

**Regional Aviation Safety Group -**

**Middle East**

**(RASG-MID)**



# **MID Region Annual Safety Report**

**Second Edition  
January 2014**



## MID Region Annual Safety Report – Second Edition

Second Edition, January 2014

**Regional Aviation Safety Group – Middle East (RASG-MID)**

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**RASG-MID**

**Annual Safety Report**

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## 1. Executive Summary

The objective of the RASG-MID Annual Safety Report is to gather safety information from different stakeholders and to identify the main aviation safety risks in the Middle East Region in order to deploy mitigation actions for enhancing aviation safety in a coordinated manner.

Every entity involved in aviation safety collects safety data and produces safety information with a different perspective. To ensure that all safety efforts are properly coordinated, the region should first agree on the key risks areas.

The Second RASG-MID Annual Safety Report provides Member States and the aviation community with a high-level analysis of the air transport safety trends and indicators in the MID Region. It presents a snapshot of safety performance within the civil aviation system in the MID Region, while providing helpful information about the numerous efforts to develop collaborative responses to safety concerns at the National and Regional level. It comprises three main sections, one for each safety information category:

1. Reactive Information
2. Proactive Information
3. Predictive Information

The safety information presented in this report is based on the compilation and analysis of data provided by: Boeing, the International Air Transport Association (IATA), the International Civil Aviation Organization (ICAO), airline operators, and States.

Analysis of the reactive safety information showed that the three top fatal accident categories for the 2008-2012 period are:

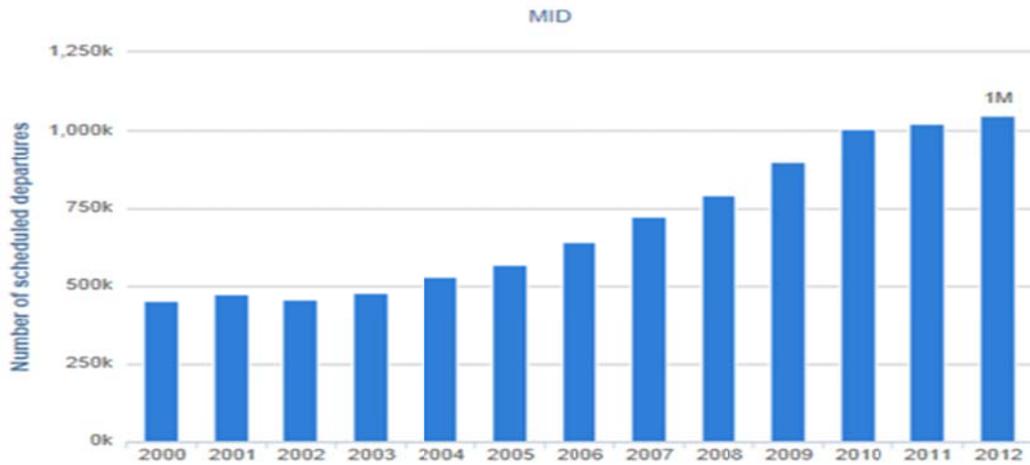
1. Runway and Ground Safety (RGS)
2. Loss of Control In-flight (LOC-I)
3. Controlled Flight Into Terrain (CFIT)

By contrast, the proactive safety information in this report, extracted from the results of the ICAO Universal Safety Oversight Audit Programme (USOAP), showed that 77% of audited States in the MID Region are with overall effective implementation (EI) over 60%.

It should be noted that the Reactive Information represents the largest portion of the Report. As the system matures and the processes for the collection of predictive information in the MID Region are established, balance between the contents of the three sections will be reached.

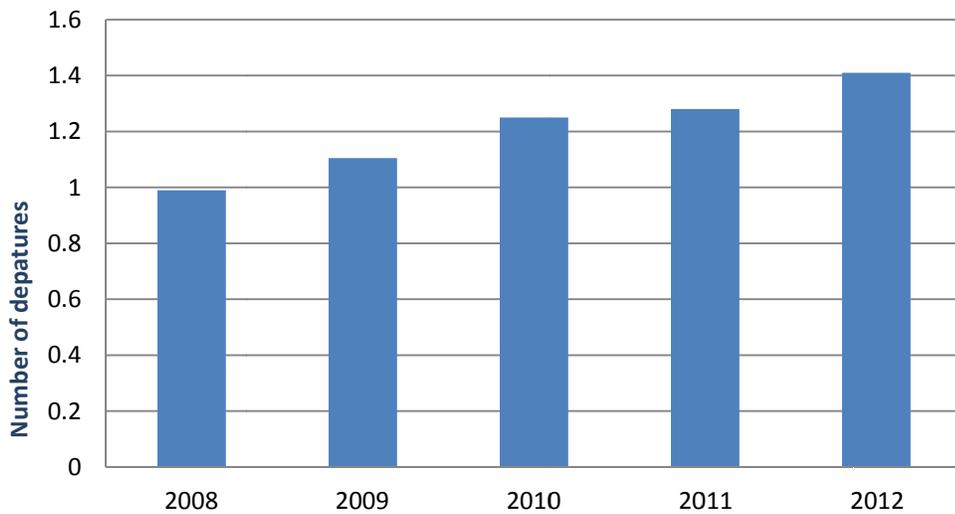
RASG-MID is committed to improving aviation safety and enabling seamless cooperation and communication among the main aviation safety stakeholders in the MID Region.

### 1.1 Regional Traffic Volumes



Regional Traffic Volume  
Annually Scheduled Commercial Departures  
Source: ICAO-iSTARS

	2008	2009	2010	2011	2012
Traffic Million departure	0.772	0.877	0.923	1.032	1.07



Regional Traffic Volume  
Annually Departures  
Source: IATA

	2008	2009	2010	2011	2012
Traffic Million departure	0.990	1.105	1.250	1.282	1.410

**Note:** For the analyses carried out in this report, the IATA traffic data was used.

## 2. Safety Information and Analysis

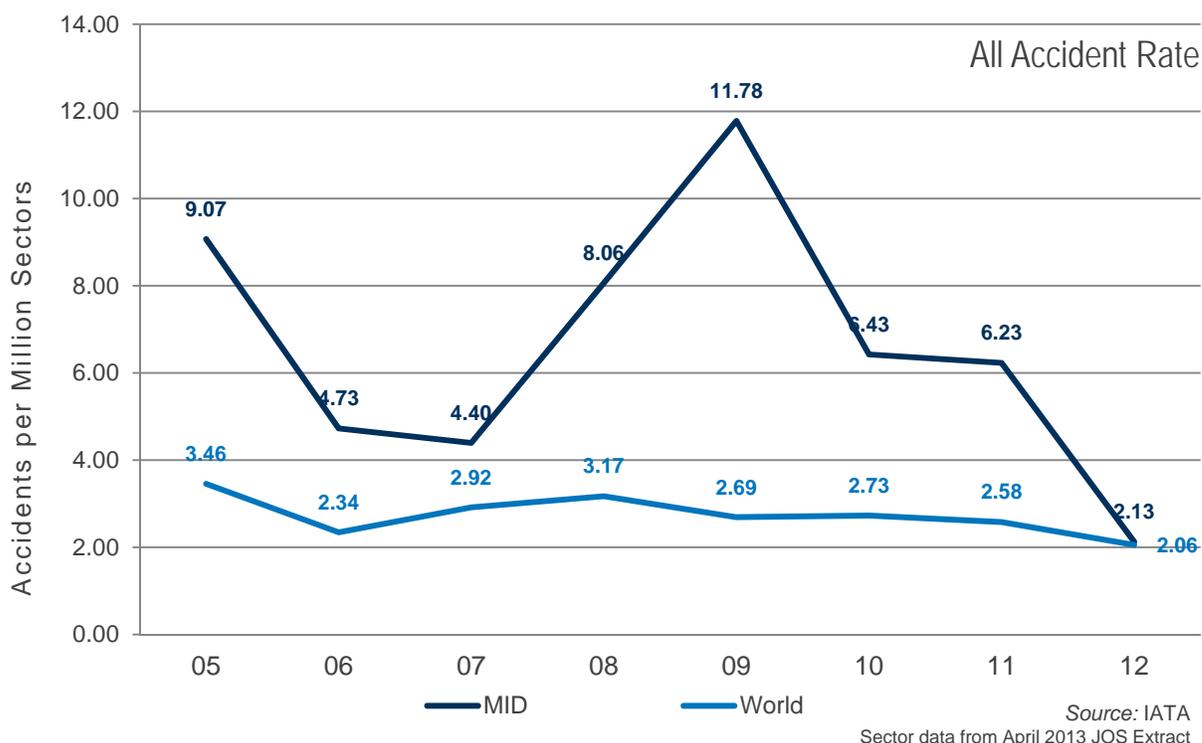
The following sections show the results of safety information analysis grouped as reactive, proactive and predictive safety information.

### 2.1 Reactive Safety Information

In accordance with the MID Region Safety Strategy, it was agreed to progressively reduce the accident rate to be in line with the global average by the end of 2017.

The process followed by the Annual Safety Report Team (ASRT) to analyse reactive information consisted of retrieving safety data from IATA, ICAO and Boeing. For the IATA data, an effort was required to narrow the search to include only the fifteen (15) States of the Middle East Region.

#### 2.1.1 Regional Accidents Rates

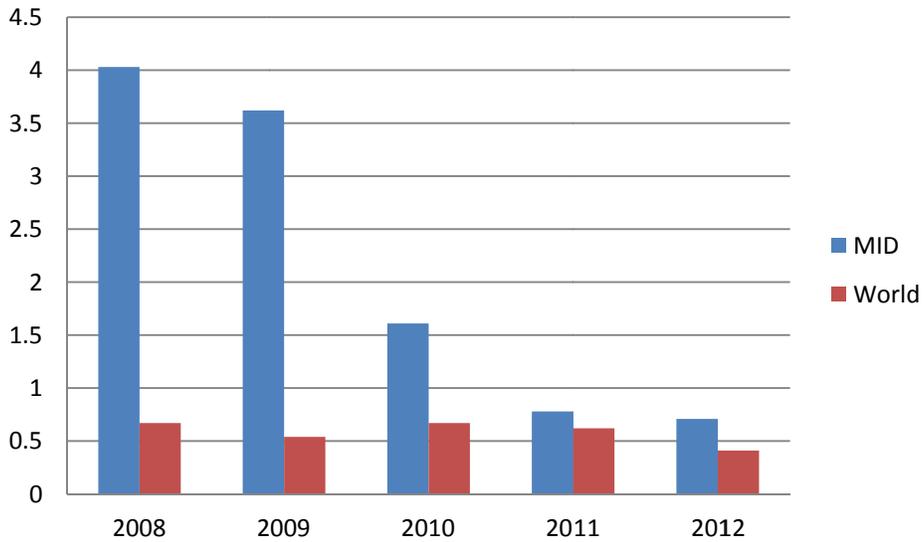


Year		2008	2009	2010	2011	2012
MID	Accident Nr.	8	12	6	6	2
	Accident rate	8.06	11.78	6.43	6.23	2.13
World rate		3.17	2.69	2.73	2.58	2.06

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2.1.2 Regional Fatal Accidents

Year	2008	2009	2010	2011	2012
MID	4.03	3.62	1.61	0.78	0.71
World	0.67	0.54	0.67	0.62	0.41



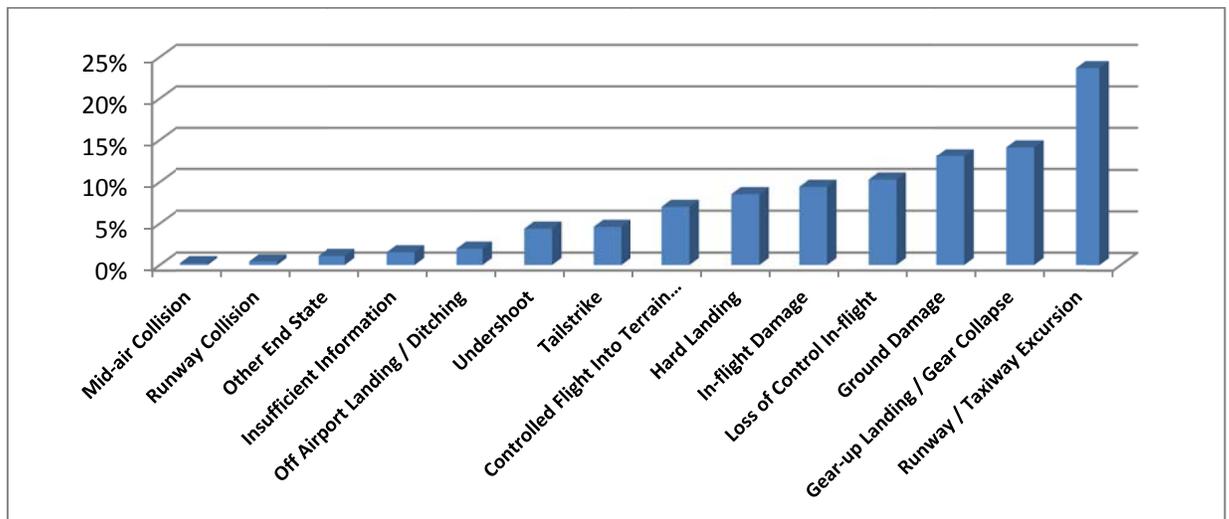
Regional Fatal Accidents Per Million Departure  
Source: IATA

2.1.3 Analysis of MID Accidents between 2008 and 2012

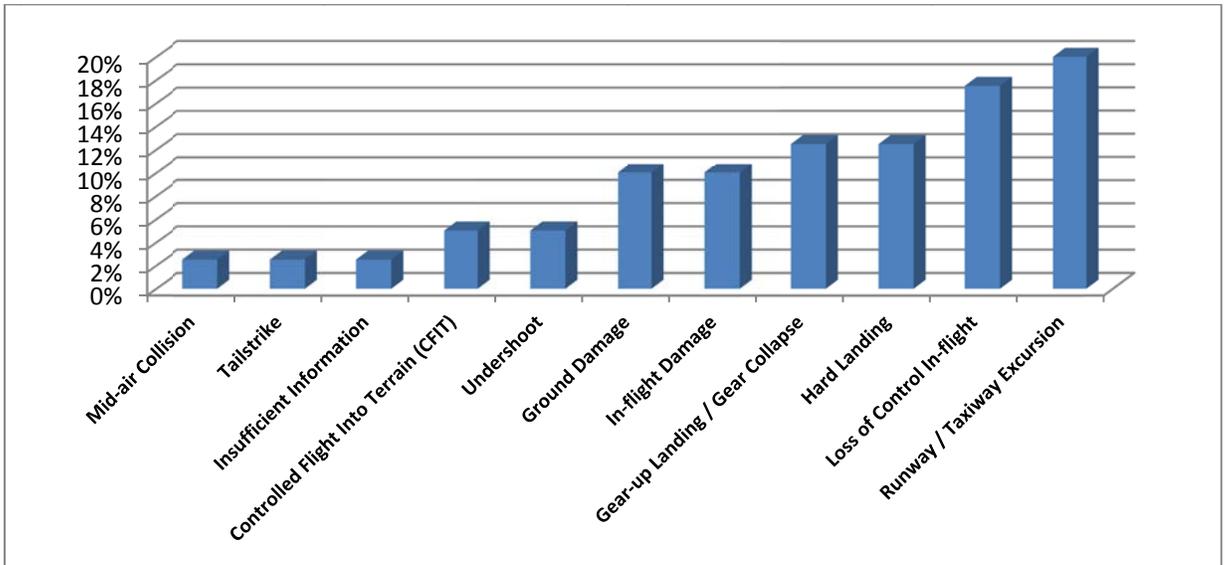
This analysis provides an overview of the accidents between 01 Jan 2008 and 31 Dec 2012.

2.1.3.1 Accidents categories and analysis

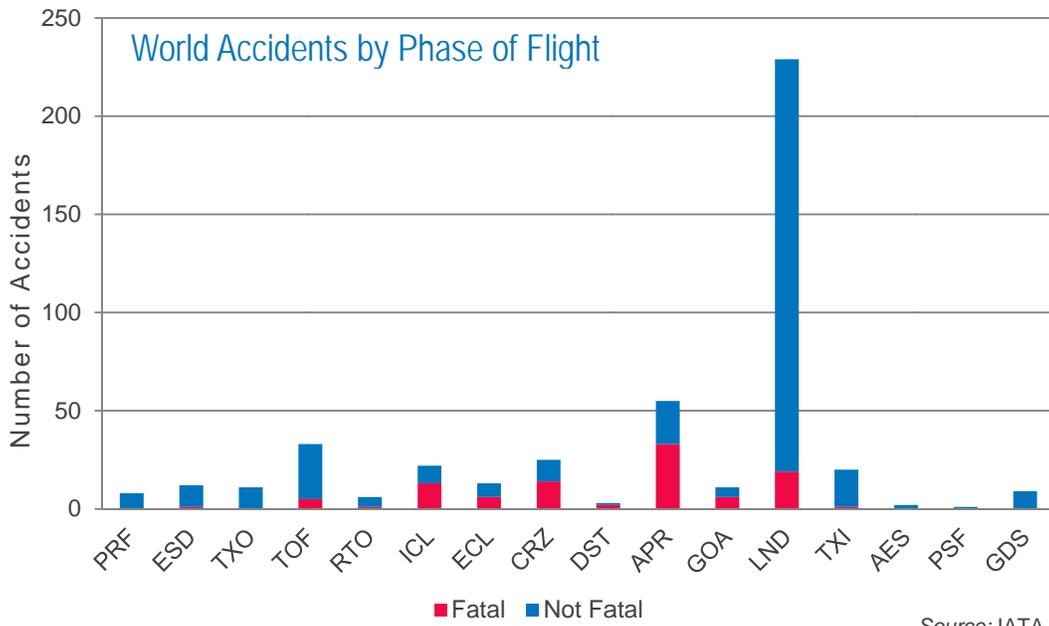
a) World Accident Categories: 2008-2012



**b) MID Accident Categories: 2008-2012**

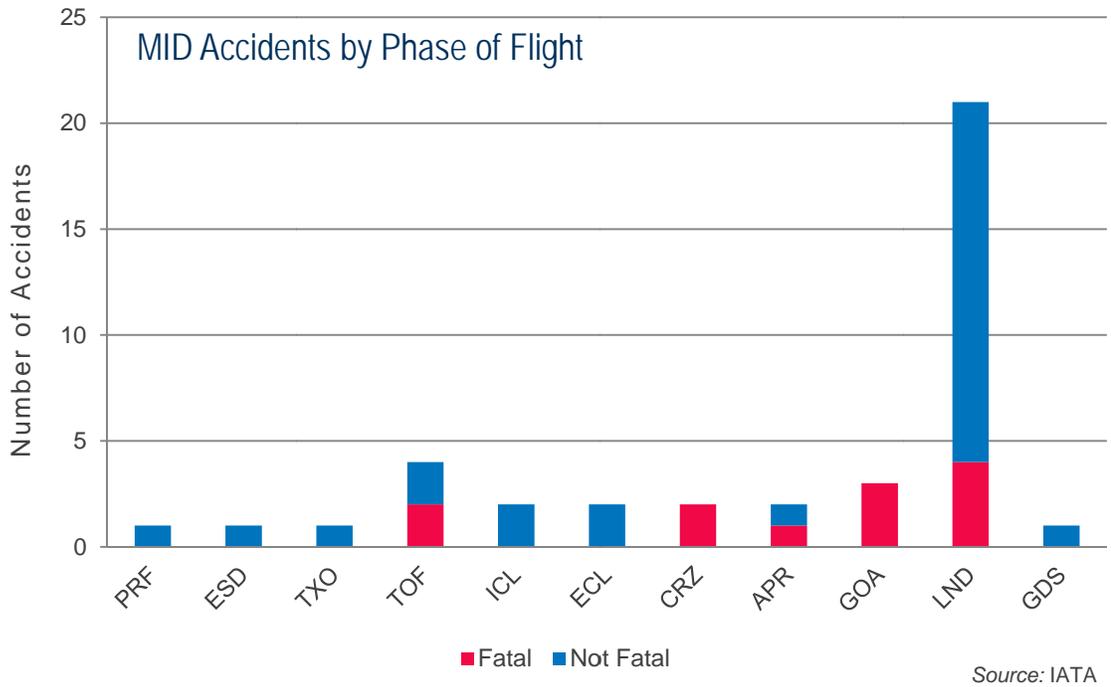


**c) World Accident Flight Phases: 2008-2012**



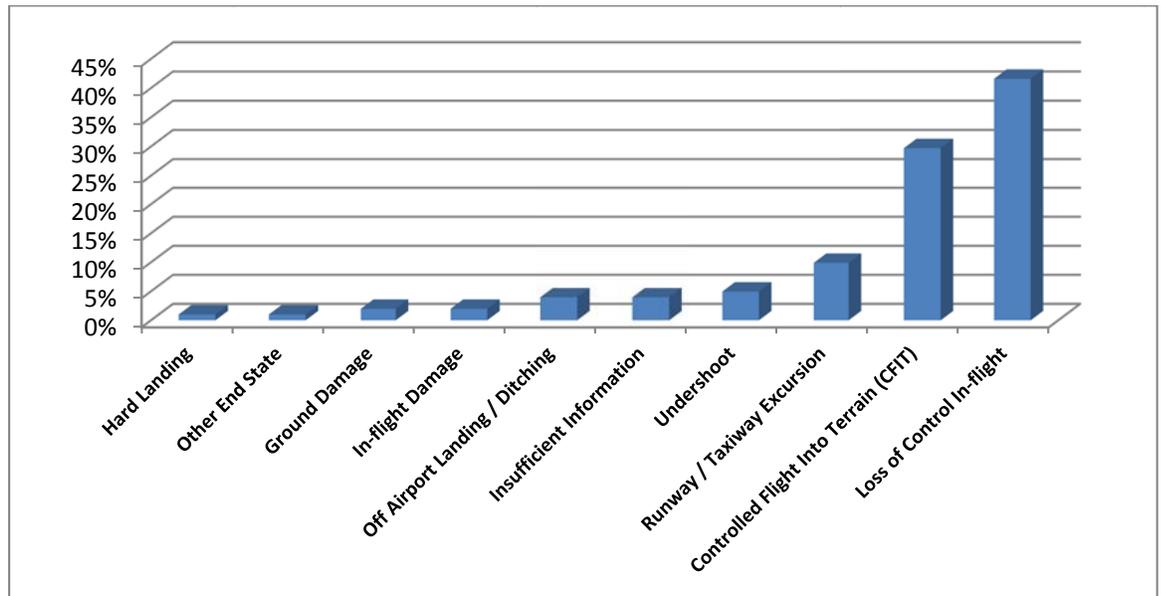
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d) MID Accident Flight Phases: 2008-2012

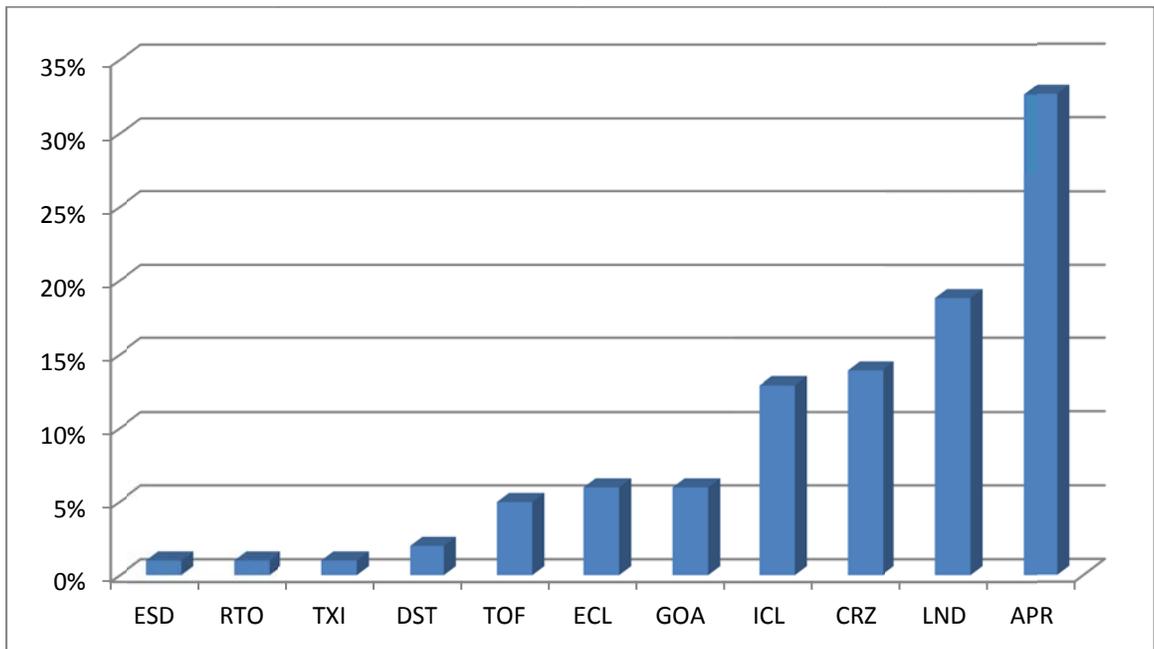


e) World Fatal Accident Categories and Phases

i. Categories

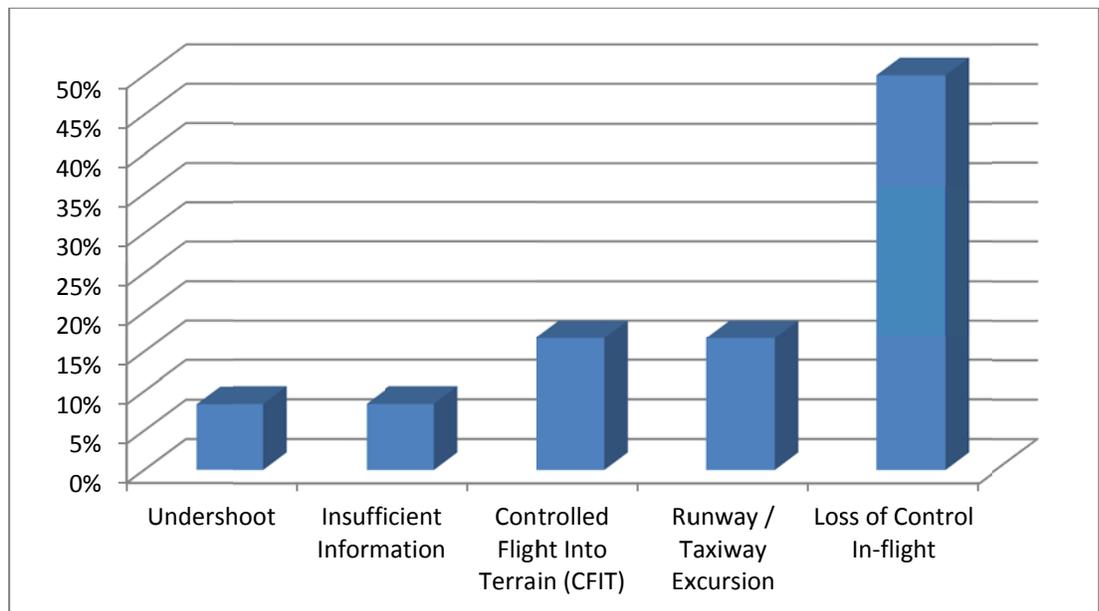


**ii. Phases**

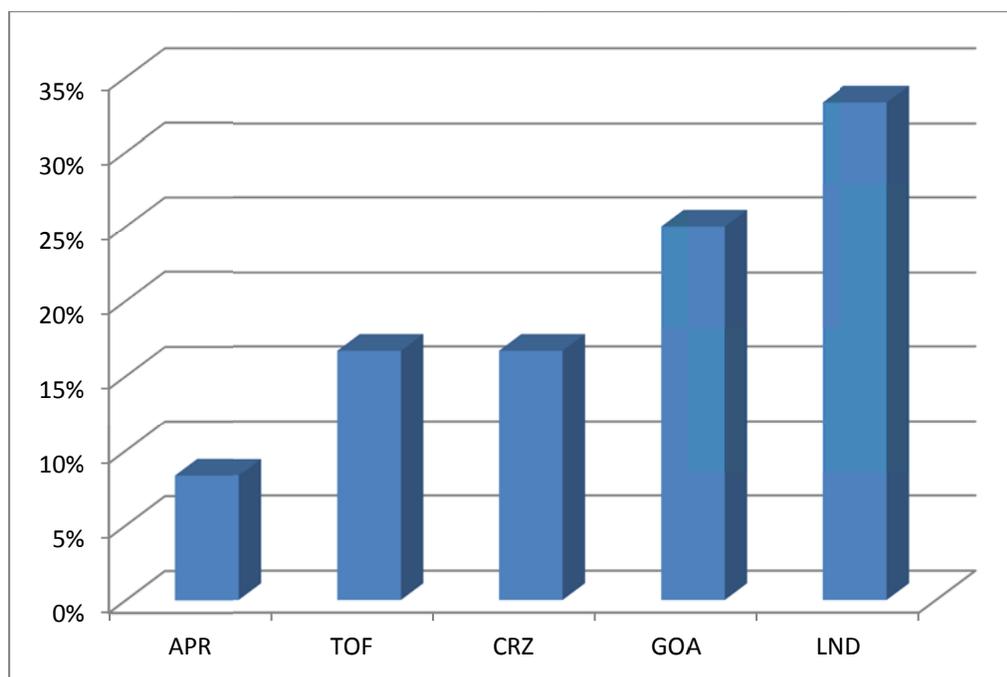


**f) MID Fatal Accident Categories and Phases**

**i. Categories**



ii. **Flight Phases**



**2.1.3.2 Safety Focus Areas for the MID Region (2008 to 2012)**

Taking a more in-depth look at the accidents statistics for the MID Region, the following is highlighted:

1. All accident rate in the MID region was above the World accident rate by an average of 3.86.
2. All MID accident rate among non-IOSA registered operators was above the World accident rate by an average of 6.23.
3. The most frequent accident categories for the period 2008 – 2012 for the MID Region are:
  - i. Runway / Taxiway Excursions
  - ii. Loss of Control In-flight
  - iii. Hard Landing
  - iv. Gear-up Landing / Gear Collapse
  - v. In-flight Damage
4. Top Contributing Factors are:
  - i. Safety Management
  - ii. Aircraft Malfunction
  - iii. Maintenance Events
  - iv. SOP Adherence / SOP Cross-verification
  - v. Unstable Approaches
  - vi. Log/floated/bounced/firm/off-centre/crabbed land
  - vii. Monitor/cross check
  - viii. Overall crew performance

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5. Top Two flight phases when accidents occur in the MID region are LND and TOF
6. Top three fatal accidents categories for the MID region are;
  - i. LOC-I
  - ii. Runway/Taxiway Excursions
  - iii. CFIT

In order to facilitate the identification and prioritization of the main Focus Areas (FAs), the accidents are categorized in term of frequency and severity. The severity assessment is based on the fatalities, injuries and damage to aircraft, property and equipment. The level of severity is categorized as follows:

- 1- Catastrophic: multiple deaths; serious damage to aircraft/equipment (destroyed);
- 2- Major: serious injury/fatalities; major aircraft/equipment damage; and
- 3- Minor: little consequences.

Accordingly, the following matrix shows the assessment for the top accidents categories;

Frequency Severity	1	2	3	4	5
1	1	2	3	4	5
2	2	4	6	8	10
3	3	6	9	12	15

### ***Loss of Control In-flight (LOC-I)***

1. Trend 2008 to 2012

Year		2008	2009	2010	2011	2012
<b>MID</b>	<b>Accident Nr.</b>	3	3	0	1	0
	<b>Accident rate</b>	3.02	2.72	0	0.78	0
<b>World rate</b>		0.41	0.41	0.27	0.29	0.22

2. Severity of Outcomes

<b>Fatal Accident Nr.</b>	6
<b>Non-Fatal Accident Nr.</b>	1
<b>Total Fatalities</b>	415

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### **Runway Excursion**

#### 1. Trend 2008 to 2012

Year		2008	2009	2010	2011	2012
MID	Accident Nr.	1	2	1	3	1
	Accident rate	1.01	1.81	0.80	2.34	0.71
World rate		0.81	0.69	0.58	0.48	0.58

#### 2. Severity of Outcomes

Fatal Accident Nr.	2
Non-Fatal Accident Nr.	6
Total Fatalities	49

### **Controlled Flight into Terrain (CFIT)**

#### 1. Trend 2008 to 2012

Year		2008	2009	2010	2011	2012
MID	Accident Nr.	0	0	1	0	1
	Accident rate	0	0	0.80	0	0.71
World rate		0.20	0.06	0.20	0.28	0.16

#### 2. Severity of Outcomes

Fatal Accident Nr.	2
Non-Fatal Accident Nr.	0
Total Fatalities	135

### **In-flight Damage**

#### 1. Trend 2008 to 2012

Year		2008	2009	2010	2011	2012
MID	Accident Nr.	2	1	1	0	0
	Accident rate	2.02	0.91	0.80	0	0
World rate		0.47	0.27	0.26	0.14	0.11

#### 2. Severity of Outcomes

Fatal Accident Nr.	0
Non-Fatal Accident Nr.	4
Total Fatalities	0

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In accordance with the agreed matrix for the assessment of the top accidents categories, the following table represents the categorization/assessment for the MID Region:

Accident Category	Frequency	Severity	Frequency/Severity
Runway / Taxiway Excursions	1	2	<b>2</b>
Loss of Control In-flight	2	1	<b>2</b>
Hard Landing	3	3	9
Gear-up Landing / Gear Collapse	4	3	12
In-flight Damage	5	2	10
Controlled Flight Into Terrain (CFIT)	6	1	<b>6</b>

Based on the above, the top three (3) Focus Areas (FAs) in the MID Region are:

- a) Runway and Ground Safety (including RWY/TWY Excursions);
- b) Loss of Control In-flight (LOC-I); and
- c) Controlled Flight Into Terrain (CFIT)

### 2.1.3.3 MID Region Safety Performance - Safety Indicators (Reactive)

Safety Indicator	Safety Target	MID	Remark
Number of accidents per million departures	Reduce the accident rate to be in line with the global average by the end of 2017	2.13 (2012)	World 2.06 (2012)
Number of fatal accidents per million departures	Reduce the rate of fatal accidents to be in line with the global average by the end of 2017.	0.71 (2012)	World 0.41 (2012)
Number of Runway excursion-related accidents as a percentage of all accidents	Reduce Runway Excursions-related accidents by 50% by the end of 2017		Refer to the table below
Number of LOC-I related accidents as a percentage of all accidents	Reduce LOC-I related accidents by 50% by the end of 2017		Refer to the table below
Number of In-flight Damage related accidents as a percentage of all accidents	Reduce In-flight Damage related accidents by 50% by the end of 2017		Refer to the table below
Number of CFIT related accidents as a percentage of all accidents	Maintain CFIT related accidents below the global rate		Refer to the table below

Year	2008	2009	2010	2011	2012
<b>MID Total accident</b>	8	12	6	6	2
<b>MID RWY Excursions-related accidents</b>	1	2	1	3	1
<b>% of All Accidents</b>	12.5%	16.7%	16.7%	50%	50%
<b>MID LOC-I-related accidents</b>	3	3	0	1	0
<b>% of All Accidents</b>	37.5%	25%	0%	16.7%	0%
<b>MID In-flight Damage -related accidents</b>	2	1	1	0	0
<b>% of All Accidents</b>	25%	8.3%	16.7%	0%	0%
<b>MID CFIT -related accidents</b>	0	0	1	0	1
<b>% of All Accidents</b>	0%	0%	16.7%	0%	50%

## 2.2 Proactive Safety Information

This section of the Annual Safety Report focuses on proactive safety data analysis to identify additional risk areas in order to be addressed under the emerging risks area.

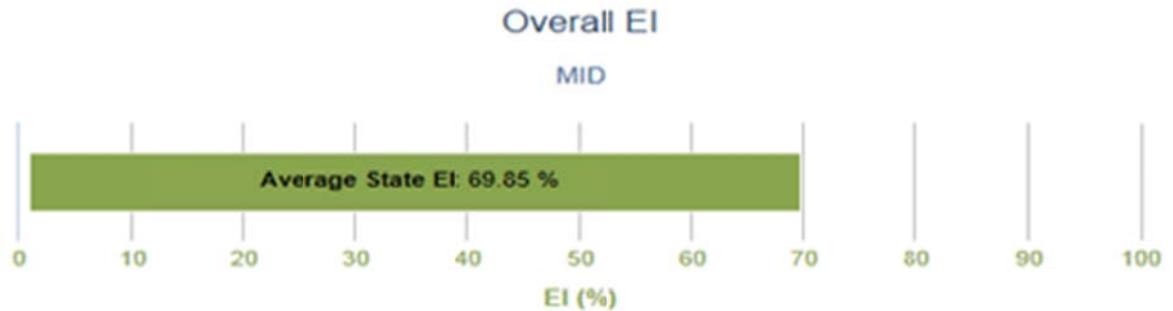
### 2.2.1 Analysis of Audits

#### 2.2.1.1 ICAO USOAP-CMA

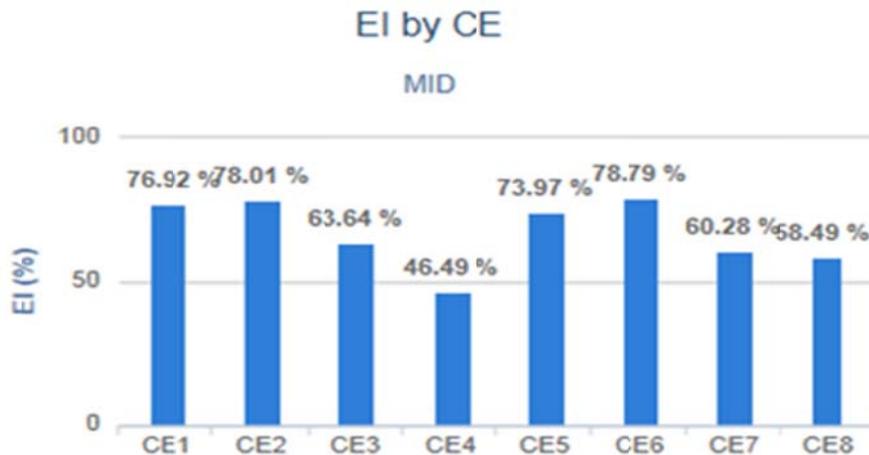
The Average Overall EI of the audited States (Only 13 States have been audited) in the MID Region is 69.85%, which is above the World Average 61.70 %. As the CMA has been officially launched since January 2013, the EI is continuously updated to reflect results from CMA activities including the ICAO Coordinated Validation Missions (ICVMs).

The results of the ICAO Universal Safety Oversight Audit Programme (USOAP) are presented to either show the Effective Implementation (EI) in reference to the eight critical elements (CEs) of the State's Safety Oversight System or the EI per Audit Areas. The lowest EI remains in CE4 (46.49%) related to Qualification and Training of Technical Staff involved in carrying out regulatory functions. Areas of PEL, OPS and AIR still show the highest EI in the MID Region.

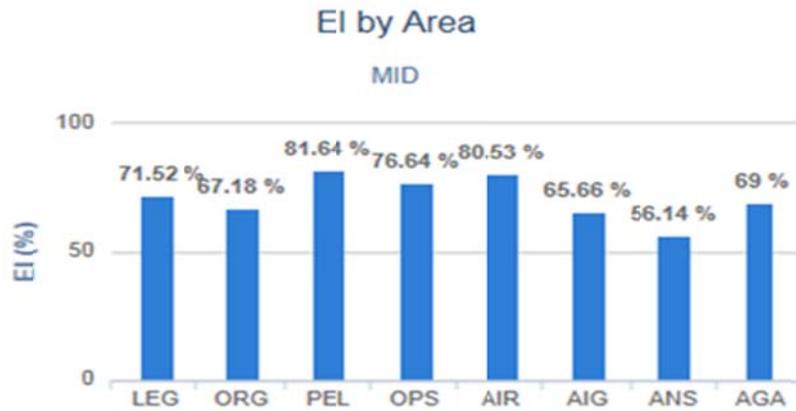
Note: The EI values may differ slightly from those published in the USOAP audit reports that were published from the period 2006 to 2010 due to changes in the EI calculation algorithm as well as changes in the protocol question grouping structure performed since the State's audit.



Average Overall EI of the Audited States in the MID Region

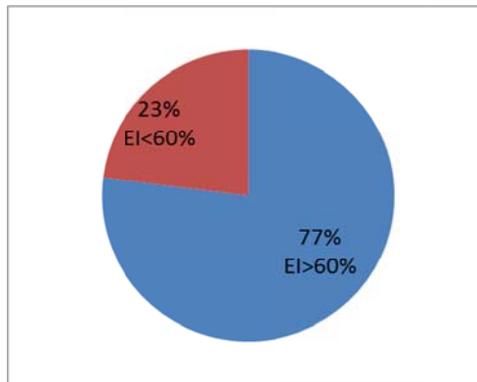


Effective Implementation (EI) per Critical Element (CE)



**Effective Implementation (EI) per Audit Area**

Currently, the percentage of audited Sates in the MID Region with an overall EI over 60% is 77%.



**Audited Sates in the MID Region with an overall EI over 60%**

The following States are with an overall EI over 60%:

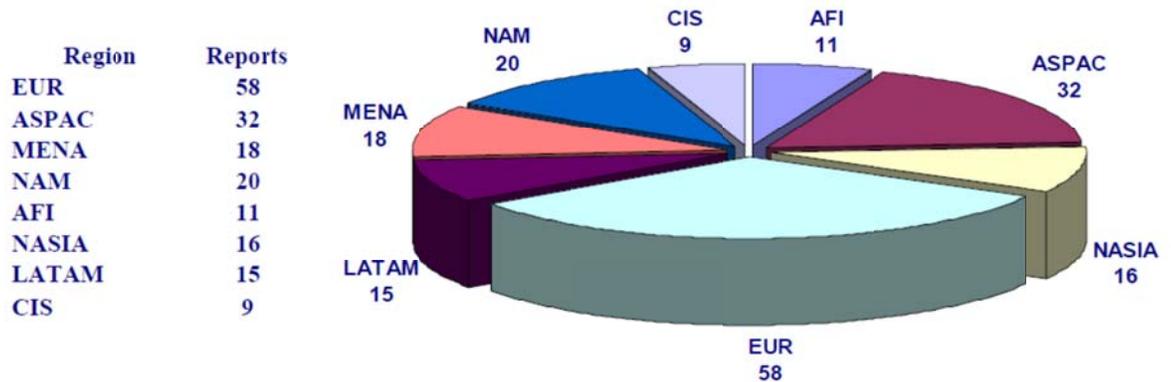
- 1- Bahrain
- 2- Egypt
- 3- Iran
- 4- Jordan
- 5- Kuwait
- 6- Oman
- 7- Qatar
- 8- Saudi Arabia
- 9- Sudan
- 10- UAE

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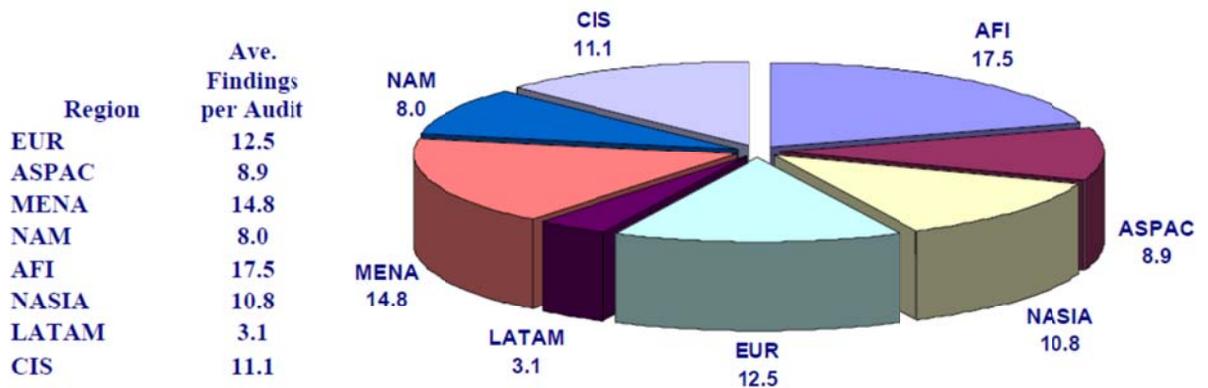
### 2.2.1.2 IATA Operational Safety Audit (IOSA)

The IOSA audit results analysis captured under this section cover the period between July 2009 and December 2010.

Total number of captured reports is 179 distributed in the regions as follows:



Average findings per audit per region are as follows:

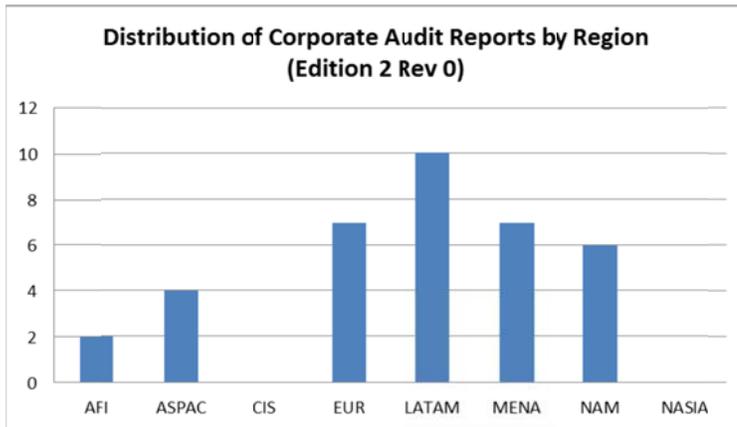


### 2.2.1.3 IATA Safety Audit for Ground Operations (ISAGO)

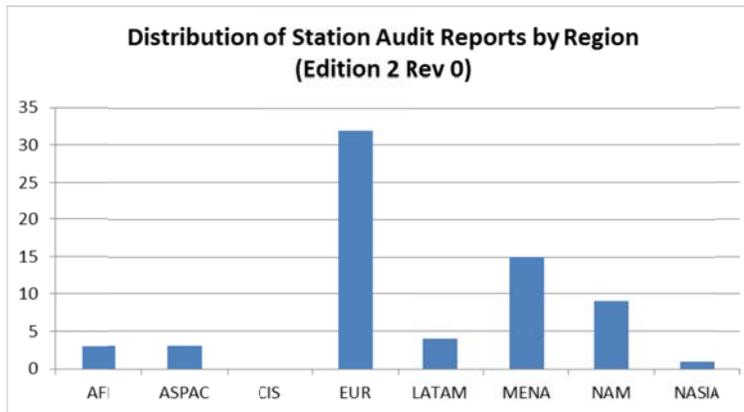
The ISAGO audit results analysis captured under this section cover the period between May 2010 and January 2012.

A total of 131 audit reports (36 corporate, 28 combined and 67 station) have been included in the analysis covering all 8 IATA regions. The 131 audits resulted in 213 findings coming from corporate audits, 579 findings coming from station audits and 546 findings coming from combined audits.

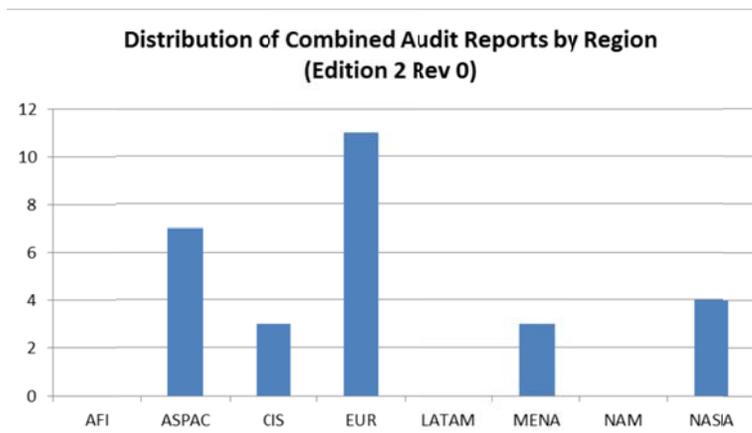
**Corporate Audits:**



**Station Audit:**

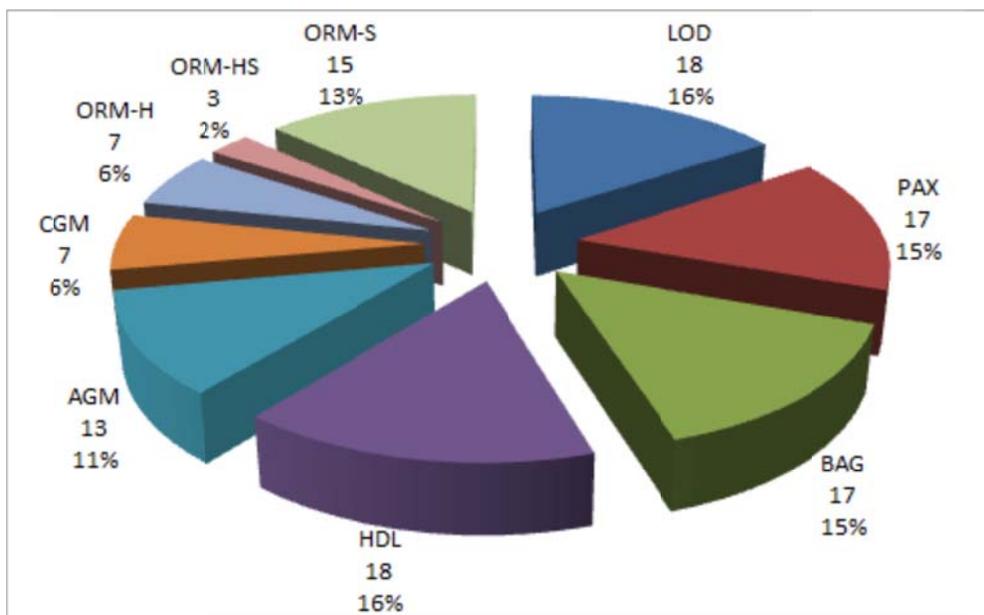


**Combined Audits:**



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### Distribution of Findings for MENA:



### 2.2.2 Analysis of incidents and occurrences

#### 2.2.2.1 Incidents and Occurrences Reported by States

As part of the proactive data analysis, States and airlines have been invited to contribute to the Annual Safety Report by providing incidents/occurrences data. In this respect, as a follow-up action to the RASG-MID/2 Conclusion 2/1, the ICAO MID Regional Office urged States to provide their data related to incidents and safety occurrences. All data and information provided by States and airlines were considered confidential and only de-identified information and analysis are reflected in the Annual Safety Report. Notwithstanding, only five (5) States provided replies to the following questions:

1. What are the top 5 reported incidents/occurrences that you come across? Can you provide us with details; flight phase, root causes, and actions taken?
2. How many of these reports are closed and how many remain pending without a solution? What is the average response time for investigating any incident or occurrence?
3. How do you rate your voluntary reporting system?
4. What are the main three challenges you face with regards to ensuring that a safety culture is maintained within your organization and within your home base operators?

From the received information, the top 5 reported incidents/occurrences are as follows:

- ATC Reports including conflicting traffic (unknown traffic) and airspace deviations (non-adherence to FPL route);
- Diversions;
- Level Bust;
- unstable approach;
- CFIT; and
- Wake Turbulence.

And the main reported root causes:

- Human errors (non-compliance with procedures, lack of awareness, etc);
- MET conditions (wind shear); and
- Aircraft system failure/malfunction.

**2.2.2.2 STEADES data**

The Safety Trend Evaluation, Analysis & Data Exchange System (STEADES) is IATA's aviation safety incident data management and analysis program. It is a database of de-identified airline incident reports. Safety trend analysis using STEADES is included in this report allows proactive safety mitigation, provides rates on key safety performance indicators, and helps to continuously assess and establish safety performance targets.

The scope of analysis captured in this report covers the period Q4 2011 to Q1 2013.

STEADES captures the following events;

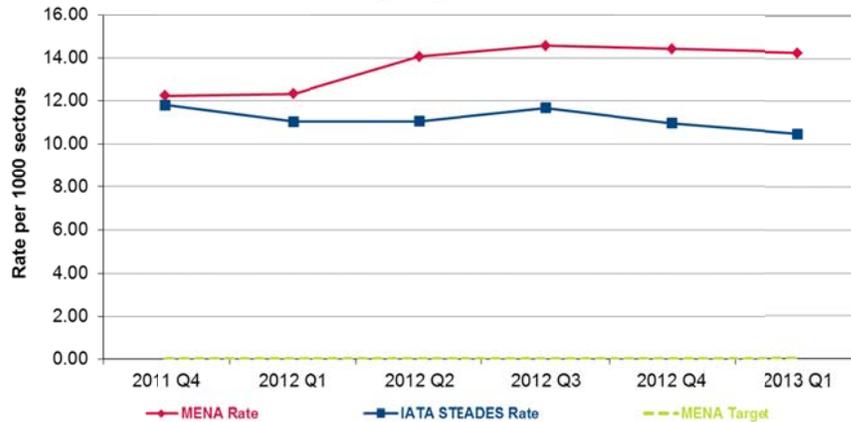
1. Altitude deviation
2. Birdstrike
3. Configuration warning – Flaps
4. Configuration warning – Gear
5. Deep landing
6. EGPWS/GPWS warning
7. EGPWS/GPWS Windshear
8. Hard/heavy landing
9. Stall warning
10. Rejected take-off
11. Runway/taxiway incursion
12. TCAS RA
13. Unstable approach
14. Engine In-flight Shutdown

For the purpose of this report, some events are captured to complement the analysis under different sections of the report and show trends that can support the work of RASG-MID.

Reporting Culture



**Reporting Culture**



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## Birdstrike



STEADES

### Birdstrike



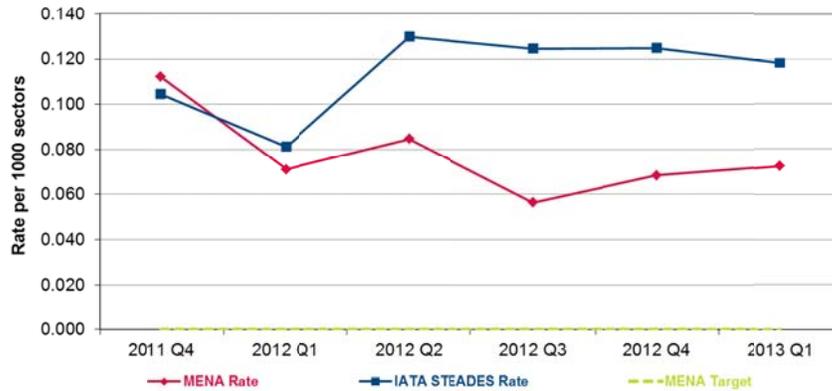
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## Runway/taxiway Incursion



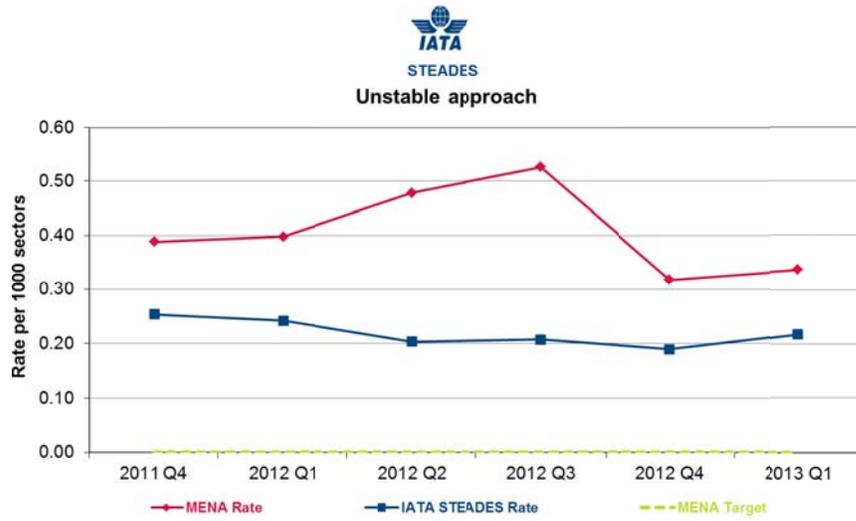
STEADES

### Runway/taxiway incursion



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Unstable Approach

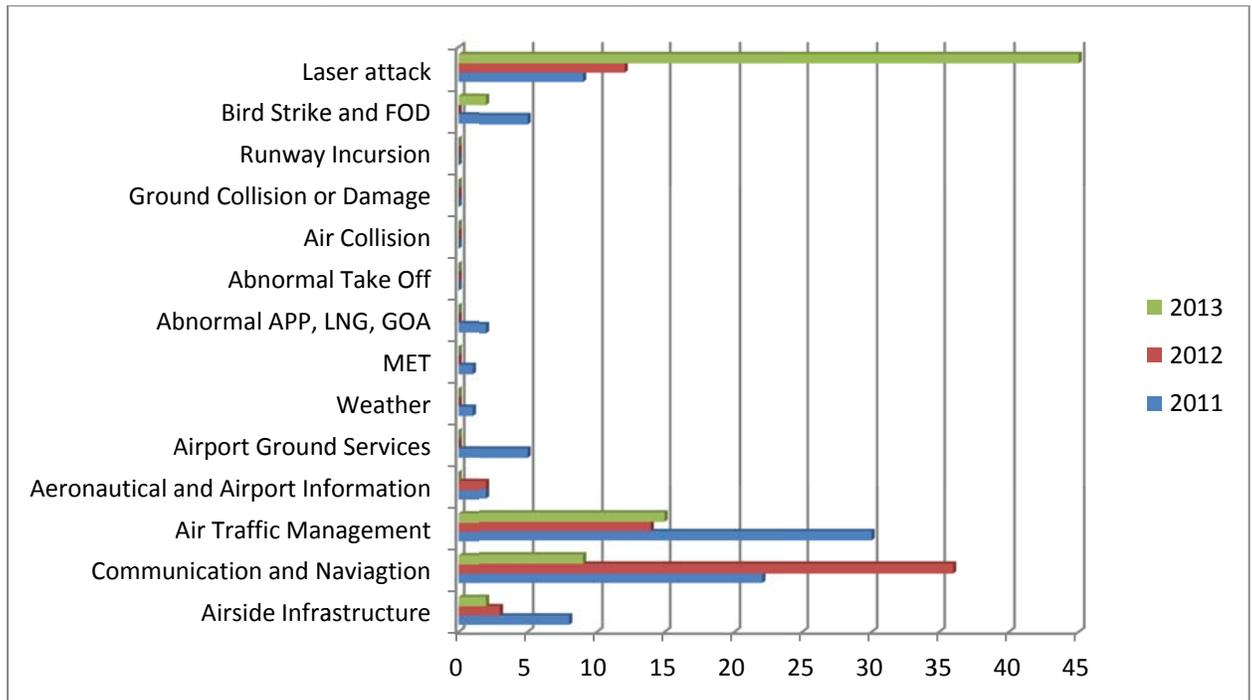


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**2.2.2.3 Incidents and occurrences reported by airlines**

ATS incidents reported by airlines in the MID region were collected to highlight safety risk areas that need to be addressed.

The following analysis and charts takes into consideration reported incidents and occurrences by airlines to the IATA MENA Office for the period January 2011 till July 2013.



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The major incidents categories for the MID region based on reports received directly from airlines are:

1. Laser Attacks
2. Communication and Navigation
3. Air Traffic Management
4. Airside Infrastructure

### 2.2.3 On demand analysis of identified risks or hazards

#### 2.2.3.1 Call-sign Confusion

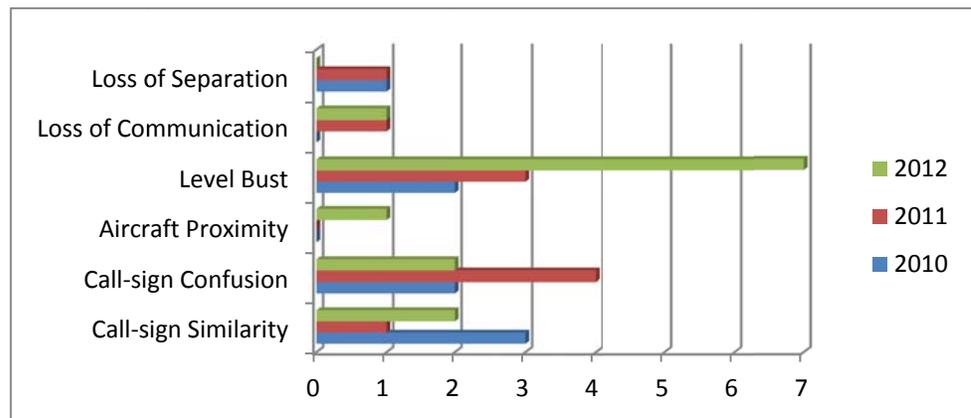
Pursuant to the RASG-MID/2 meeting, a study was launched to collect reliable data over a specified period of time, to ascertain the magnitude of the safety risk resulting from call-sign confusion, and confirm the categories of contributing factors in the MID Region.

The call-sign confusion survey was distributed to the 29 IATA members and all 15 States in the MID Region. Responses from 9 airlines were received. Four airlines reported that they have no incidents to report, and one reported no occurrences in the MID region.

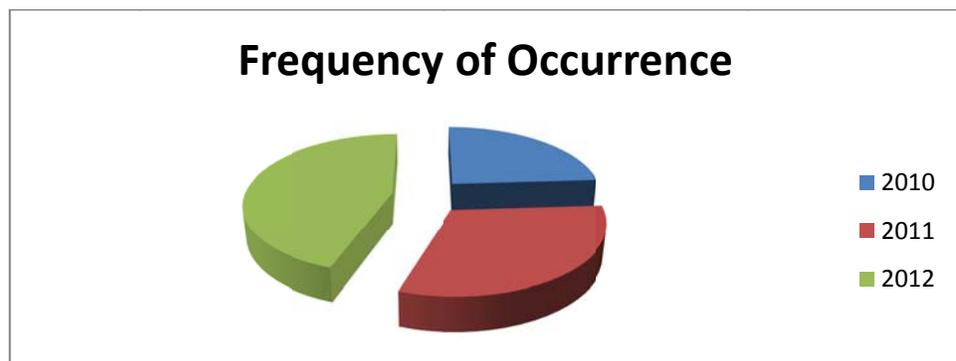
The following charts illustrate the collected responses.

#### 1. Airline Responses

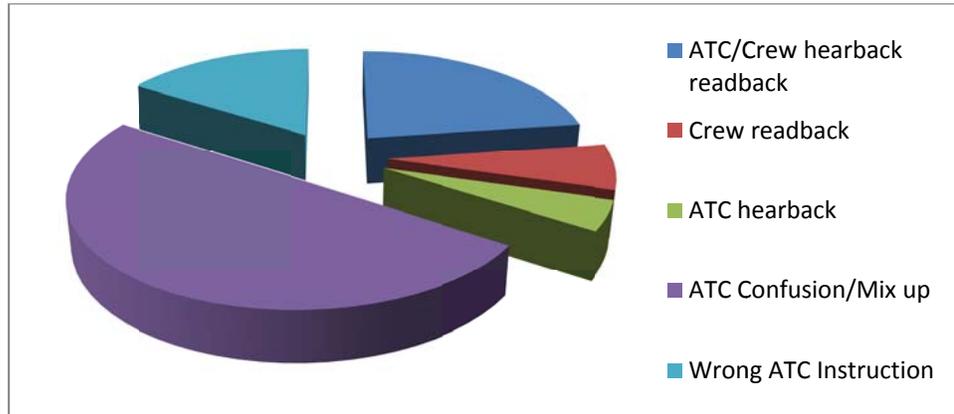
Nature of Occurrence



Frequency of Occurrence



Main root Cause



### 2.2.3.2 Laser Attack

Laser attack has been identified as a risk area, which is considered as a threat to aviation safety and security. A survey will be conducted and the assessment of the associated risks will be included in the next edition of the Annual Safety Report.

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**2.2.4 MID Region Safety Performance - Safety Indicators (Proactive)**

<b>Safety Indicator</b>	<b>Safety Target</b>	<b>MID</b>	<b>Remark</b>
Number of States with an EI score less than 60% for more than 2 areas (LEG, ORG, PEL, OPS, AIR, AIG, ANS and AGA)	Max 3 States with an EI score less than 60% for more than 2 areas and an overall EI over 60%, by the end of 2015	6 States	6 States with an EI <60% for more than 2 areas 1 State with an EI <60% for 2 areas 2 States with an EI <60% for 1 area 4 States with an EI >60% for all areas 8 States have an EI <60% for ANS
Number of States with an overall EI over 60%	All the 15 MID States to have at least 60% EI by the end of 2016	10 States	
Number of Significant Safety Concerns	No significant Safety Concern by end of 2016	1	
Number of certified international aerodrome as a percentage of all international aerodromes	50% of the international aerodromes certified by the end of 2015; and 80% of the international aerodromes certified by the end of 2016	41%  (28 of 68)	
Use of the IATA Operational Safety Audit (IOSA), to complement safety oversight activities	Maintain at least 60% of the MID airlines to be certified IATA-IOSA by the end of 2015 at all times; and All MID States to accept the IATA Operational Safety Audit (IOSA) as an acceptable Means of Compliance (AMC) by 2015 to complement their safety oversight activities.		
Number of Ground Handling service providers in the MID Region having the IATA Safety Audit for Ground Operations (ISAGO) certification, as a percentage of all Ground Handling service providers	50% of the Ground Handling service providers to be certified IATA-ISAGO by the end of 2015 All Ground Handling service providers to be certified IATA-ISAGO by the end of 2017 The IATA Ground Handling Manual (IGOM) endorsed as a reference for ground handling safety standards by all MID States by end of 2015		

## 2.3 Predictive Safety Information

Until the end of 2012, the Middle East Region did not fully develop mechanisms for gathering and processing predictive safety information at regional level. However, initiatives have been undertaken to advance capabilities to gather and analyze predictive safety information within the framework of the MID- Safety Support Team (MID-SST). A Safety Management Workshop was held in Oman on 11-12 June 2013. The purpose of the Safety Management Workshop was to promote the RASG-MID and in particular its SST activities related to safety management and stimulate a dynamic exchange of knowledge and experience on the development and effective implementation of SSP/SMS with an emphasis on the need to improve the reporting and sharing of safety data at national and regional level.

Under this section of the report, the aim is to collect and analyse safety data to proactively identify safety concerns before accidents or incidents occur, to develop timely mitigation and prevention measures.

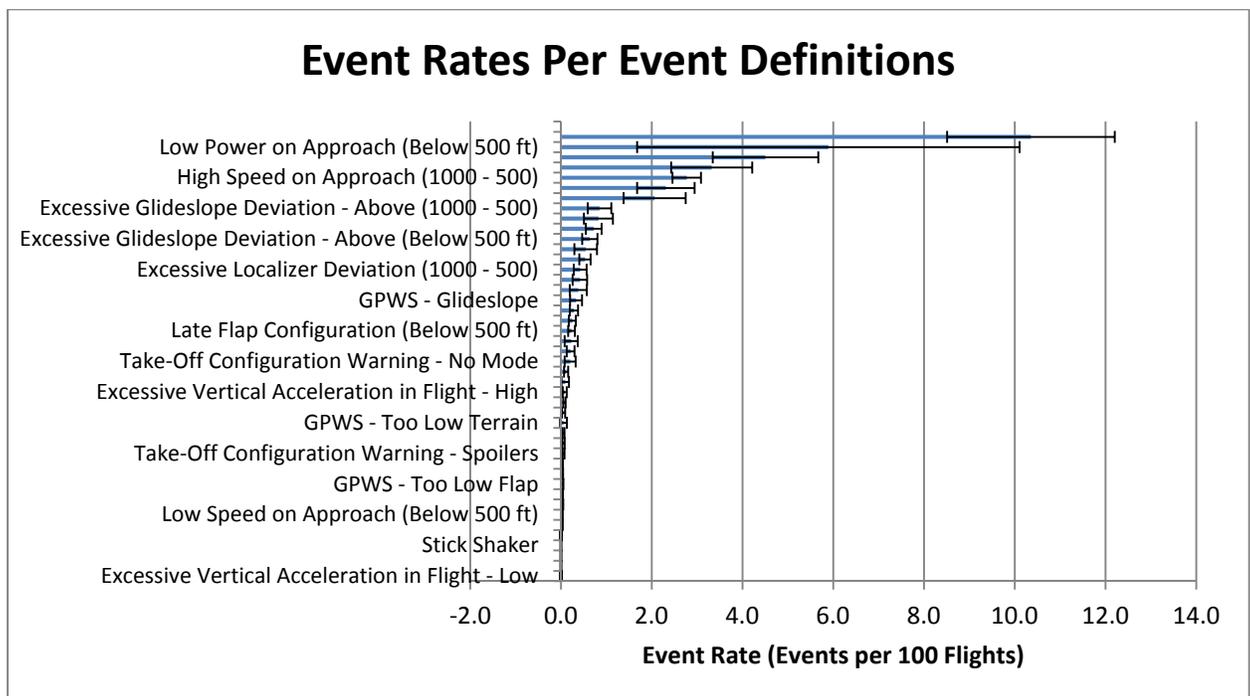
### 2.3.1 FDM Trends and FOQA Data

#### 2.3.1.1 FDX data

One good source for predictive data is airline operators' Flight Data Monitoring systems (FDM) and Flight Operations Quality Assurance Programmes (FOQA). To assist in the access of such data, IATA has established the Flight Data Exchange (FDX) database.

Flight Data eXchange (FDX) is an aggregated de-identified database of FDA/ FOQA type events that allows the user to identify commercial flight safety issues for a wide variety of safety topics, for many types of aircraft, across a global database; as well as allows flight operations and safety departments to proactively identify safety hazards.

Due to low participation of MENA airlines in the FDX database, the following chart was developed based on FDX data related to AFI and MENA participating airlines. Future editions of the Annual Safety Report would include more representative charts of the Middle East.



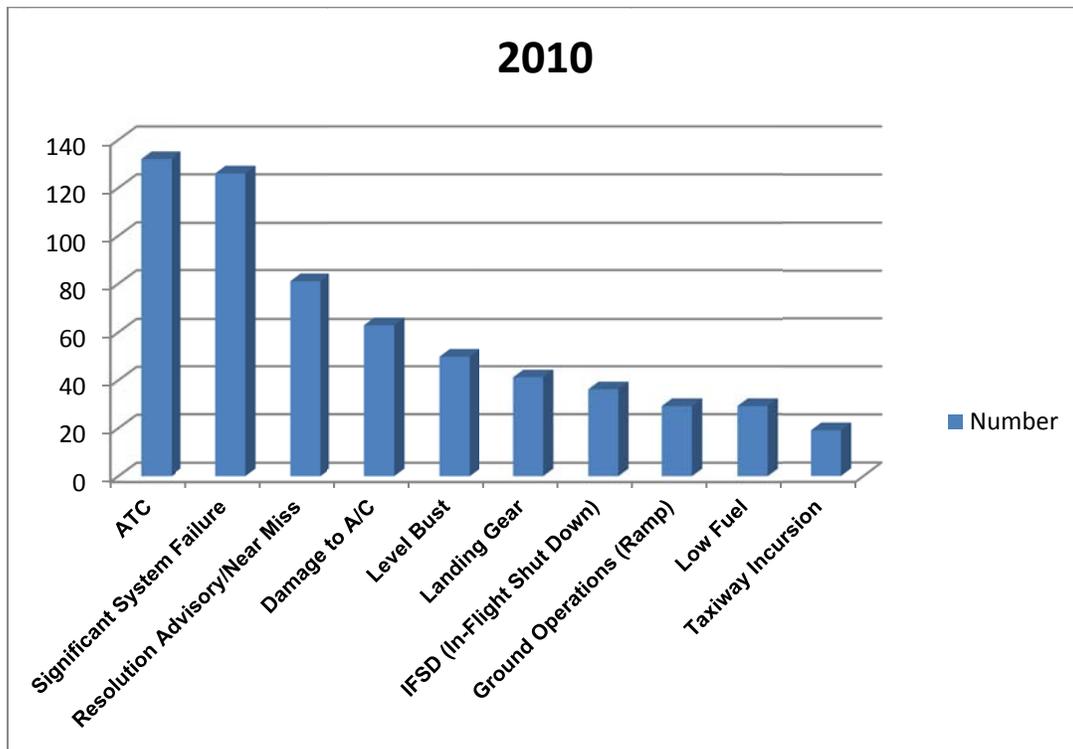
### 2.3.2 Hazard Identification and Risk Assessment

#### 2.3.2.1 State Safety Programme (SSP)

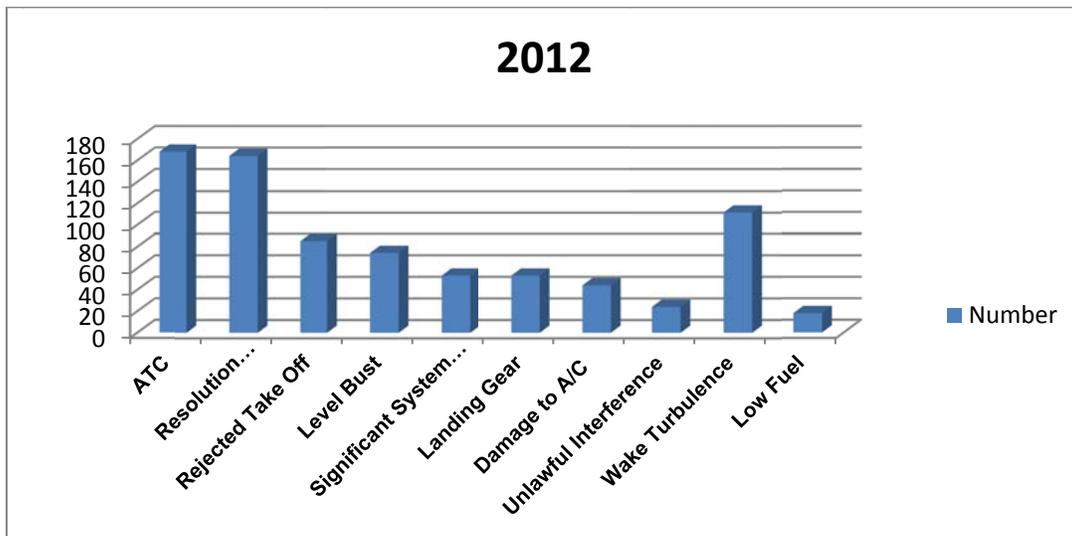
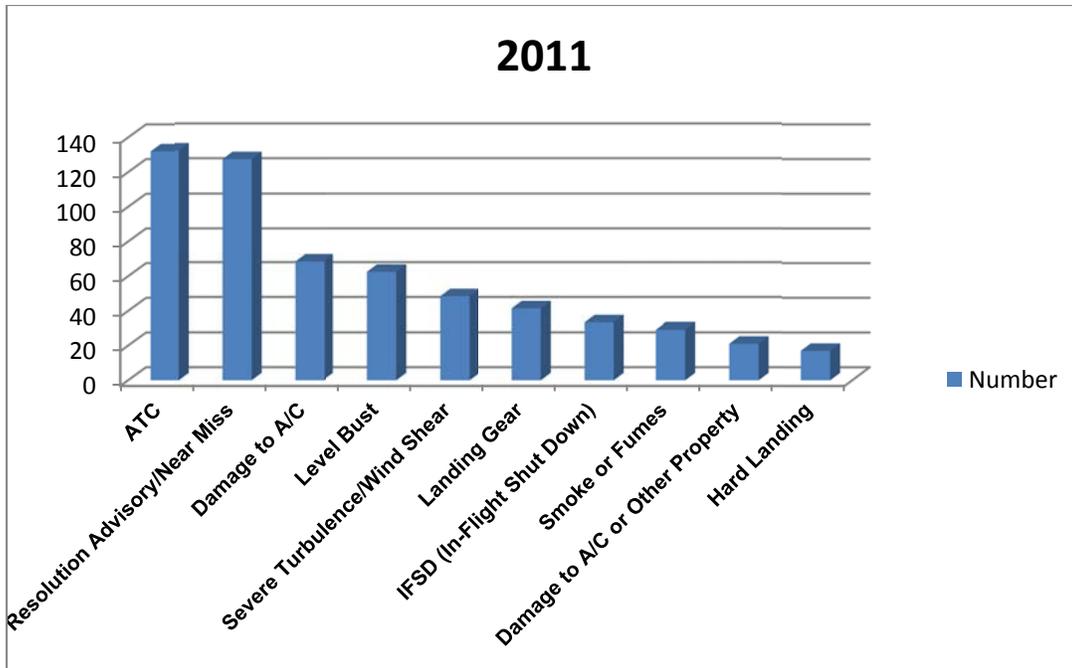
The MID-ASRT will collect events from States based on data captured within local SSP/SMS programmes. For this report, only one State reported their events. The upcoming editions of the Annual Safety Report would include more in-depth analysis of safety collected from SSP/SMS programmes and would provide predictive trends analysis to develop necessary risk management strategies.

#### Events Captured by the UAE

The most frequent incidents (Top 10) captured by the SSP during the last 3 years are shown in the following charts:



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### 3. Final Conclusions

In regard to Reactive Safety Information, the data analyzed for the MID Region demonstrated that Runway and Ground Safety (RGS), Loss of Control In-flight (LOC-I) and Controlled Flight Into Terrain (CFIT) represent the three (3) Focus Areas (Fas). In term of fatality, LOC-I continues to be the top fatal accident category for the 2008 - 2012 period.

Although In-Flight Damage (IFD) is no longer considered as one of the main risk areas according to the matrix of identification and prioritization of the main FAs, it will be addressed under the Emerging Risks Area.

The top contributing factors identified in the analysis include:

- 1- Safety Management
- 2- Aircraft Malfunction
- 3- Maintenance Events
- 4- SOP Adherence / SOP Cross-verification
- 5- Unstable Approaches
- 6- Log/floated/bounced/firm/off-centre/crabbed land
- 7- Monitor/cross check
- 8- Overall crew performance

Proactive safety information shows that the Average Overall EI of the audited States (13 States) in the MID Region is 69.85%, which is above the World Average 61.70 %, and that 10 States are with an overall EI over 60%. Areas of PEL, OPS and AIR still show the highest EI in the MID Region. Effort should be made to improve States' safety oversight capabilities in the area of ANS and Aerodromes as well as the AIG capabilities.

All accident rate in the MID Region was above the World accident rate by an average of 3.86; whereas, all MID accident rate among non-IOSA registered operators was above the World accident rate by an average of 6.23.

The major incidents categories for the MID Region based on reports received directly from airlines are:

1. Laser Attacks
2. Communication and Navigation
3. Air Traffic Management
4. Airside Infrastructure

Mechanisms for gathering and processing predictive safety information at regional level should be developed in order to collect and analyse safety data to proactively identify safety concerns before accidents and/or incidents occur, to develop timely mitigation and prevention measures.

MID-ASRT will be working on collection and analysis of Predictive Safety Data within 2014, to drive safety activities under RASG-MID.

The RASG-MID Annual Safety Report is a timely, unbiased and transparent source of safety related information essential for all aviation stakeholders interested in having a tool to enable sound decision-making on safety related matters.

**List of Acronyms**

ANSP	Air Navigation Service Provider
ATC	Air Traffic Control
ATS	Air Traffic Services
ASRT	Annual Safety Report Team
CFIT	Controlled flight into terrain
FDA	Flight Data Analysis
FOQA	Flight Operations Quality Assurance
DIP	Detailed Implementation Plan
GASP	ICAO Global Aviation Safety Plan
IATA	International Air Transport Association
ICAO	International Civil Aviation Organization
LOC-I	Loss of control - inflight
MID	Middle East region (ICAO region)
MENA	Middle East & North Africa (IATA region)
RAST	Regional Aviation Safety Group
RE	Runway excursion(departure or landing)
RI	Runway Incursion
SEI	Safety Enhancement Initiative
SMS	Safety Management System
SOP	Standard Operating Procedure
SSP	State Safety Programme
UAS	Undesirable Aircraft State
USOAP Programme	Universal Safety Oversight Audit Programme

**CREDITS**

RASG-MID thanks all those who contributed to the elaboration of this RASG-MID Annual Safety Report and provided necessary support and information to the members of the MID Annual Safety Report Team (MID-ASRT). Special thanks go to:

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**Mr. Mohamed Smaoui and Mr. Mashhor Alblowi**

International Civil Aviation Organization (ICAO)

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