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AVIATION SAFETY: PERSPECTIVE OF UNITED ARAB EMIRATES

SARATH RAJ N. S[1] & GEETANJALI R CHANDRA[2]

[1]Lecturer - Aerospace Engineering, Dubai International Academic City, Dubai, UAE

[2]Doctorate of Laws), Asst. Professor (Law), Dubai International Academic City, Dubai, UAE

ABSTRACT

Aviation safety affects everybody from governments, passengers, industry, freight companies and academic community. Over the years, aviation has been the safest mode of transport in the world but each casualty in air travel is entirely too many. This paper reviews the economic literature relating to aviation safety; examines aviation security as a growing dimension of aviation safety; and identifies emerging issues in airline safety and challenges for aviation safety research. Aviation safety needs to improve significantly, as the global population depends on an efficient and safe commercial network.

KEYWORDS: Aviation Safety, Challenges, Terrorism, Aircraft Accident, Aviation Security, ICAO, FAA, UAE Civil Aviation Authority

INTRODUCTION

The year 2014 & 2015 evidenced a shocking year for aviation industry, with the decease of three major planes. These three major disasters question the air travelers about the safety features of aviation industry than ever, but still they have to believe the safety providing by the aviation industry[3].According to Tony Tyler[4] "2015 was another year of contrasts when it comes to aviation's safety performance. In terms of the number of fatal accidents, it was an extraordinarily safe year. And the long-term trend data show us that flying is getting even safer. Yet we were all shocked and horrified by two deliberate acts--the destruction of German wings 9525 and Metro jet 9268. While there are no easy solutions to the mental health and security issues that were exposed in these tragedies, aviation continues to work to minimize the risk that such events will happen again.[5]" According to Abdul Wahab Al Roomi[6] "Aviation safety is a very important issue around the world, as a civil aviation body, aviation safety is amongst out top priorities here at Sharjah International Airport. In fact, as a top priority, we have made a significant amount investment from our overall budget and even brought in international consultants in order to become the first airport in the United Arab Emirates (UAE) to have a General Civil Aviation Authority (GCAA)[7] approved Safety Management System."[8]

Aviation safety affects everybody from governments, passengers, industry, freight companies and academic

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[1] Amity University Dubai Campus, Dubai

[2] Amity University Dubai Campus, Dubai

[3] "After Air Asia & Malaysian Airline crashes" http://www.businessdestinations.com/move/travel-management/after-airasia-and-malaysia-airlines-crashes-are-planes-safe-to-travel-on/, August 27th 2015

[4]IATA's Director General & CEO

[5] "2015 was another year of contrasts"http://www.iata.org/pressroom/pr/Pages/2016-02-15-01.aspx,March 20th 2015

[6] Director General – Department of Civil Aviation, Government of Sharjah

[7] General civil Aviation Authority, Dubai

[8] "2nd WFP Global Aviation Safety event tackles aviation safety issues" http://www.arabianaerospace.aero/2nd-wfp-global-aviation-safety-event-tackles-aviation-safety-issues.html, August 20th 2015

community. Over the years, aviation has been the safest mode of transport in the world but each casualty in air travel is entirely too many[9]. Aviation safety needs to improve significantly, as the global population depends on an efficient and safe commercial network.

Background of the Study

In the previous year, Southeast Asia's aviation industry has grieved an unparalleled number of disasters. Though the chances of any individual boarding a flight dying in an airplane crash are about 1 in 11 million,[10] three airplanes—two centered in Malaysia, the third one an Indonesian associate of a Malaysia-based group; Air Asia QZ8501—have speciously crumple over the Java Sea , with no oddments.

Importance of aviation has elevated aviation safety from a national concern to the interest of global. This elevation is due to the number of countries involved in every single flight and the distance, making it impossible for a single country to manage aviation safety without the involvement of other states around the globe. This elevation is due to the number of countries involved in every single flight and the distance, making it impossible for a single country to manage aviation safety without the involvement of other states around the globe. This reason led to the creation of ICAO[11] that regulates the world's aviation safety of the member countries[12]. ICAO has seven regions among which we have MID[13] region that regulates aviation in GCC[14] States and other Middle East countries. This research paper focuses on aviation safety and its importance in the globe particularly the Middle East region.

Problem Statement

Aviation security is important to the world to protect people's lives and ensure global accessibility through aviation. As per the ICAO safety report - 2014,[15] globally the number of aircraft accidents in 2013 was 90, including 9 fatal accidents. The Global Fatal Accident Review of the Civil Aviation Authority gives a total number of 0.6 fatal accidents per one million flights for the ten-year period 2002 to 2011[16]. In terms of million hours flown, this quantity is 0.4. The equivalent number of fatalities is 22.0 fatalities per one million flights or 12.7 in terms of per million hours flown. The total number of fatalities in 2013 was 173, which is the smallest number of fatalities since 2000, even though the total number of departures in 2013 was with 32.1 million as high as never before. This corresponds to 5.39 fatalities per one million departures in 2013.[17] According to Bureau of Aircraft Accident Archives (BAAA) in 2014 the fatalities raised to 7.6% resulted in 1,328 fatalities, highest annual fatality figure since 2005 due to a series of airplane crashes. Also for 2015,

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[9] "Safety in Airlines - Road to Safer Skies" http://www.metricstream.com/insights/Airlines_Safety.htm, August 26th 2015
[10] " Indonesian army personnel during a search and rescue operation" http://www.bloomberg.com/bw/articles/2014-12-29/why-air-disasters-keep-happening-in-southeast-asia, August 26th 2015
[11] International Civil Aviation Organizations (ICAO)
[12] International Civil Aviation Organization. (2009). Safety management manual [pdf] (2nd ed.). Montreal, Quebec: ICAO, Available at http://legacy.icao.int/anb/safetymanagement/DOC_9859_FULL_EN.pdf Accessed 11.09.12.
[13] Middle East Region (MID)
[14] Gulf Cooperation Council (GCC)
[15] "ICAO Safety Report 2014", http://www.skybrary.aero/bookshelf/books/2698.pdf, August **26**[th] 2015
[16] "Global Fatal Accident Review- Civil Aviation Authority", http://www.skybrary.aero/bookshelf/books/2403.pdf ,
August 26th 2015
[17] "ICAO Safety Report 2014", http://www.skybrary.aero/bookshelf/books/2698.pdf, August **26**[th] 2015

until now the overall fatalities are 247, including the German wings crash.[18]

The following chart (Exhibit I) shows the development of the rate of fatal and non-fatal accidents in recent years.

Exhibit I

Rate of Fatal & Non-Fatal Accidents

Source:http://www.theguardian.com/world/datablog/2014/dec/29/aircraft-accident-rates-at-historic-low-despite-high-profile-plane-crashes
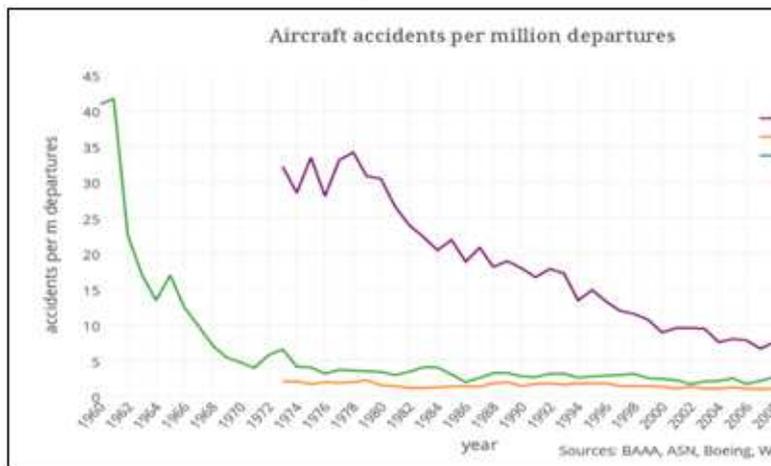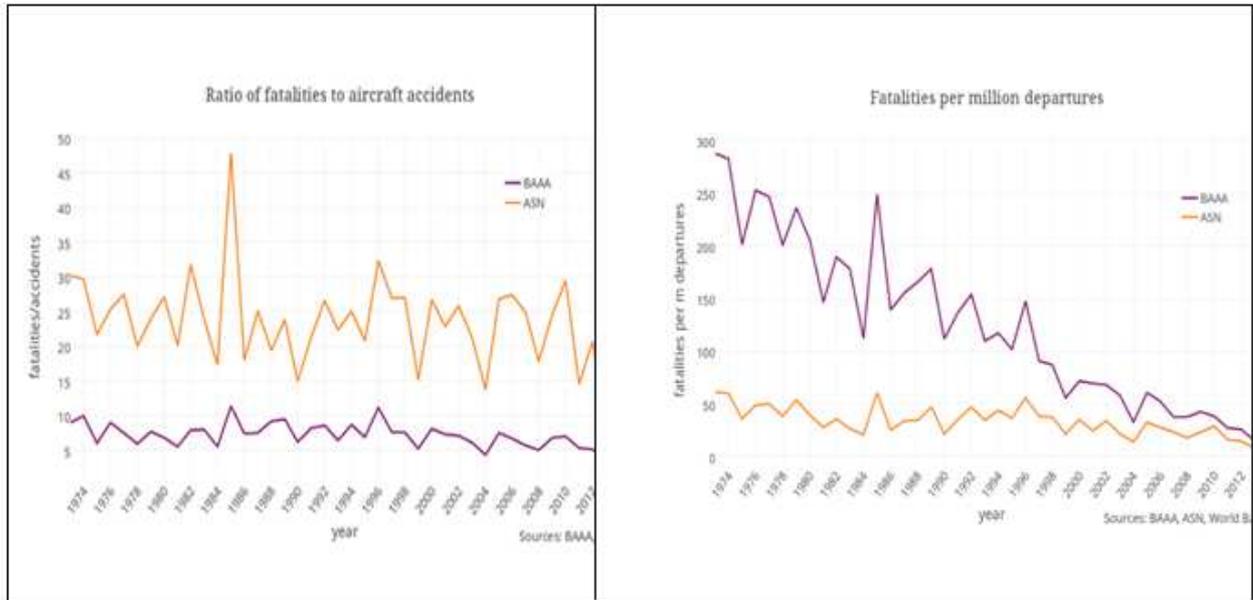
From the statistics, it is evident that the rate of accidents for 2014 is at the lowest ever since from 1973 and the overall trend is towards flights having fewer accidents in whole.In spite of the declining rate for accidents, the rate for fatalities has enlarged in 2014 over 2013, with the overall trend being downwards. This is steady with lesser number of

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[18] **"**Aircraft accident rates at historic low despite high-profile plane crashes",
http://www.theguardian.com/world/datablog/2014/dec/29/aircraft-accident-rates-at-historic-low-despite-high-profile-plane-crashes, August 26th 2015

accidents but the crashes that did happen in 2014 were particularly severe in terms of lives lost.[19]

Objectives of the Study

The objectives of the study are:

- To under the importance of aviation safety in the airline industry.

- To provide strategies for mitigating the risk associated with the aviation safety.

- To assess the various strategies adopted by United Arab Emirates Civil Aviation Authority's to be the top of world for aviation safety compliance.

Significance of the Study

Aviation Safety is a subject of global concern. Its significance is consistently perceived. The ICAO Air Navigation Commission defined "aviation safety" as "[t]he state of freedom from unacceptable risk of injury to persons or damage to aircraft and property".[20]The study provides a framework for the detailed understanding of aviation safety and its importance, to establish a safety framework for civil aviation, and importance of aviation safety personnel to be highly equipped with the technologically advanced technology.

Limitations of the Study

One of the main limitations of this study is that an independent empirically driven process is not being employed, meaning that some reliance is being placed upon the accuracy of data provided by external sources; however, it is anticipated that this issue will be minimised through cross-referencing and the approach of identifying as many separate reports as possible.

RESEARCH METHODOLOGY

This review specifically assesses the available literature dedicated to measuring the impacts of aviation safety and its importance. The main focus is on research undertaken for measuring the probable impact of aviation safety on globally as well as in United Arab Emirates.

DISCUSSIONS AND ANALYSIS

For the flying business, being sheltered is the proper thing to do, and it is the law, as well. The Federal Aviation Administration, that directs the carriers, has embraced security as its main goal and holds, *"Our mission is to provide the safest, most efficient aerospace system in the world and our mantra is to improve the safety and efficiency of aviation, while being responsive to our customers and accountable to the public"*. The agreeability command discharged by the FAA[21] affects all business elements of the aviation -operationally and strategically.[22]Aviation law is the branch of law that represents the legalities and business parts of flight and air transport, for example, air movement rights, aeronautics

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[19]Aircraft accident rates at historic low despite high-profile plane crashes",
http://www.theguardian.com/world/datablog/2014/dec/29/aircraft-accident-rates-at-historic-low-despite-high-profile-plane-crashes, August 26th 2015.
[20] "Aviation Safety" , ICAO Working Paper AN-WP/7699, Determination of a Definition of Aviation Safety, 11 December 2001
[21] Federal Aviation Administration
[22]"Safety in Airlines - Road to Safer Skies", http://www.metricstream.com/insights/Airlines_Safety.htm, August 26th 2015.

wellbeing and security, financial regulations of carriers, and the operation of air terminals. The most vital part of the law of aviation is to give a structure that keeps the flying business sheltered, reasonable, and proficient. The two largest aviation agencies in the world are the FAA[23] in the U.S and the EASA[24] in Europe. These two associations are accountable for affirming all new carriers around the globe. Diverse countries have their own specific NAA[25]identifying with essential flying.[26]

According to a report by Official Airline Guide Aviation[27] and PlaneCrashInfo.com, the chances of being killed throughout one airline flight on one amongst the highest seventy eight major world airlines is one in4.7 million. As per the report, the major reasons for the air crashes are as follows:[28]

Pilot Error

Pilots must explore through risky weather, react should mechanical issues and execute a safe takeoff and landing. Exactly plane mishaps would create when pilots misread equipment, misconstrue climate states or neglect to distinguish mechanical errors until it's a really late. It accounts for about 53% among all the other causes.

Mechanical Error

The point when a discriminating framework fails, the pilot might make toward those leniency of the plane. Some mechanical errors happen due to a imperfection in the plane's configuration. According to the report, it accounts for about 20%.

Weather

It is about 12% and the flights would frequently grounded when climate states would esteemed hazardous, storms, overwhelming winds Furthermore actually haze might sneak up on pilots and air movement controllers. Lightning Strikes also play a major role in the aviation accidents.

Sabotage

Travelers oversee while carry bombs or firearms onto planes indeed going after those strict tenets & regulations. Terrorists, extremists or local army bunches need aid generally answerable for strike includes in this class. It accounts for about 9 % among total flight crashes.

Other Human Error

Air Traffic Controller's mistake, Human error during fuel fueling & loading, Fuel Starvation accounts for about 7% air crashes.

No other type of transportation is as examined, explored and observed as commercial aviation. Stress over security is an interruption that appears to sidestep those resources of rationale and go specifically to passenger's

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[23]Federal Aviation Administration
[24]European Aviation Safety Association
[25]National Aviation Authority
[26]"International and National Aviation Law", http://www.aviation-safety-bureau.com/aviation-law.html,August 27th 2015
[27] OAG – Official Airline Guide, http://www.oag.com/ , August 22nd 2015.
[28]" Five most common causes of air crash", http://rblaw.net/5-most-common-causes-of-plane-crashes/&http://planecrashinfo.com/cause.htm

feelings.[29]The security of the flying business is critical both as far as mishap and occurrence aversion, and the monetary execution of the business. [16]AirlineRatings.com is the world's only safety and product rating website, which was launched in June 2013. This site is a joint project between The West Australian and Aerospace Technical Publications International, said its rating framework is taking into account reviews from the business' overseeing bodies and governments, in addition to a carrier's casualty record.[30]

Airline Ratings utilizes a few components to make its seven star framework, counseling International Air Transport Association figures alongside government data and accident information. The inquiries it considers are provided in the Exhibit II[31].

EXHIBIT II

Safety Rating Criteria

- Is the airline IOSA (IATA Operational Safety Audit) certified?

- Is the airline on the European Union (EU) Blacklist?

- Has the airline maintained a fatality free record for the past 10 years?

- Is the airline FAA (America's Federal Aviation Administration) endorsed?

- Does the country of airline origin meet all 8 ICAO safety parameters?

- Has the airline's fleet been grounded by the country's governing aviation safety authority due to safety concerns?

- Does the airline operate only Russian built aircraft?

With a 'fatality free record' in the jet era, Qantas slashed to the top out of closely 450 airlines monitored by aviation safety review website. The Australian-based website ranked the rest of its top ten in alphabetical order, with Air New Zealand, British Airways, Cathay Pacific Airways, Emirates, Etihad Airways, EVA Air, Finnair, Lufthansa and Singapore Airlines.[32]

Accident statistics provided by the National Transportation Safety Board show that despite a fifty percent increase in passengers during the ten years after deregulation, there was a forty percent decrease in the number of fatal accidents and a twenty-five percent decrease in the number of fatalities, compared to the ten years before deregulation.[33]To list a few aircraft accidents which shattered the aviation safety in the airline industry recently are provided in the Exhibit III[34].

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[29]"How safe is commercial flight?",http://anxieties.com/flying-howsafe.php#.VlOxJXYrLIV, August 24th2015

[30]"World's most dangerous airlines",http://www.dailymail.co.uk/travel/travel_news/article-2908531/Ranking-world-s-dangerous-airlines-includes-troubled-AirAsia-Malaysia-Airlines-scores-highly-safety.html#ixzz3fwgYMaSo, August 24th 2015

[31][31] "Safety Rating Criteria" http://www.airlineratings.com/safety_rating_criteria.php, August 25th2015

[32] "What are the world's safest airlines?"http://edition.cnn.com/2015/01/06/intl_travel/world-safest-airlines/, August 20th2015

[33] "How safe is commercial flight?",http://anxieties.com/flying-howsafe.php#.VlP6RHYrLIV, August 26th 2015.

[34] *"Recent plane crashes", http://www.airsafe.com/events/last_15.htm, August 25th 2015*

Exhibit III

Recent Aircraft Accidents (2014-2015)

- 19 March 2016; fly dubai 737-800; A6-FDN; flight FZ981; Rostov-on-Don, Russia

- 24 February 2016; Tara Air; DHC-6 Twin Otter 400Twin Otter; 9N-AHH; flight 193, Dana, Nepal

- 2 February 2016; Daallo Airlines A321-100; SX-BHS; flight D3159; near Mogadishu, Somalia

- 15 December 2015; Southwest Airlines 737-300; N649SW; flight 31; Nashville, TN

- 4 November 2015; Rais Group International BAe 125-700; N237WR; flight EFT1526; Akron, OH

- 4 November 2015; Allied Services Limited Antonov 12BK; EY-406; flight 7K9268; Juba, South Sudan

- 31 October 2015; Metro jet A321-200; EI-ETJ; flight 7K9268; near Hasna, Egypt

- 29 October 2015; Dynamic International Airways 767-200; N251MY; flight DYA405; Fort Lauderdale, FL

- 5 October 2015; American Airlines A320; flight 550; Syracuse, NY

- 2 October 2015; US Air Force C130J; Jalalabad, Afghanistan

- 8 September 2015; British Airways 777-200; G-VIIO; flight 2276; Las Vegas, NV

- 22 August 2015; Hawker-Hunter T7; G-BXFI; near Shoreham-by-Sea, United Kingdom:

- 16 August 2015; Trigana Air Service ATR 42-300; PK-YRN; flight IL257; near Oksibil, Indonesia

- 30 June 2015; Indonesia Air Force C130B; A-1310; Medan, Indonesia, AK

- 25 June 2015; Promech Air; DeHavilland DHC-3T Turbine Otter; N270PA; near Ketchikan, AK

- 22 June 2015; Short S312 Tucano T; N206PZ; near Ojai, CA

- 29 March 2015; Air Canada A320-200; C-FTJP; flight AC624; near Halifax, Canada

- 24 March 2015; German wings A320-200; D-AIPX; flight 4U9525; near Barcelonnette, France

- 5 March 2015; Ryan ST3KR Recruit; N53178; Santa Monica, CA

- 5 March 2015; Delta Air Lines MD88; N909DL; flight DL1086; New York, NY

- 4 February 2015; TransAsia Airways ATR 72-600; B-22816; flight GE235; near Magong, Taiwan

- 28 December 2014; AirAsia A320-216; PK-AXC; flight QZ8501; Java Sea

- 31 October 2014; Scaled Composites; Model 339 (SpaceShipTwo); N339SS; near Cantil, CA

- 7 October 2014; California Dept of Forestry and Fire Protection; Marsh S-2F3AT Turbo Tracker; N449DF; near Foresta, CA

- 13 August 2014; AF Andrade Empreendimentos e Participações Cessna 560XLS+ Citation Excel; PR-AFA; Guarujá, Brazil

- 10 August 2014; Sepahan Airlines HESA IrAn 140; EP-GPA; flight 217; near Nardaran, Azerbaijan

- 24 July 2014; Air Algerie MD83; EC-LTV; flight AH5017; near Gossi, Mali

- 23 July 2014; TransAsia Airways ATR 72-500; B-22810; flight GE222; near Magong, Taiwan

- 17 July 2014; Malaysia Airlines 777-200ER; 9M-MRD; flight MH17; near Grabovo, Ukraine

- 24 June 2014; Pakistan International Airlines (PIA); A310-300; AP-BGN; flight PK756; Peshawar, Pakistan

- 8 March 2014; Malaysia Airlines 777-200; 9M-MRO; flight MH370; unknown location

- 16 February 2014; Nepal Airlines DHC-6 Twin Otter 300; 9N-ABB; flight 183; en route between Pokhara and Jumla, Nepal

A recent research conducted by Natural History Museum of Los Angeles County, Massachusetts Institute of Technology, University of California at Berkeley in United States that we have a one one-hundred-thousandth of one percent (.000014%) chance of dying while flying.[35]

Odds of Death
DEATH BY: YOUR ODDS
• Cardiovascular disease: 1 in 2
• Smoking (by/before age 35): 1 in 600
• Car trip, coast-to-coast: 1 in 14,000
• Bicycle accident: 1 in 88,000
• Tornado: 1 in 450,000
• Train, coast-to-coast: 1 in 1,000,000
• Lightning: 1 in 1.9 million
• Bee sting: 1 in 5.5 million
• U.S. commercial jet airline: 1 in 7 million

Source: Natural History Museum of Los Angeles County, Massachusetts Institute of Technology, University of California at Berkeley

The statistics of airlines accidents by period with Airliner Accident Fatalities & Fatal Airliner Accidents is provided in Exhibit IV [36]

Exhibit IV

Infographics on the Airliner Accident by Period

Airliner Accident Statics by Period		
Year	Airliner Accident Fatalities	Fatal Airliner Accidents
2014	990	21
2013	265	19
2012	475	23
2011	507	28
2010	831	29

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[35] **"How safe is commercial flight?",** http://anxieties.com/flying-howsafe.php#.VlP6RHYrLIV, August 26th 2015.
[36]"Aviation Safety Data base" http://aviation-safety.net/statistics/, August 28th 2015

Source: http://aviation-safety.net/statistics/
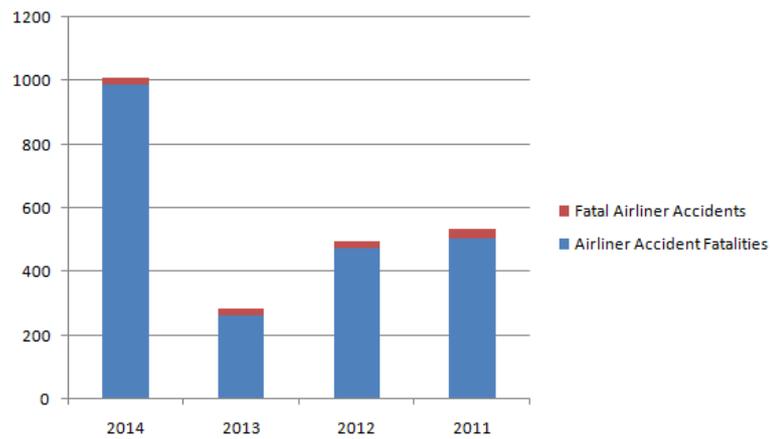
Airlines consider security critically, and it is broadly considered by the business to be the most essential part of flying. The unlimited checks that planes experience previously, then after the fact each flight guarantee that going via plane is, actually, far more secure than numerous individuals might suspect. On the other hand, it is the aggravating way in which these prominent fiascos have happened that has prompted numerous individuals turning out to be progressively careful about going via plane. The insights demonstrate that planes are, generally, safe. On the other hand, the industry should constantly enhance its frameworks so that crashes – especially those of the nature that have been seen as of late – are kept to a base. This implies that airlines give pilots innovative technology that gives every one of them the most recent data about potential terrible climate and danger zones.[37]The Exhibit V provides the details on the fatalities, successful flights, global accident rates, passengers travelled, chances of perishing in a plane crash.

Exhibit V

- 1,320 - Fatalities occurred as a result of plane crashes in 2014

- 38m - The number of successful flights worldwide in 2011

- 1 in 2.7m - The global accident rate for Western-built planes in 2011

- 671m - Passengers travelled on a US airline in 2011

- 2.8bn - The number of passengers who flew safely in 2011

- 1 in 11m - The chance of perishing in a plane crash

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[37]"After AirAsia and Malaysia Airlines crashes, are planes safe to travel on?",http://www.businessdestinations.com/move/travel-management/after-airasia-and-malaysia-airlines-crashes-are-planes-safe-to-travel-on/

The Exhibit VI provides the fatal accidents by phase of flight from 1959 to 2008 from the available source. [38]

Exhibit VI

Fatal Accidents by Phase of Flight (1959-2008)

- 12% - Taxi, loading, parked

- 12% - Take off

- 8% - Initial climb

- 10% - Climb

- 8% - Cruise

- 4% - Descent

- 10% - Initial approach

- 11% - Final approach

- 25% - Landing

The essential objective of the aviation industry is to uphold airplane and helicopter safety standards and shield the interests of the mechanics, flight crew, and passengers. Since aviation business is so decisive to today's economy, probable flight risks need to be eradicated or diminished to avert exorbitant and catastrophic aftermath. The Air Commerce Act of 1926[39] was the first bill to regulate civil aviation in the United States. For aviation experts, appropriate training and safety awareness is vital for flying and maintaining aircraft. The modern airplane safety dangers are[40]

- Controlling air traffic - maintaining airfield lights and a line of open communications with pilots.

- Severe weather and outside safety risks - volcanic ash, birds, lightning, ice and snow.

- Problems with the aircraft or aircraft components - electrical, mechanical or hydraulic component failures

The 2006 Advisory Circular of FAA titles Introduction to Safety Management Systems[41] for Air Operators presented the idea of a Safety Management System (SMS) to aviation service providers requiring a frameworks way to deal with making a viable Risk Control procedure to empower associations to efficiently prepare wellbeing data, both proactively and responsively, keeping in mind the end goal to create security arranges, projects, and particular activities that get results as far as decreasing danger. While the SMS structure in view of the broadly embraced ISO benchmarks for quality administration, airlines are attempting to actualize the system effectively. Key difficulties confronting the flying administration suppliers incorporate the following:[42]

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[38]"After AirAsia and Malaysia Airlines crashes, are planes safe to travel on?",
http://www.businessdestinations.com/move/travel-management/after-airasia-and-malaysia-airlines-crashes-are-planes-safe-to-travel-on/
[39]http://libraryonline.erau.edu/online-full-text/books-online/aircommerceact1926.pdf
[40]"Airplane Safety - Minimizing The Risks", http://www.aviation-safety-bureau.com/airplane-safety.html, August 28th 2015
[41]https://www.faa.gov/air_traffic/publications/media/faa_ato_SMS_manual_v4_20140901.pdf
[42]"Safety in Airlines - Road to Safer Skies" http://www.metricstream.com/insights/Airlines_Safety.htm, August 26th 2015

- Safety Training

- Airplane Maintenance and Inspection

- Safety Audits and Assessments

- Hazard Identification and Risk Management

- Data and Records Management

Aviation Safety – UAE Approach

Venting profound consternation over the Malaysian Airlines accident, major GCC carriers are taking wellbeing measures to guarantee the security of their travelers and airplane without influencing flight timetables and administrations. The major UAE air carriers, Emirates, Qatar Airways, Air Arabia and Etihad Airways have either suspended administrations or changed their flight courses to keep away from the contention hit district in and around Ukraine.[43]The UAE has achieved a gargantuan and extraordinary accomplishment by positioning most noteworthy on the globe in consistence with worldwide flight security guidelines after escalated review through the ICAO's Universal Safety Oversight Audit Program. The UAE scored a success rate of 98.86 per cent, which is the most astounding rate in history given by ICAO.[44]In the words of His Highness Shaikh Mohammed Bin Rashid Al Maktoum[45], "From no roads 4 decades ago, UAE today has the world's most advanced & safe airlines & flight routes. For our dreams, the sky is the limit. We will continue our strive to be the safest hub for facilitating trade, tourism and economic exchange among peoples of the world"[46]According to His Highness Shaikh Ahmed bin Saeed Al Maktoum[47], "this global recognition comes as a result of persistent efforts for many years in order to reach this high position that the country deserves."[48]

The UAE carriers are reliably perceived for their inventive and cutting edge improvements, while keeping up a fortunate wellbeing record. Notwithstanding their armada and system expansion, UAE transporters precede with their walk towards development with huge upgrades in their business technique, holding hands with a percentage of the significant aircrafts either through obtaining of stakes or code sharing. The UAE remains to a great degree watchful to accomplish the most elevated wellbeing benchmarks. In this manner, keeping in mind the end goal to guarantee that authorization guidelines stay significant and a la mode, the UAE has as of late embraced the Safety Enforcement Manual. Requirement exercises are being determinedly facilitated and checked. This adds to giving clear direction to the flying business and been part of the State Safety Program (SSP). This permits the UAE to iron out any issues with the new regulations which in turn guarantees a higher rate of consistence by service providers. On the universal safety front, the UAE holds the chair position for the Middle East Regional Aviation Safety Group. As recognition of the work undertaking by its National Runway

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[43]"GCC airlines take safety steps after MH17 tragedy", http://www.kippreport.com/fcs/gcc-airlines-take-safety-steps-after-mh17-tragedy/, August 28th 2015

[44]ICAO safety Report 2014http://www.icao.int/safety/documents/icao_2014%20safety%20report_final_02042014_web.pdf

45Vice-President and Prime Minister of the UAE and Ruler of Dubai

[46] "From no roads to aviation hub in 40 years, says VP", http://khaleejtimes.com/article/20150219/ARTICLE/302199999/1114%20Staff%20Report,%20Wam

47President of the Department of Civil Aviation Authority, Chairman and Chief Executive of Emirates Airline and Group

48"UAE is on top of the world for aviation safety compliance" - http://www.arabianaerospace.aero/uae-is-on-top-of-the-world-for-aviation-safety-compliance.html#sthash.PCCB2AsY.dpuf

safety team, the UAE has been appointed as the Runway and Safety coordinator in the Middle East. Moreover, the UAE has also been designated as the Performance Based Navigation (PBN) champion in the region due to its involvement with the ICAO/IATA.PBN Go Team. The UAE also chairs the Aerodrome Certification Task Force in the Middle East region[49]

The UAE's center target in the field of flight security is to defend civil aviation against demonstrations of unlawful obstruction. To this end, the UAE has altered the Civil Aviation Security Regulations and the National Civil Aviation Security Program to guarantee consistence with national and global prerequisites. To cultivate associations inside of the aeronautics business, partners are counseled and welcomed to effectively take an interest during the time spent proposed changes in flying security regulations and projects. In order to ensure that the airports, aircraft operators and other entities involved with aviation security responsibilities and associated safety impacts comply with the UAE aviation security regulations and programs, the GCAA continues to[50]:

- Support the UAE Federal Government in the development, implementation and maintenance of the national aviation security policies, legislation, regulations and programs in compliance with ICAO requirements;

- Verify that aviation security measures are effectively and properly implemented to determine the level of compliance with the provisions of the UAE Civil Aviation Security Regulations and the UAE National Civil Aviation Security Program;

- Conduct assessments and surveys at non-UAE airports from which aircraft operators operate flights to the UAE airports; and

- Support the UAE airports and aircraft operators (both UAE registered and foreign) in the evolution of strategic planning for new development of airports and routes. This has led to the expansion of operations and facilities at all the UAE airports and the establishment of new airport certification process.

Proactive safety systems are in a place where systemic hazards and risks identification and analysis happens on a daily basis. Analysis of accident prevention efforts through detailed investigation carried out and risk-mitigating measures put in place before the occurrence of incidents and accidents. It does not stop accidents totally but reduces the likelihood and severity of accidents. Proactive safety system requires multiple types of information from an extensive array of information employed by the international aviation community. One of them is recorded flight data from thousands of flights daily. These data analyzes provide a unique view of how the system works. Any irregularities in the flight especially when landing at a given airport might be the symptom of a systemic problem with its standard operating procedures, training or runway environment. A second source of information is reports submitted by front line personnel such as pilots, mechanics and air traffic controller. This report provides insights to the risk because of systemic deficiencies or errors committed by the reporter. Another type of information is data collected from the investigation of accidents and incidents. Proactive measures are necessary as they provide a possibility of acting on a safety issue before an accident or incidence

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[49]" Safety – Aviation in UAE"http://www.uae-icao.gov.ae/Contentviewer.aspx?ContentId=6&LinkPath=Home%20%3E%20THE%20UAE%20%3E%20AVIATION%20IN%20UAE, August 30th 2015
[50] "Aviation Security - Aviation in UAE", http://www.uae-icao.gov.ae/Contentviewer.aspx?ContentId=6&LinkPath=Home%20%3E%20THE%20UAE%20%3E%20AVIATION%20IN%20UAE, August 30th 2015

occurrence. [51]

Improvement in technology, fight against terror and innovation has also contributed a high rate in aviation safety. A stable system of air security is the ability to analyze all the security information in a multi-dimensional way that is possible in the digital computer technologies and the increased availability of safe information. Thus, helps identify problems and solves them with a particular approach procedure, which may not have been possible using analysis techniques traditionally. Digital message communications systems enable pilots, controllers to communicate, and electronic flights bags further enhance the aviation safety environment. According to ICAO, every region has been a target of the terrorist attack and unlawful interference against air safety.[52] Terrorism being a global problem to aviation makes the fight against terror globalized. Thus, preventive measures and law making to fighting terror in air involves a uniform global decision through the ICAO.

In the Middle East region and the whole world, human factors contribute to more than 70 percent of commercial airplane accidents. Despite the advanced technology, humans are ultimately responsible for ensuring safety in aviation as human understanding integrates with the technology. This understanding then translates into policies, design, procedures and training to assist human perform better. Humans handle reducing accidents by addressing human factors in error management, passenger cabin design, flight deck design and design for maintainability, and in-service support. Human error is very common in incidents and accidents related to both flight operation and maintenance procedures. To improve the situation human factors tools developed to assist in understanding the causes and reasons for error occurrence and develop suggestions for systematic improvements. These tools include training aids, crew information requirements, and improved use of automation, maintenance error,   and decision aid.[53]

The informal aviation sector in the Middle East region faces multiple of risk factors that can jeopardize its safety success and that the reason determining future threats is paramount. The future risks in aviation safety include terrorism, pollution, fire explosion, cyber-attacks, technology innovation, natural hazards and political and social wars. The increase in future security threats anticipation due to growing population and advanced in technology. Besides the improvement in aviation safety, the aircraft system of Middle East region needs significant improvements in its systems otherwise there will face a tremendous challenge in the upcoming years. All aviation systems quality and efficiency need to fulfill the international levels to cater for the high increasing population in future. However, some of these countries like Qatar Airways have demonstrated the ability to develop excellent aviation players.[54]

Aviation security is important to the world to protect people's lives and ensure global accessibility through aviation. Particularly to Middle East countries like the United Arab Emirates, that offers a large carrying capacity than some other countries in Europe. It only takes one hijacker or an explosive in the freight to shake public confidence in air

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[51] Rodrigues, C., &Cusick, S. (2012). Commercial aviation safety (5th ed.). New York: McGraw-Hill.

[52]International Civil Aviation Organization. (2009). Safety management manual [pdf] (2nd ed.). Montreal, Quebec: ICAO, Available at http://legacy.icao.int/anb/safetymanagement/DOC_9859_FULL_EN.pdf Accessed 11.09.12.

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[54] Rodrigues, C., &Cusick, S. (2012). Commercial aviation safety (5th ed.). New York: McGraw-Hill.

travel,[55] which lowers the global accessibility thus resulting in adverse effects on economic development driven by air travel directly or indirectly. Another importance of ensuring aviation safety is to avoid the massive deaths that occur during an aircraft accident as compared to other modes of transport. Reports from media about freight accidents tend to create a public fear that limits the number of air travelers. This subjective feeling of the public emphasis on aviation safety as air travel is a daily means of mass travel. Enhancing safety is critical, as aviation not only has to deal with natural risks of flights such as human error or technical failure but also the threat of attacks by terrorists that is organized, premeditated and dangerous.

CONCLUSIONS

It requires ingenuity, effort, skill, commitment, resources and dedication to have a very safe aviation system. Achieving a safety aircraft according to the requirements of ICAO faces many challenges as the security levels is not the same in regions of the world. The ICAO is working to ensure all regions satisfy the international standards and develop a structure that would promote the sharing of safety knowledge over the globe. The level of industrialization of many countries around the world directly relates to the safety of aviation in that region making aviation safety cruise in the global economy. The Middle East countries that depend on tourism and business have the choice for travel investment that will strengthen their air system intelligently and rapidly addressing the needs of their economy. Although the aviation sector is growing, every day there is an ongoing decline in fatal accidents because of the continuous improvement in aviation safety.

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