 – Investigation feedback rate

2.15 The AIAG results and trends for the past 10 years show a general improvement in the number of MAC / RI-VAP events for the region. The trend however is not steep enough to achieve the regional target of zero AIRPROX by 2020.

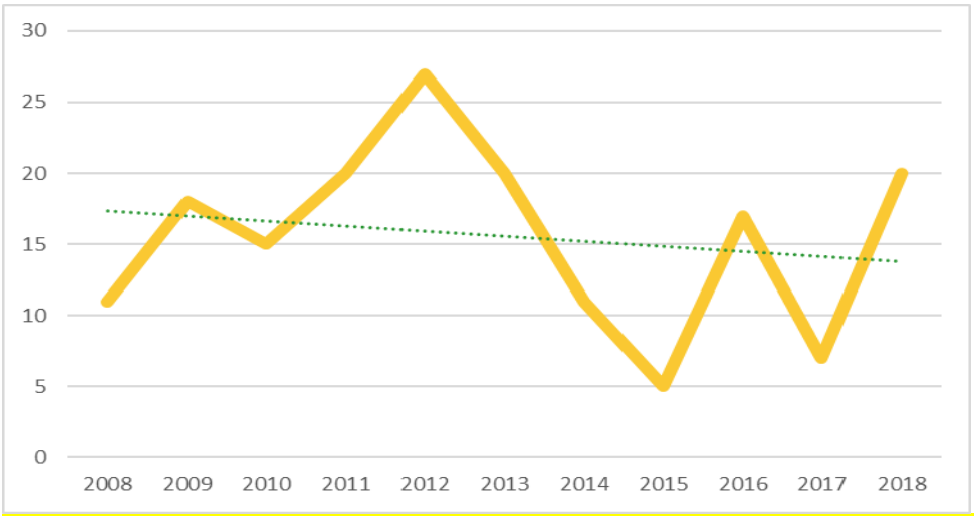


Graph 9 – AFI MAC / RI-VAP 10-year trend line

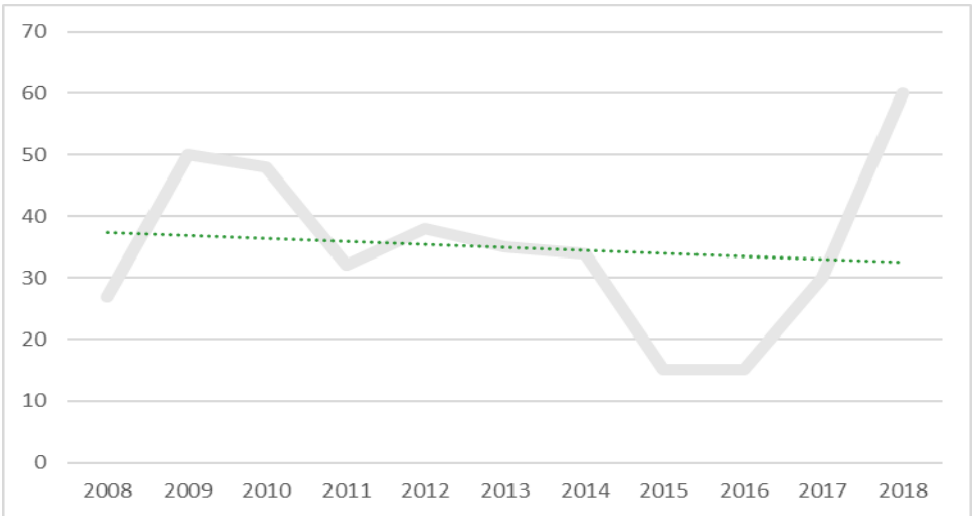
2.16 The overall causal factors over the past 10 years have been categorized into 3 main categories; ATM, CNS and human factors. Overall the trend in each case shows a decline in the numbers, however the trend for human factors is close to horizontal and should there be no real improvement in the next period, it will become an incline.



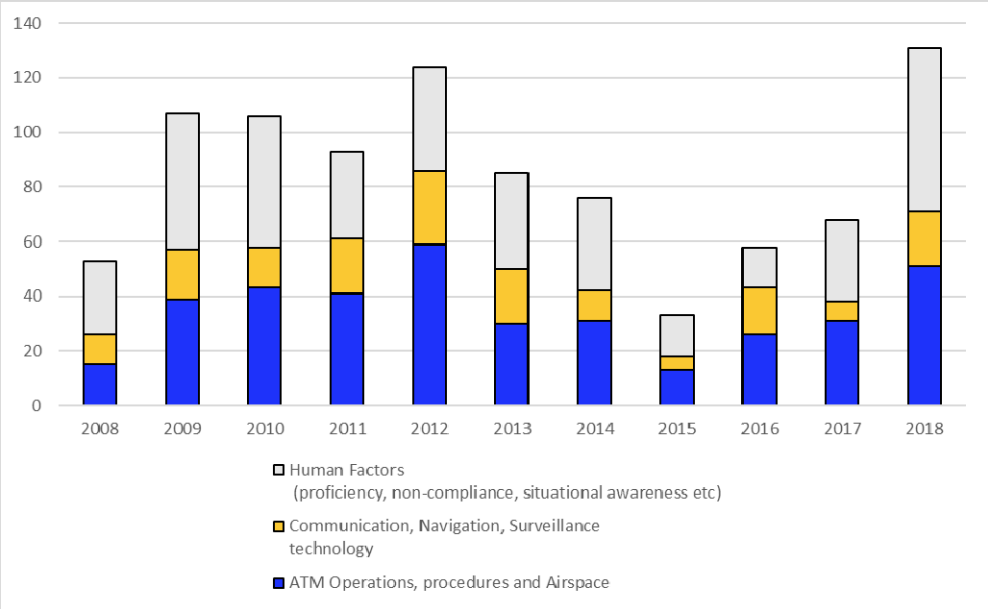
Graph 10 - ATM operations, procedures and airspace causal factors 10-year trend



Graph 11 - Communication, navigation, surveillance technology causal factors 10-year trend



Graph 12 - Human factors (proficiency, non-compliance, situational awareness etc.) causal factors 10-year trend



Graph 13 – High level AIAG causal factors over 10 years

2.17 The AIAG16 made a number of key conclusions, these can be seen in full in Attachment A to this working paper. Fundamental to these are:

a) The risk severity in the region remains alarmingly high
b) State Safety Programs (SSP), Safety Management Systems (SMS) and just culture in the region lack maturity
c) A lack of exhaustive investigation hinders the identification and addressing of all causal factors and lack of timely feedback hindering the AIAG process
d) Inadequate civil / military coordination and cooperation continues to impact safety and efficiency in the region.

3. ACTION BY THE MEETING

3.1 The meeting is invited to:

a) Take note of and endorse the content on the AIAG16 report found in Appendix A of this working paper,
b) Implement the state specific and general recommendations of the AIAG16,
c) Commit to:

i. Further develop the safety culture (including just culture) in the region through the effective implementation of SSP's and SMS,
ii. Ensure that the investigation of events drill down deep into all causal factors, finding not only the "what" happened, but more importantly, the "why" it happened,
iii. Submit comprehensive investigation report, including all causal factors (the "what" and the "why"), corrective and preventative action to the AIAG secretariat, and
iv. Make concerted efforts to implement more effective civil / military coordination and cooperation in the pursuit of improving both safety and efficiency in the region.

-END-