THE ROLE OF LAW IN PROMOTING GENERAL SAFETY ON FLIGHT UNDER INTERNATIONAL LAW

BY

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DECLARATION

I Onuoha Happiness Ngozi hereby declare that this thesis was written by me and it is the record of my own research work. It has not to the best of my knowledge, been presented or published anywhere at anytime by anybody, institution or organisation. All references and quotations are duly indicated with specific acknowledgement. However, I remain solely responsible for views expressed and all deficiencies therein.

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OCTOBER 2006

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CERTIFICATION

This thesis entitled '**THE ROLE OF LAW IN PROMOTING GENERAL SAFETY ON FLIGHT UNDER INTERNATIONAL LAW'** BY **ONUOHA HAPPINESS NGOZI** meets the regulations governing the degree of master of Laws (LLM) Faculty Of Law Ahmadu Bello University Zaria, Nigeria and is approved for its contribution to knowledge and literary presentation.

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DEDICATION

This thesis is dedicated to The ALMIGHTY GOD for HIS inspiration. At the beginning of this research nobody encouraged me to write on this topic not even the aviation personnel I met. They told me it was too wide, technical and hard but there was an assurance in my spirit that GOD will help me. However, as I went out of my way to research through the discouraging words GOD began to paint pictures and plant ideas in my mind. The topic became clearly defined when I went back to the people they were surprised at my progress and started requesting for copies of the work when am through. GOD arranged the information and materials that made this treatise a reality through Divine Connection hence the success of this piece is attributable to 'Divine Network of Help'.

Also dedicated

To the loving memory of my late nephew **CHIMUANYA CHINANUEKPERE DESMOND** who excitedly awaited my being arrayed in legal regalia but had to rest with the Master and Saviour The Lord Jesus Christ months before its fruition.

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My special thanks belong to the LIVING and TRUE GOD the KING of kings and LORD of lords The GREAT IMMORTALITY that inhabits light that no man can approach the only POTENTATE WHO made this piece of work a reality.

ABSTRACT

Aviation is one of the greatest and important unique inventions of man in the area of transportation. Since 17 December 1903 near Kitty Hawk, North Carolina when a bicycle repairer Orville Wright propelled himself through the air a distance of 120ft the first powered flight in a heavier-than-air aircraft known to human, air transportation has been beneficial to man. Air transportation globally constitutes significant proportion of the nations socio-economic system. It facilitates movement of people, goods and services thereby assists in generating contact and revenue on which economic, social and political progress of nations radiate. So air transport has done more than provide a carrier service, it has affected economic way of life, made changes in social and cultural viewpoints and had a hand in shaping the course of political history. Air transport industry contributes directly to the economy through its employment and revenue generation and indirectly by its purchase of goods and services from suppliers of the industry. There is urgent need for governments to develop the industry to meet international standard and requirement. Development of this industry will enhance economic development of countries especially developing ones.

Nevertheless, this beautiful achievement of man is bedeviled by hazards. Law has to intervene to minimize the hazards by regulating air traffic operations, imposing duties and obligations on the various entities involved in air navigation.

Besides, aviation has always been exploited by perpetrators of unlawful acts, whose trademark is terrorism. Aviation is constantly being targeted all over the world by terrorist groups and individuals who see it as the most effective avenue to propagate political views, plights and motives. It has always been very effective in gaining media attention and publicity for terrorism. Thus security and safety have been major aspect of concern, which cannot be ignored by the international community. Crime on board aircraft border on terrorism, hijack or air piracy, assassination, bombing and so on which make flight unsafe. Violent crimes or unlawful acts in aviation have always posed great threat and challenge to international civil aviation that international community had to come up with some measures to tackle it.

Moreover, series of accidents kept reminding aviators of the need to put in place safety precautions for the conduct of flights. Thus, the leading aviation nations began to standardize codes to guide aircraft production and operation. Various countries formulated their own rules. The first generation aeronauts were particularly safety conscious. This informed the various materials used in constructing the balloons and their different structures all in attempt to develop what could withstand adverse weather conditions, thereby promoting safety. Aircraft accident is an unlikely and preventable occurrence that leads to loss of financial, material and human resources, for example in the September 2001 U.S. plane hijack 2,000 lives of people of different nationalities were terminated in a single day. In Nigeria the three main air disasters in 2005 claimed 226 lives among them was the Postmaster General of the Federation Alhaji Abubakar Argungu. The helicopter crash in Mexico in September 2005 claimed lives. In Indonesia the plane crash in September 2005 cleared 140 souls. The Iranians military transport plane crash in Tehran in December 2005 killed 110 people. In America the plane crash in December 2005 in Bahamas killed 20 people. These were mainly the manpower and workforce of the nations besides the aircraft which cost a lot to acquire were destroyed.

However, the need to adhere to varied forms of codes; rules and regulations developed by different states soon became an impediment to the growth and orderly operation of international air transport. There was an apparent and urgent need for global standardization. The successful attempt at evolving a comprehensive international regulation of civil aviation dates back to 1944, when an international conference in Chicago, U.S.A. adopted certain decisions aimed at fostering the development of international air transport in an orderly and safe manner.

The research effort will focus on the entities involved in air travel and their respective duties as apportioned by law in ensuring flight safety (flight safety as a collective responsibility).

It will also discuss the adverse effect of air disaster both on individuals and the economy as well as stress the importance of flight safety in the enhancement of economic development.

Besides, the thesis intends to contribute to the topical discourse on flight safety, which has generated much discussion in recent times, by looking at flight safety from legal perspectives.

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ABBREVIATIONS

AIP :	Aeronautic Information Publication
AIPB:	Accident Investigation and Prevention Bureau
CINA:	International Commission for Air Navigation
CITEJA :	Comite Internationale Technique d'Experts Juridiques Aériens
DME:	Distance measuring equipment
DOT:	Department Of Transport
FAA:	Federal Aviation Administration
IATA :	International Air Transport Association
ICAN :	International Commission for Air Navigation
ICAO :	International Civil Aviation Organisation
IFR:	Instrument Flight Rule
ILS:	Instrument Landing System
MMA:	Murtala Muhammed Airport
MSA :	Minimum Safe Altitude
NAMA :	National Airspace Management Agency
NCAA :	Nigerian Civil Aviation Authority
NIMET :	Nigerian Meteorological Agency
NOTAM :	Notice To Airmen
PANS :	Procedures for Air Navigation Services
PICAO :	Provisional Civil Aviation Organization
RAPS :	Recovery Analysis And Presentation System
SARPS :	International Standards And Recommended Practices
SATCOM:	Satellite Communication
VFR:	Visual Flight Rule
VMC -	Visual Meteorological Conditions
FIR -	Flight Information Region

CHAPTER ONE

GENERAL INTRODUCTION

1.1 BACKGROUND TO THE STUDY

Aviation is the science or practice of flying through the air in heavier-than-air machine[1]. Aviation is one of the greatest and important unique inventions of man in the area of transportation. It is the most veritable means of transportation of people and goods around the globe. Other uniqueness includes expeditious circulation of vital assets, which members of international community treasure most, namely: information, money and properties. Aviation brings together people of different nationalities, creed and socio-economic backgrounds more than any other industry worldwide. It fosters trade and commerce among various people of the world.

According to Dr. Assad Kataite, Council President of International Civil Aviation Organization (ICAO) at the 33rd Session of ICAO in Montreal Canada in year 2001, 'global transportation is a driver of economic development, a catalyst for business and tourism and a vehicle for social and cultural development worldwide'[2]. So since 17 December 1903 near Kitty Hawk, North Carolina when a bicycle repairer Orville Wright propelled himself through the air a distance of 120ft the first powered flight[3] in a heavier-than-air aircraft known to human, the equivalent of 0.23 passenger-mile, the first such statistics recorded in the history of aviation, air transportation has been beneficial to man. Air transportation globally constitutes significant proportion of the nations' socio-economic system. It facilitates movement of people, goods and services thereby assists in generating contact and revenue on which economic, social and political progress of nations radiate. For example this 2006 Air France-KLM recorded great revenue increase in its fiscal quarter of over 11.9% that is 5.8 billion euros and added 25 extra frequencies

to its European destinations and British Airways' first quarter profit rose over 72% in increased travel from London[4]. So air transport has done more than provide a carrier service, it has affected economic way of life, made changes in social and cultural viewpoints and had a hand in shaping the course of political history. Air transport industry contributes directly to the economy through its employment and revenue generation and indirectly by its purchase of goods and services from suppliers of the industry. There is urgent need for governments to develop the industry to meet international standard and requirement. Development of this industry will enhance economic development of countries especially developing ones.

Alas, this beautiful achievement of man is bedeviled by hazards. Law has to intervene to minimize the hazards by regulating air traffic operations, imposing duties and obligations on the various entities involved in air navigation.

Besides, aviation has always been exploited by perpetrators of unlawful acts, whose trademark is terrorism. Aviation is constantly being targeted all over the world by terrorist groups and individuals who see it as the most effective avenue to propagate political views, plights and motives. It has always been very effective in gaining media attention and publicity for terrorism. Thus security and safety have been major aspect of concern, which cannot be ignored by the international community. Crime on board aircraft border on terrorism, hijack or air piracy, assassination, bombing and so on which make flight unsafe. Violent crimes or unlawful acts in aviation have always posed great threat and challenge to international civil aviation[5]. Additionally, deliberate shooting down of aircraft by nations that claimed their national airspace was trespassed on is inimical to flight safety[6].

Moreover, civil aviation has been swept up in the wave of commercialization,

globalization and transnationalization, with implication for safety and security that have to be addressed. Regulations for safety and security is under the Chicago convention, the responsibility of individual states, as ownership and operation of airlines, airports and air traffic control devolve from governments and cross-border involvement becomes more common, the need for seamless co-ordination beyond national and regional borders becomes even more fundamental[7].

This thesis entitled "The Role of Law In Promoting General Safety On Flight Under International Law" is built around the legal responsibilities of airlines, aircrew personnel whether they be specialist navigators, flight engineers or pilots responsible for their own navigation as well as passengers.

The history of air travel can be traced to 19th September 1783. The brothers Montgolfier, after experimenting with paper bags in the kitchen of their home near Lyons succeeded, in the presence of Louis XVI and his court, in sending to a height of 1500ft, a silk balloon filled with hot air, carrying a rooster, a sheep and a duck in a small gondola. All emerged safe from the experiment, except that the rooster suffered a broken wing, probably from a kick by the sheep[6]. Shortly afterwards, the king offered a criminal for a manned flight, but establishing a tradition, which has persisted unto the pioneering stages of machine-powdered aviation and even astronautics-for flight to be considered a pursuit essentially worthy of 'officers and gentlemen'. M. Pilatre de Rozier, Louis XVI's historian, and the marquis d'Arlandes, went up instead. They stayed aloft for 25 minutes and covered a short distance. Watching the experiment, Benjamin Franklin observed that it was by no means, a trifling one: he hoped wistfully that it might convince sovereigns of the folly of wars, since it would be impossible for even the most potent of them to protect their kingdoms against a sudden descent of enemy balloonists[8].

The next year the craze spread to Britain causing Dr. Johnson, balloon enthusiast though he seemed to have been, to say; the vehicles can serve no use till we can guide them"[9]. The problem of controlling flight, however, proved more difficult than that of achieving it. Despite this problem and other setbacks, including the death of de Rozier owing to an explosion, the new science continued to make progress. In 1785 an American John Jeffries and a Frenchman Francois Blanchard crossed from Dover to Colais in a balloon[10]. Naturally, it was not long before aviation began to be exploited for military purposes. In the French Revolutionary wars, captive balloons were used for artillery spotting, being employed even as far afield as Egypt. The Austrians tried bomb-laden balloons at the siege of Venice in 1849, but most of these were carried away from the target. Some even drifted back and exploded over the Austrian lines[11]. Balloons were also used in wartime as Solferino in 1859, and again in the American civil war, but not to much effect[12]. A sensation was caused when Garbetta and over a hundred and fifty other persons escaped from Paris in balloons during the France-Prussian war[13]. More important was the controversy caused by the claims of the Prussian in the war to be entitled to treat as spies persons passing over their lines in balloons commenting on this pretension, a leading English international lawyer of the period, W.E. Hall, said: 'Neither secrecy, nor disguise, nor pretence being possible to persons traveling in balloons, the view taken by the Germans is inexplicable''[14]. Hall's view commended itself generally to Governments, and Article 22 of the Declaration of Brussels (1874) provided that persons passing over the enemy's lines in a balloon were not to be considered as spies[15]. As early as 1836, Mr. Robert Holland, M.P. and two other gentlemen were conveyed in a balloon from London to the Duchy of Nassau, a distance of 500 miles[16]. But it was not until 1884 that a really controlled flight was made. This was the short circular tour of Renard and Krebs in an

electrically powered 'dirigible' consisting of an envelope of Chinese silk and a car of bamboo trellis work[17]. In 1900, Count Ferdinand Von Zeppelin put into the air the first airship to bear his famous name, and in 1903 Orville and Wilbur Wright made the first controlled flight in an aeroplane at Kitty Hawk, North Carolina. Their machine was a biplane, but the machine on which Louis Blerrot became the first man to man an aeroplane flight across the English Channel in 1909 was a monoplane[18]. In their war against Turkey in 1911, the Italians used both airship and aeroplanes. (Both these types are self-propelled and dirigible, the difference between the two being that an 'airship' is lighter than air and an 'aeroplane' heavier than air)[19].

During the ensuing decades aircraft continued to increase in size, strength, power, speed, range, carrying capacity and above all, numbers. All these improvements had in their way, effects upon the development of air law, which we must consider. But it was not until the invention of gas-turbine propulsion that there was another major technological breakthrough[20]. This became a factor of military importance towards the end of the 2 World War, while the introduction of jet commercial aircraft on a large scale from 1959 onwards caused a bouleversement from which the airlines are only just beginning to recover financially[21]. Now the supersonic era is almost upon us, and with space flight too becoming more common, we are perhaps on the threshold of a period of technological change which will have dramatic consequences for the law.

The history of aviation abounds in romantic exploits, such as the first transatlantic flight of Alcok and Brown in 1919, followed by the first solo flight across the ocean by Lindbergh in 1927[22]. More important from our point of view was the opening up of air routes on a commercial, if not always profitable basis. Even before the First World War, Zeppelins operated schedule services between friedrichshafen and Dusseldorf[23]. The

great increase in engine power achieved during that war, as well as the large number of surplus machines available at the end of the conflict, rendered possible the introduction of commercial aeroplane services on an extensive scale. Despite her defeat, Germany seems to be first in the field with a service between Berlin and Weimar, opened on 5th February 1919. During the next few months regular services began between Paris and London, between Paris and Brussels, and between London and Brussels. The air is indeed uniting the word making it a global village that can be traversed within few moments. The well-known name of KLM appeared on the scene in 1920 with a service between Amsterdam and London. Imperial Airways was formed in 1924[24], and by this time symptoms, which have plagued European Aviation ever since excess capacity and reliance on subsidies, were already painfully apparent.

In United States, although a few minor services were operated before the First World War, commercial aviation, got off to a relatively slow start. The distance there was almost too great to make air transport feasible with the equipment then available[25]. In 1918, however a great step forward was taken when the post office, using converted Army aircraft, began an airmail route, between NewYork and Washington, the service being extended as far as San Francisco three years later[26]. By 1927, Pan American Airways (PAA) was operating between Florida and Cuba, and three years later between Florida and Chile. In 1935 PAA began a transpacific service between San Francisco and Manila, and in the same year, Imperial Airways extended to Australia the route it had for some time been operating as far as Karachi[27]. In 1936 Zeppelin 'Hindenburg' began a regular service across the North Atlantic, but a year later it was destroyed by fire[28]. Just before the 2 World War began, PAA had started to operate flying-boat services from Long Island to Lisbon and Southampton[29]. Naturally, the conflict led to a disruption of

civil aviation service, but transatlantic flights became common and much experience was gained. When hostilities ended, the stage was set for a massive and sustained expansion of civil aviation[30].

In Nigeria, the history of air travel dates back to 1925 when the first flight into the nation was recorded. The first recorded flight in the annals of aviation in Nigeria landed at the ancient and walled city of Kano in 1925. The flight was in a British aircraft conducted by the commanding officer of the Royal Air Force (RAF) Squadron based in Khartoun Sudan. The pilot made a breath-taking but safe-landing in the horse Race Course in Kano, thus going down in history as the first recorded aviation activity in Nigeria. The flight operation was regarded as particularly hazardous because there were neither air routes, maps, radio communications nor airfield/airport. It came from Cairo through the Nile to Khartoun then Maiduguri and Kano. Records have it that a gentleman called Bud Carpenter owned a private Havilland Moth aircraft which he frequently flew from Kano to Lagos and used rail tracks as guide. Also there was an enterprising pilot who carried a few passengers in a sea-plane between Lagos and Warri in the early 1930[s]. The continuation of RAF flights led to a considerable increase in aviation activities in Nigeria thereby creating the need for aerodromes. In this realization a representative of the Air Ministry in London visited Nigeria to inspect the possible sites for a chain of landing grounds. Sites were selected at Maiduguri, Osogbo, Lagos, Minna, Kano and Kaduna. The annal flights of RAF continued until 1935 when plans were conducted for the Imperial Airways to make regular flights of passengers and airmails between UK and Nigeria. These flights pioneered the commercial international flight operations in Nigeria. However, commercial aviation did not start until Imperial Airline started regular flight between UK and Nigeria in 1935. Commercial aviation actually took off in 1936. The

development of one of the supporting infrastructure, aerodromes, was boosted with the advent of the Second World War. By 1940, all the airports planned for Nigeria had been completed. At the end of the war, the British Overseas Airways Corporation (BOAC) replaced Imperial Airlines to serve the British West Africa colonies. In 1946, West Africa Airways Corporation (WAAC) took over from BOAC but broke up in 1957, when Ghana gained independence and formed its own airline. The Nigerian Government, British Overseas Airways Corporation and Elder Dempster then formed the WEST Africa Airways Corporation (Nig) Limited, which was later re-named Nigeria Airways Limited (NAL), after the Federal Government bought over shares of the BOAC and Elder Dempster.[31]

However, series of accidents kept reminding aviators of the need to put in place safety precautions for the conduct of flights. Thus, the leading aviation nations began to standardize codes to guide aircraft production and operation. Various countries formulated their own rules. The first generation aeronauts were particularly safety conscious. This informed the various materials used in constructing the balloons and their different structures all in attempt to develop what can withstand adverse weather conditions, thereby promoting safety. In 1783, Charles and his collaborators introduced open 'neck' or 'appendix' to act as safety valves to prevent the balloon bursting[33]. Metal valve and static fabric were replaced with wooden valve and non-static fabric because of Rozier's experience. "Between the two world wars, the crew of three of a French Naval balloon fitted with a metal valve and flying free, unknowingly re-enacted the de Rozier disaster, though fortunately without tragic consequences. On valving at 1,000ft preparatory to landing, a static spark fired the gas as it escaped through the valve. This was seen from the ground, but the crew remained unaware that the balloon, which landed

quite normally, was on fire. When they ripped the balloon, however the remaining gas went up in a great sheet of flame – Information supplied by M. Charles Dollfuss in a letter to the author. Hence the use of wooden valves and non-static fabrics[33]. In 1784, Blanchard introduced 'parachute' as a safety measure and in June 1784, Vincenzo Lunardi equipped himself with two 'wings' and two 'oars' with which to control his flight both horizontally and vertically by rowing[34].

The need to adhere to varied forms of codes; rules and regulations developed by different states soon became an impediment to the growth and orderly operation of international air transport. There was an apparent and urgent need for global standardization. The successful attempt at evolving a comprehensive international regulation of civil aviation dates back to 1944, when an international conference in Chicago, U.S.A. adopted certain decisions aimed at fostering the development of international air transport in an orderly and safe manner and ensuring that international civil aviation operations offer equal opportunities and maximum economic benefits to all states that participate in the industry. Those decisions are known as the Chicago Convention, which now form the basis for the regulation of international civil aviation. Articles 5, 6 and 7 of that Convention also specify the modalities for non-scheduled international air service operations, scheduled international air service operations and cabotage respectively. The Chicago Convention of 1944 also led to the formation of the International Civil Aviation Organization (ICAO), which is the United Nation's agency responsible for the regulating and orderly development of civil aviation worldwide. ICAO develops and directs member states to implement technical requirements to ensure safe and orderly conduct of civil aviation. These are given as Standards and Recommended Practices (SARPs), which are contained in the Annexes to the Chicago

Convention. These rules are enforced by the national civil aviation authorities. In the same vein, ICAO developed a framework for the conduct of the business of international air transport detailing the rights and privileges states could enjoy within, between and beyond each other's airspace and territories. These are called freedoms of the air.[35]

Aeronautic hinges on information, instructions, timing and precision. So every aspect of aeronautics is based on laws, rules regulations instructions and guidance. The slightest departure from the rules could spell doom to the aviation industry. Thus everything about aviation is law from the design to operation stage, the facilities, airspace (aerial medium)[36], airport, personnel everything is regulated by law nothing is left out. Hence Lloyd R. Jenkinson, James F. Marchman III said:

> *For all aircraft design, it is essential to know the airworthiness regulations that are appropriate. Each country applies its own regulations for the control of the design, manufacture, maintenance and operation of aircraft. This is done to safeguard its population from aircraft accident*[37].

Aviation law in Nigeria started after 1945, as a result of increased aviation activities, there was need for proper control of the industry in Nigeria. then a British colony. So laws and regulations like West African Air Transport Order–in Council 1946, Civil Aviation Act 1949, Carriage by Air (Colonial Protectorates and Trust Territories Act) Order 1953, Colonial Air Navigation Order 1955 and Civil Aviation (Investigate of Accident) Regulations 1933 were all made among others to regulate civil aviation in Nigeria. Presently aviation including airports, safety of aircraft and carriage of passengers and Goods by air is under Part 1 Item 3 of the Exclusive Legislative List of the 1999 Constitution by virtue of sections 4 (1)-(3) and 316 (1) of 1999 constitution all laws pertaining to or covering aviation any of the subject matters aforementioned under the

exclusive legislative list as contained in 2nd schedule to the constitution are laws made or deemed made by National Assembly. Some of the substantive laws made or deemed made by the National Assembly as codified by the comprehensive volumes of the laws of the Federation of Nigeria (LFN) 2004 include: Federal Airports Authority of Nigeria Act; Cap F5, LFN 2004; Nigeria Meteorological Agency (establishment) Act No 90, 2003; Nigerian College of Aviation Technology Act cap N 96, LFN 2004. In any case, these are not the focus of this study the focus of this study is the umbrella Act which is the Civil Aviation Act Cap C13 LFN 2004[38].

1.2 STATEMENT OF THE PROBLEM

The rapid development in science and technology called for corresponding advancement in transport and communication. Hence increase in air transport with consequent air hazards. This thesis is an attempt to contribute meaningfully to the improvement of flight safety in order to minimize air hazards. In this thesis therefore it is significant to examine carefully the relevance of law in promoting flight safety by regulating the operation of aircraft through the imposition of duties and responsibilities on the entities involved in air navigation.

1.3 OBJECTIVES OF THE RESEARCH

1. The research effort will focus on the entities involved in air travel and their respective duties as apportioned by law in ensuring flight safety (flight safety as a collective responsibility).

2. It will also discuss the adverse effect of air disaster both on individuals and the economy as well as stress the importance of flight safety in the enhancement of economic development.

3. Besides, the thesis intends to contribute to the topical discourse on flight safety,

which has generated much discussion in recent times, by looking at flight safety from legal perspectives.

1.4 SCOPE OF THE RESEARCH

Since Aviation is a global issue, the study will cover relevant safety issues from a global perspective. The study will concentrate on civil aviation matters. However, reference to military aviation where necessary will be brief. It will dwell on ICAO standards and recommended practices. Nigerian Civil Aviation Act Cap C13 Laws of the Federation 2004 will as well be examined. Any other provisions of law may be mentioned briefly. Crime on board aircraft as well as trespassing on airspace will be treated.

1.5 RESEARCH METHODOLOGY

Doctrinal research method was employed, because the bulk of the work depended on research from published materials conducted in libraries. For in-depth study on historical development of aviation, specialized literature mainly from Nigerian College of Aviation Technology (NCAT) library were consulted. These sources included textbooks, journal articles, and paper presentations from the Nigeria College of Aviation Technology, Zaria and Federal Ministry of Aviation, Abuja libraries. Furthermore, press briefing of aviation personnel on live discussions on the issue of flight safety were referred to. Documents from ICAO were further consulted. As flight safety is a current issue, attention was paid to Television, Radio, Newspapers and Internet for flow of current vital information regarding flight safety situation around the world. Use was made of reports of some accidents investigated and findings made as causes of the accidents and recommendations which if implemented may help in prevention of future accidents. So the materials are from both primary sources like books, statutes,

conventions and secondary sources like journals, magazines, newspapers, unpublished works, internet, radio and television news.

1.6 LITERATURE REVIEW

The importance of flight safety in civil aviation cannot be overemphasized. The success of the entire aviation industry hinges on it. In the course of this research some relevant publications were consulted, these are considered below.

Professor Johnson 'Rights In Airspace' Manchester University Press USA Oceana Publication UK 1965. The author surveys the development of Air Law from its earliest beginning to the latest and most important conventions on the subject. The chapter one traced the beginning of aeronautics to 19 September 1783 when the Montgolfier brothers first flight experimented as this work did. He merely mentioned the death of De Rozier by explosion as a setback to the development of aeronautics but never attempted to discuss the crucial issue of air accident, which is a very important aspect of this work. Chapter one also discussed the beginning of air law mentioning the regulations made by Paris Police in 1784 and the First Hague Peace Convention (1899). He also talked about the doctrine of free air comparing it to that of the sea. He as well argued the issue of nuisance and trespass and submitted that not every invasion of airspace is trespass. In chapter two he discussed the development of aviation, the military and civil sides. In chapter three he discussed the First World War and in chapter four he dealt with the Second World War, decrying the danger of air raid as being so terrible that it can cripple national effort and bring national life to a stand still. This is also not necessary in this work. In chapter five he discussed some contemporary problem in international air law. Here he indicated that the need for a worldwide organization of civil aviation gave birth to (ICAO). He also discussed the problem of trespassing on national air space by foreign

aircraft and submitted that while it is generally agreed that each state has sovereignty over its air space, considerable uncertainty surrounds the exact procedures, which should be followed when a plane involuntarily intrudes into foreign air space. However this book was published in 1965 before ICAO Annex 2 which provides what to do in such situation came to be in 1990. The same chapter still dealt with the issue of crime on board aircraft briefly exploring Article 17 of Chicago Convention that state should exercise jurisdiction over crime committed on board aircraft registered in it. The major problem of this book in respect of this work is its date of publication which made it impossible for recent provisions on crime on board aircraft and interception of civil aircraft to be reflected

Another resource material to this thesis is R.B. Underdown and Tony Palmer's book 'Aviation Law for Pilots' 9th Edition Revised published by Blackwell Science Limited Paris, 1997. In their skeletal discussion of aviation legislation, they briefly touched International Commission for Air Navigation (ICAN) and international civil Aviation Organization (ICAO) as being the main aviation regulations. However, in their writing they employed many technical terms which are understandable to pilots alone. Moreover, its contribution was not much in that it is tailored towards pilots while this work is intended for all involved in civil aviation industry. Besides, it focused on UK and US and depicted their scenarios while this work has a global view.

The work of Ashford, Stanton and Moore 'Airport Operations' Pitman Publishing, London, 1991 was also consulted in the course of this write up Ashford is a professor of Transport Planning Loughborough University Leicestershire, UK, Stanton is the head of External Affairs International Civil Airports Association Paris, and Moore is the General Manager Los Angeles Department of Airport Los Angeles, California. This book is the result of both a series of experiences, short courses and seminars conducted in Britain by

Loughborough University and the authors' joint teaching experience of airport planning and design courses in the U.S notably at the University of California-Berkeley and the Georgia Institute of Technology. The authors are experts in airport planning and design this informed their writing focusing mainly on airport design and administration which is not of much use to this work which is mainly concern with flight safety though the state of airport is necessary for flight safety. This book was useful to this study in that it dealt with airport security briefly discussing ICAO designated unlawful acts against civil aviation but its concentration on airport and its activities made it too narrow for the scope of this work.

C.H. Friend 'Aircraft Maintenance Management, Longman scientific & Technical 1992. The book treated aircraft airworthiness like this study did but concentrates on the area of cost which made it more of commercial aviation unlike this study that has broader coverage.

Anne Graham 'Managing Airport' 2nd edition Elsevier Heinemann Paris 2001. This book devoted its last chapter to the impact of 11 September 2001 on the air transport industry which this work treated. However, the point of departure is its emphasis on airport.

John H.H. Grover 'Handbook of Aircraft Performance' BSP Professional books 1989 London. The book considered aircraft performance as this study did but its more concern about taking off and landing while this work is interested in general performance of aircraft. Did but did not go further than that which makes its scope too narrow for this work.

Roger G. Green, Helen Muir, Melanie James, David Grad Well & Roger L. Green. 'Human Factors for Pilots' 2nd edition 1996 Ashgate. The authors considered the

importance of sound sight and hearing to flightcrew. However, its only focus is on the effect of physiological factors on flight which is too narrow for this work.

Captain S. A. Ohiomah 'The African Pilot' An Amanada Publication 1999 Ikeja. The author, a retired Nigerian pilot, discussed the beginning of powered flight which this book did but he discussed other issues which are outside the purview of this work. In fact he discussed mainly issues related to his experience as a pilot.

Davies R.V. 'The Aircraft Performance Requirements Manual' Airlife Publishing Ltd 1991 England. The book discussed the issue of contamination of runway by snow, slush, ice or water as this thesis did. Its defect regarding this research is that its focus is on UK and UK laws thereby reducing its scope to local legislation and scenarios.

Alexander T. Wells Ed.D. & Seth B. Young 'Airport Planning & Management' 5th edition McGraw-Hill Seoul 2004. The book benefited this research in the area of aircraft security, but the bulk of the work is centered on activities in airport while this research work goes beyond that.

Lloyd R. Jenkinson, James F. Marchman III 'Aircraft Design Projects' Heinemann Tokyo 2003. The authors briefly discussed the importance of airworthiness of aircraft which this work is also concern about. However, the book is concerned mainly with aircraft design and is tailored towards engineers while this work is for all aviation stakeholders.

Phil Croucher 'The Professional Pilots Manual' Airlife Publishing Ltd England 1990. This book dealt with pilots' responsibilities which this study covers, but it is centered on pilot only which is too narrow for the scope of this research.

Bin Cheng 'The Law of International Air Transport' published under the auspices of the London Institute of World Affairs London, Stevens & Sons Ltd, 1962. A very

massive book of about 800 pages divided into 12 chapters, it is a store of information on historical development of air transport, freedom of the air, schedule and non-scheduled international air services. The defect of this great wealth of knowledge in connection to this thesis is that it was published in 1962, so post 1962 developments were not reflected. It is also concerned with air transport generally not specifically on the topic of this present discourse.

McNair 'The Law of The Air' 3rd edition, London, Stevens & Sons 1964. The author considered the issues of states and sovereignty over the air as this work did but its limitation in respect to this research is its concentration on the municipal law of Britain thereby narrowing its scope to more of local laws and legislation while this thesis sees aviation safety from global view.

The work of I.A shearer, 'Starke international law' 11th edition Butterworth 1994, was as well importance to this research work as it discussed air and space law but briefly from international law perspective

UMOZURIKE U. Introduction, To International Law Spectrum Law Ibadan was also useful to this study nonetheless, his discussion of air and space law was very skeletal and from international law perspective.

J. G. Starke O, C., An Introduction to International Law 6th edition London Butterworth 1967. equally had similar effect as Umozurike and Shearer. He as they discussed air and space law from international law perspective

Lord McNair 'The Law of Treaties' Oxford at the Claremont Press 1962., was also sourced from in the course of this thesis. A very prodigious book wholly devoted to treaties which this work as well discussed. Its limitation in terms of this work is its confinement to treaties and state delegation of power to municipal courts to ratify treaties

on their behalf,. which makes its scope too narrow for this work which goes beyond treaties.

Shawcross & Beaumont 'Air Law' 4th edition volume 1 General Text published by Butterworth London 1977. It is a massive book with 13 lengthy chapters it dealt with sources of air law, aircraft, crimes, surface damage, noise, collisions therefore of much relevance to this work. Its shortfall regarding this work is its publication in 1977 thus could not accommodate later treaties and has not much to offer to flight safety which is the core of this work as it briefly treated it.

Edward McWhitney, 'Aerial Piracy and International Law' A.W. Sijthoff/Leiden Oceana Publications Inc. 1971. The book is mainly on hijacking and aerial piracy. It did not touch other aspects of aviation law.

Shari Stamford Krause 'Airport Safety' 2nd edition McGraw-Hill 2003 Singapore. The book has 482 pages divided into 5 parts: human factor, runway incursion, weather, mid-air collision and mechanical and maintenance. It is fully devoted to accident investigation and analysis, and nothing more unlike this work which goes beyond accident.

Robert Horojeeff & Francis X McKelvey 'Planning and Design of Airport' 4th edition McGraw-hill Inc N.Y 1994. The book is voluminous, made up of 829 pages The authors opened their work with the history of the first powered flight which this work also mentioned. It also dealt with the impact of air transportation on economy which this work also considered. However while this book is completely on commercial and economic aspect of aviation, this study covers more areas than commercial and economic aspect.

Finally, other materials this thesis sourced from include the publications of ICAO

such as the annexes particularly Annex 1 dealing on personnel licensing, Annex 2 dealing on Rules of the Air, Annex 6 dealing on Aircraft Operations, Annex 8 dealing on Airworthiness of Aircraft, Annex 13 dealing on accident, Annex 17 dealing on Security, all dealt briefly on flight safety but were confined to the specific subjects they cover. Others are Journals, manuals and magazines seminars and retreat papers that dealt briefly with safety among other topic that this study is not interested in. Besides, Federal Ministry of Aviation annual progress reports which is a transmittal document to the Aviation Minister intimating him of the activities in the aviation industry the previous year discussed the issue of flight safety but concentrated on the activities in the aviation industry at a particular period which is not the focus of this work. Reports of accidents investigated and reported by Accident Investigation and Prevention Bureau were all of much assistance to this work in the area of accident investigation and prevention but are tied to accident investigation and prevention which is too narrow for the scope of this research.

1.8 ORGANIZATIONAL LAYOUT

The study is made up of five chapters. Chapter one deals with the introduction, statement of problem, objectives of the study, scope of the research, research methodology adopted, literature review and organizational structure.

Chapter two deals with evolution of aviation law, history of air law, Nigerian Civil Aviation Act Cap C13 LFN 2004, sources of aviation law, scope of aviation law, Paris Convention 1919, civil aviation under Chicago Convention 1944, duties of: airlines, aircrew personnel and passengers in ensuring flight safety, safety standards, implementation of safety standards.

Chapter three deals with air accident, history of air accident, accident and incident,

trespassing in air airspace, crime on board aircraft, types of accident, causes of accident, nature of accident, effects of accident and prevention of accident.

Chapter four deals with accidents investigated and reported in Nigeria, history of air accident in Nigeria notification of accident, investigation of accident, report of accident investigation and recent accidents investigated and reported by Federal Ministry of Aviation and International Civil Aviation Organization (ICAO).

While chapter five which is the last chapter deals with summary, recommendations and conclusion.

ENDNOTES

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CHAPTER TWO

EVOLUTION OF AVIATION LAW

2.1 HISTORY OF AIR LAW

According to D.H.N Johnson, it is generally agreed that the first piece of legislation connected with aviation was the regulation made by the Paris police in 1784 prohibiting balloon flight without special permits[1]. Other European cities followed with similar enactments. But the question of international air law does not seem to have become a live one until the end of 19th century. What made it so in the first instance were the military rather than the civil potentialities of aviation. The declaration of Brussels (1874) provides that a person was not to be considered as a spy merely because he passed over the enemy's line in a balloon[2]. At the first Hague Peace Conference (1899) a declaration was signed in which the contracting powers agreed to prohibit, for a term of 5 years, a discharge of projectiles and explosives from balloons or by other new methods of a similar nature[3]. It is reasonable to assume that these other new methods included methods depending upon the science of aeronautics, although power-driven aeroplane had not yet flown. However, the Declaration was only to be binding on the contracting powers in case of war between two or more of them, even then not when one of the belligerents was joined by a non-contracting power. In the Declaration ratified by 24 states excluding Great Britain - whereas the Brussels Declaration was never ratified, reference was made to the Declaration of St. Petersburg of 1868. In this instrument the contracting parties after reference to the work of an International Military Commission which had fixed the technical limits at which the necessities of war ought to yield to the requirements of humanity; had declared as follows: [4]

> *Considering that the progress of civilization should have the effect of alleviating as much as possible the calamities of war, that the only legitimate objective which states should endeavour to*

accomplish during war is to weaken the military forces of the enemy; that for this purpose it is sufficient to disable the greatest possible number of men; that this object would be exceeded by the employment of arms which uselessly aggravate the sufferings of disabled men or render their death inevitable; that the employment of such arms would therefore be contrary to the laws of humanity; that contracting parties engage, mutually to renounce, in case of war among themselves, the employment by the military or naval forces, of any projectile of less weight than 400 grams, which is explosive or is charged with fulminating or flammable substances.

At The Hague in 1899 it was felt that the use of balloons for the purpose of discharging projectiles was attended by too many uncertainties to be permitted. But the prospect that greater accuracy might soon be obtained was also the reason for limiting the declaration to five years. It would be wrong to imagine that the sole preoccupation of those interested in air law at this stage was military. The 15 years that elapsed between 1899 and the outbreak of the First World War in 1914 was indeed a great creative period of air law.[5]

Among the pioneers of air law, the name of Paul Fauchile will always be remembered. This great French lawyer, as the rappouteur for the Institute of International Law on the subject entitled 'Regime Juridique des aerostats' (Technically an aerostat is a lighter-than-air craft, such as a balloon or air ship. But it is reasonable to suppose that Fauchile would have applied the same principles to all types of aircraft.) Submitted to the Brussels meeting of the Institute in 1902 a draft code containing 32 articles. The first 7 articles were given over to general provisions, Articles 8-20 prescribed a regime for peacetime and the remaining Articles concerned the laws of war. What interests us most today about Fauchilles Code is some of the first articles in the draft. Article 1, for instance, drew a basic distinction between public and private aircraft, the former category being further divided into military and civil. Article 2 required all aircraft to carry the national colours in some convenient form. Article 3 forbade aircraft to wear colours

other than those of the nation to which they belong. So far as private machines were concerned, aircraft would belong to a country by virtue of being entered on a register kept by that country and in order to qualify for admission to the register the owner, commander and three-quarters of the crew of the aircraft must be nationals of the country concerned. Only when he reached Art 7 did Fauchille broach the question of air space. Here he prescribed as follows:[6]

> *L' air est libre, les Etats n'ont sur lui en temps de paix et en temps de guerre que les droits ne'cessaires a leur conservation. Ces droits sont relatifs a la repression de l'esplonnage, a' la police douanliere, a la police sanitaire et aux necessites de la defense*[7] *(Air is free; in times of peace and in times of war, states have on it rights which are necessary for their safety. These rights are relative to the control of spying, to custom police, to health policing and to the need for defence).*

Fauchalle justified by somewhat theoretical reasons his doctrine of the freedom of the air. These were, firstly, that air, because of its very nature, was not capable of appropriation at all; and secondly, that since a state could not occupy air, it could not be sovereign over it. Similar theories had for centuries been put forward in support of the doctrine of the freedom of the seas, although in fact that doctrine had come to be accepted for the essentially practical reason that it best suited the changing interest of the major maritime powers. Fauchille was sufficient of a realist to comprehend that the states for whose benefits he was preparing a code would never accept the freedom of the air in the extreme form that his theories, pushed to their logical conclusion, might demand. Even the freedom of the seas has become acceptable only by conceding to states wide powers over an area of sea adjacent to their coast. And there were not lacking jurists who pointed out that a state would be even more concerned about what might take place in the air above it than in the seas over its coasts. Fauchille proposed to meet this problem by

conceding to the subjacent state extensive rights in the airspace immediately above it. These rights would not be rights of territorial sovereignty but rights deriving ultimately from the principle of self-preservation. Thus, in Articles 8-11 of his code, he would forbid navigation by foreign aircraft at heights of less than 1500m from the coast. This distance was chosen for the practical reason that it was believed that 1500m was the maximum range at which worthwhile photographs of fortifications could be taken. In Article 15 Fauchille suggested that in general, crimes committed on board foreign aircraft should be within the jurisdiction of the state of the aircraft, but that the subjacent of states could punish crimes such as espionage and breaches of its customs and sanitary regulations when committed in the air space above its territory. Such punishment would, however, be based on the protective rather than the territorial principle of jurisdiction because according to Fauchille, the superjacent air space was 'free' and did not form part of the territory of the state[7].

This theory of the 'free air' died hard. One reason for the tenacity with which the 'free air' theory was held was undoubtedly the feeling that it was associated with the 'freedom of the sea', which had proved so beneficent a concept during the last 300 years. Had not the Roman jurist, Celsus, asserted *'Maris communem usum omnibus hominibus ut aeris*? ('That a common use of the sea as well as of the air be made by all men'?). Moreover, had not Grotius himself, after basing the principle of the freedom of the seas on the argument that 'the extent of the ocean is in fact so great that it suffices for any possible use on the part of all people…', gone on to say: the same thing would need to be said, too, about the air, if it were capable of any use for which the use of the land also is not required, as it is for the catching of birds, fowling, therefore the similar pursuits, are subject to law laid down by him who has control over the land.[8] So long as the air is

used for purposes 'for which the use of the land also is not required it may be free, but, once the landowner is in some way concerned, the use of the air becomes subject to the law laid down by him who has control over the land'. It is necessary to consider the well-known maxim *Cujus est solum, ejus est usque ad coelum et ad inferos* (whoever owns the land, owns the space above up to infinity and the space below.) which has figured so prominently in the literature of air law. According to Lord McNair, the maxim itself is not. Roman, but 'the tyranny' which it has exercised in England 'seems to be attributable in part to the traditional respect which English lawyers, while rejecting the complete corpus juris civillis, habitually show to what they conceive to be a rule of Roman law when it happens to accord with their own ideas, and in part to the grandiloquent manner adopted by English lawyers, notably Coke and Blackstone, in exalting the extent and importance of property in land. Coke and Blackstone both cited the maxim, the former saying:

> *The earth hath in law a great extent upwards, not only of water, as hath been said, but of ayre and of all other things even up to heaven' and the latter commenting 'the word 'land' is not only the face of the earth but everything under it or over it. Moreover, Blackstone also added: 'Land hath also, in its legal signification, an indefinite extent upwards as well as downwards'*[9].

The inconvenience of these doctrines became apparent. In 1815 the case of *Pickering V.Rudd*[10] came before Lord Ellenborough. The case concerned an action for trespass *quare clausum fregit* arising out of the nailing upon the defendant's house of a board which projected over the plaintiff's garden, the learned Lord Chief Justice said:

> *I do not think it's a trespass to interfere with the column of air superincumbent on the close. I once had occasion to rule--- that a man who, from the outside of a field, discharged a gun into it, so as that shot must have struck the soil, was guilty of breaking and entering it--- but am by no means prepared to say, that firing across a field in Vacuo, no part of the contents touching it amounts to a clausum fregit.*

> *Nay, if this board overhanging the plaintiff's garden be a trespass, it would follow that an aeronaut is liable to an action of trespass quare clausum freigit at the suit of the occupier of every field over which his balloon passes in the course of his voyage---. If any damage arises from the object, which overhangs the close, the remedy is by an action on the case.*

In *Kenyon V. Hart* (1865)[11] a case concerning trespass to game, Blackburn, J. referring to another case cited by counsel said: "That case raises the old querry of Lord Ellenborough as to a man passing over the land of another in a balloon, he doubted whether an action of trespass would lie for it. I understand the good sense of that doubt, though not the legal reason of it".

However, even before statute took a hand, the good sense of common law shrank from the idea of regarding every invasion of air space above an owner's land as an actionable trespass, preferring to give the land owner the protection he undoubtedly needs through the more flexible action for nuisance, the essence of this tort being unreasonable interference with the plaintiff's use or enjoying of his land.

In the U.S, because of the great scale upon which aviation is conducted and also because of the large number of jurisdictions that exist under their federal system of government, the courts have had more opportunity than the British Courts to consider the status of the air space. It is convenient to mention a few decisions here though they are more recent than the period we have been considering. In the *United States V.Causby*[12] the Supreme Court of the United States held that the government, by low flights of its military aircraft over a chicken farm, had 'taken' an easement of flight over a farm for which compensation must be paid. At the same time on the general issue the court was cautious. It said:

> *It is ancient doctrine that at Common Law ownership of land extend to the periphery of the universe – cujus est solum ejus est usque ad caelum, but that doctrine has no place in the modern world. The*

air is a public highway---were that not true, every transcontinental flight would subject the operator to countless trespass suits. Common sense revolts at the idea.

The court proceeded to hold that flights over private land are not a taking, unless they are so low and so frequent to be a direct and immediate interference with the enjoyment and use of the land, but if, said the court by reason of the frequent and altitude of the flights, respondents could not use this land for any purpose, the loss would be complete. It would be as complete as if the United States had entered upon the surface of the land and taken exclusive possession of it.

In *Griggs V County*[13] of Allegheny Supreme Court of the U.S. carried this doctrine farther, holding that the operator of Greater Pittsburgh Airport had taken an air easement over the property of a resident in the neighbourhood. In *Smith V. New England Aircraft Company*[14], the Supreme Judicial Court of Massachusetts considered more directly the question whether low flight across an owner's land constitute a trespass. It held that private ownership of airspace extends to all reasonable heights above the underlying land and therefore that after making every reasonable legal concession to air navigation, very low flight could amount to trespass. The tribunal referring to the international aspect, said it is essential to the safety of sovereign states that they possess jurisdiction to control the air space above their territories. "It seems to us to rest on the obvious practical necessity of self-protection. Every government completely sovereign in character must possess power to prevent from entering its confines those whom it determines to be undesirable. This short passage is interesting because it looks as if the court felt able to base the right of a state to control its air space on both the theory of territorial sovereignty and the theory of self-protection, without troubling too much about the controversies among international jurists as to which of these two theories is a proper

basis. Moreover, even if these international jurists had agreed that the air was in principle 'free' and even if states had been prepared to accept the presence of foreign aviators in their air space, it would have availed such aviators little if they had then found themselves sued in private actions by every landowner above whose land they had happened to fly[15].

In *Swetland V. Curtiss Airports Corporation*[16], the United States Court of Appeal, sixth circuit, rejected the view that all decision concerning air space must be decided upon the theory of nuisance rather than that of trespass. In a balanced judgment it said:

> *We cannot hold that in every case it is a trespass against the owner of the soil to fly an aeroplane through the air space overlying the surface. This does not mean the owner of the surface has no right at all in the air space above his land. He has a dominant right of occupancy for purposes incident to his use and enjoyment of the surface, and there may be such a continuous and permanent use of the lower stratum which he may reasonably expect to use or occupy himself as to impose a servitude upon his use and enjoyment of the surface. As to the upper stratum which he may not reasonably expect to occupy, he has no right except to prevent the use of it by others to the extent of an unreasonable interference with his complete enjoyment of the surface. His remedy for this latter use--- is an action for nuisance and not trespass.*

Finally, it must be remembered too that the general principles of law recognised by civilized nations constitute an important source of international law the more so when treaties and customary rules are lacking[17] and that there is as yet no agreed limit for the boundary between national airspace and 'outer space'. Consequently, the experience of the common law courts in applying the ancient notions of trespass and nuisance to activities in the air space above the land of private owners may yet provide a basis for developing a sound jurisprudence for the aerospace law of the future.[18]

In Nigeria before 1966 the Aviation Laws applicable were promulgated by Great Britain (Ordinances). After independence Civil Aviation Act 1964 was enacted by the

Nigerian Parliament to commence 1 December 1965. Several Amendments have been made to the Act and many subsidiary legislation added[19]. The Act and subsidiary legislations are contain in the Laws of the Federation of Nigeria (LFN) Cap 51 1990 revised to Cap C13 LFN 2004, yet to be passed into law. The Act empowers the Minister to, by regulations make provision for carrying out Convention on International Civil Aviation concluded at Chicago on 7 December 1944, any annex to the Convention, which relates to international standards and recommended practices and is adopted in accordance with the Convention, and any amendment of the Convention or of any such annex which is made in accordance with the Convention and generally for regulating air navigation[20].

2.1.1 NIGERIAN CIVIL AVIATION ACT CAP C13 LFN 2004

The principal aviation law in Nigeria is the Civil Aviation Act Cap C13 LFN 2004. It contains the Civil Aviation Regulations. The Civil Aviation Regulations are subsidiary legislations of the Civil Aviation Act Cap C13 LFN 2004. They are:

a. **Civil Aviation (Air Transport Licensing) Regulations:** The regulations restrict operation of aircraft without a license. It provides that, it shall not be lawful for any person to use any aircraft in Nigeria for the carriage of passengers, mail or cargo for hire or reward upon any scheduled journey between 2 places of which at least one is in Nigeria, except under and in accordance with the provisions of a license or a provisional license. Any person who uses any aircraft in contravention of the provision shall be liable in the case of a first offence to a fine not exceeding N1000 or to imprisonment for a term not exceeding 3 months or to both such fine and imprisonment, and in the case of a second or subsequent offence to a fine not exceeding N10,000 or to imprisonment for a term not exceeding 2 years or to both such fine and such imprisonment. Nothing in this

regulations shall restrict the right of a designated Nigerian airline or any air transport undertaking having its principal place of business in any country outside Nigeria, to provide transport for passengers, mail or cargo in accordance with the terms of any agreement for the time being in force between the Government of the Federal Republic of Nigeria and the government of that country, or in accordance with the terms of any permission granted by the Minister pending the completion of negotiation for such agreement as aforesaid. The Minister may grant to any person applying for a license to use in Nigeria for the carriage of passengers, mail or cargo for hire or reward, such aircraft, on such scheduled journeys, subject to such conditions as may be specified respectively in the license. The condition of every license is that the holder of the license and any person having a financial interest in the business of the holder of the license shall refrain from stipulating that any other person shall refuse booking facilities to any other holder of a license; or shall afford such facilities to such other holder than the terms which are enjoyed by the first mentioned holder; the holder of the license shall perform all such reasonable services as the Minister may from time to time require in regard to the conveyance of mails and of any person who may be in charge thereof, upon journeys made under the license, that the remuneration from any such services shall be such as may be from time to time determined by an agreement between the Minister and the holder of the license; and that any dispute, difference or question which may arises as to the remuneration to be paid to the license holder in respect of such services or as to the rights, duties or liabilities of the license holder or the Minister in relation to any of the matters referred to here shall in default of agreement be referred to arbitration in pursuance of the provisions of the Arbitration and Conciliation Act, or of any enactment modifying or replacing the same. Any license may if the Minister thinks fit be limited to

the carriage of passengers or to the carriage of cargo. The Minister may grant license to remain in force for such period as he may in each case determine, commencing on the date the license is expressed to take effect provided that if on the date of the expiration of a license, an application to the Minister by the holder of the expiring license is pleading for the grant of a new license in substitution for or in continuance of the expiring license, the expiring license shall continue in force until such application is granted or refused[21].

The Minister if he thinks fit, pending determination of an application for a license or negotiation for bilateral agreement, grant to the applicant a provisional license to use in Nigeria for the carriage of passengers, mail or cargo for hire or reward such aircraft, on scheduled journeys (being journey of a kind to which the application relates), subject to such conditions as may be specified respectively in such provisional license. Any provisional license so granted shall remain in force until the application is determined but on such determination shall come to an end. Any provisional license if the Minister thinks fit, may be limited to carriage of passengers or cargo. The Minister may revoke, or suspend license if the holder of the license has since the license was granted, been convicted of an offence against regulation 4 or 13 of the these regulations; or where a holder of permit is a body corporate, any officer of that body corporate, has, since the license was granted, been convicted, in his capacity as such officer, of an offence against regulations 4 or 13 or any condition subject to which the license was granted has not been complied with. If the Minister proposes to revoke or suspend any license specify above, the Minister shall first give written notice to the holder of the license specifying the conditions alleged not complied with, and the occasion on which and the respects in which it is alleged that the same were not complied with, not proceed to revoke or suspend the license until after the expiration of 28 days from the date of such notice; not

in any event revoke or suspend the license unless he is satisfied after holding an enquiry if the holder of the license within 7 days after the date of the aforesaid notice by written notice required the Minister to hold such enquiry, that, by reason of the number of occasions on which such conditions on any of them, have not been complied with or the circumstances that any non-compliance with any such condition was willful, the license ought to be revoked or suspended. A license may at any time be surrendered by the holder to the Minister for cancellation and if, during the currency of a license the holder applies to the Minister for new license in substitution for the current license, he shall, if a new license is granted surrender the current license for cancellation on the date from which the new license is expressed to take effect[22].

It shall not be lawful for any person to use in Nigeria any aircraft for the provision of air services except under and in accordance with the conditions of a permit or provisional permit any person who uses any aircraft in contravention of this regulation shall be liable on conviction, in the case of first offence, to a fine not exceeding N500 or to imprisonment for a term not exceeding 3 months or to both such fine and imprisonment, and in case of second or subsequent offence, to a fine not exceeding N4,0000 or to imprisonment for a term not exceeding 2years or to both such fine and imprisonment. Nothing in this regulation shall affect the right of any person to use in Nigeria an aircraft registered in a state other than Nigeria which is for the time being a party to the Convention on Civil Aviation signed at Chicago on 7 December, 1944, for the sole purpose of carriage of passengers, none of whom are taken on or discharged from the aircraft in Nigeria or the carriage of cargo or mail, none of which is taken on or discharged from the aircraft in Nigeria. The Minister may grant to any person applying for, a permit to use in Nigeria such aircraft for the provision of such air services other

than services as are referred to in paragraph (1) of regulation 4 for such period and conditions specified respectively in the permit. The Minister may if he thinks fit, pending the determination of an application for permit grant to applicant a provisional permit to use in Nigeria such aircraft, for the provision of such air services (being services of a kind to which the application relates and respect of which a permit can be granted under paragraph (1) such conditions as may be specified respectively in the provisional permit, and any provisional permit so granted shall remain in force until the application is determined but on such determination, shall come to end. The Minster may revoke or suspend any permit on the same condition as the license. The condition of every licence or permit is that the requirements of any law or instrument having the force of law, for the time being in force in Nigeria relating to air navigation or air transport shall be complied with at all times during the currency of the licence or permit in connection with all journeys made under the licence or permit. A license or permit shall not be assigned or transferred provided in the event of death, incapacity, bankruptcy, sequestration or liquidation of a holder of a license permit, or of the appointment of a receiver or manager or trustee in relation to the business of the holder of a license or permit, the person for the time being carrying on that business shall, if within 14days of his commencing so to do he makes application to the Minister for a new license or permit in respect of the services authorized by the existing license or permit be entitled to provide the air services authorized by the existing license or permit subject to the conditions thereof until the application is determined subject to this provisions. The Minister shall cause to be published in the Gazette a notice giving such particulars of any application for a license or permit he received as he may consider necessary, and specifying a date not less than 28 days after the publication of the notice by which any representation or objection may

be made to the Minister in the manner provided by regulation 20 with respect to the application by any interested person and the Minister shall not proceed to determine any application until after the date specified. If an application is made to the Minister for license or permit to remain in force for a period not exceeding 30days and it appears to the Minister that it is in public interest that such application be determined with expedition the Minister may proceed to determine the application. Every representation or objection regarding an application for license or permit shall be in writing and signed by the objector or person duly authorized if made by corporate body. Every representation or objection shall specify the grounds on which it is based and conditions it desired should be attached to the license or permit if granted.[24]

In determining application for a license or permit the Minister shall have regard to the desirability of co-coordinating and developing air services with the object of ensuring the most effective services to the public while avoiding uneconomic clapping of services and in the interest of the public, including those of persons requiring or likely to require air services as well as those of persons providing such services and shall in particular have regard to the following matters as may be appropriate having regard to the nature of the application the existing or potential need or demand for any air service proposed; the existence of other air services in the area or through which the proposed services are to be operated; the degree of efficiency and regularity of the air services, if any, already provided in that area, either by applicant or other operator; the period such services have been operated by the applicant or other operators; the extent to which it is profitable that applicant will be able to provide a satisfactory services in respect of safety, continuity, regularity of operation, frequency, punctuality, reasonableness of charges and general efficiency; financial resources of the applicant; type of aircraft proposed to be used;

remuneration and general conditions of employment of aircraft and other personnel employed by the applicant; and there shall be taken into consideration objections or representations duly made provided the Minister shall not be required to consider any objection or representation which in his view is frivolous or vexations. The Minister may attach such conditions to any license or permit as he thinks fit having regard to the nature and circumstances of the application the permit is granted and may vary, suspend or add to any such condition so attached from time to time by notice in writing to the holder of such license or permit. The conditions include the furnishing, by the holder of the permit to the Minister of information in respect of any air services provided under the license or permit and relating to the time within which such particulars shall be furnished and conditions as to the fares, freight or other charges to be charged by the holder of the license or permit in respect of any air services provided. The holder loses the right of continuance of benefits of license or permit if any right of continuance of any benefit of the license or permit is conferred upon another person. Upon the grant of any license or permit or provisional license or permit the person to whom it is granted shall pay to the Minister, on the day the license or permit or provisional license or permit is expressed to take effect, a fee of N20 or N4 in case of provisional license or permit in respect of each year or part of a year of the period for which the license or permit or provisional license or permit is expressed to remain in force. No refund of fee paid in respect of license or permit or provisional license or permit on surrender of the license or otherwise, save where a license or permit is surrendered before its normal date of expiry upon the grant of a new license or permit, in substitution for the surrendered license or permit authorizing a service over the same route, in which case there shall be refunded the sum of 20 for each full year of the unexpired period of the license or permit but the holder shall in addition

to the normal fee for the new license or permit pay additional fee of N4[25]. First schedule states the process and particulars of application for license and second schedule provides for publication of decisions of the Minister on application for licenses or to revoke or suspend a license.

b. **Civil Aviation (fees) Regulations**: This provides for fees to be paid in connection with air services including landing fee. Any aircraft landing shall pay a standard landing fee, any passenger leaving a Government airport on an international flight shall pay N5 in respect of services provided in such airport. No landing fee shall be payable in Government airport by an aircraft at the end of a flight in respect of which all the following conditions were satisfied: the flight began and ended at the Government airport with no intermediate landing at any other place, the flight was undertaken solely for the purpose of testing, the aircraft or its engines, instrument, radio or other equipment; notice was given to the person in charge of the Government airport before the beginning of the flight that the flight was to be a test flight for the purpose of the above provisions shall not apply if the next preceding landing by that aircraft was a landing to which the provision applied. No fee shall be payable for of a landing at an airport this regulation referred to as 'the Government airport' if: such landing takes place within a period of 1hour after the aircraft has completed a landing at the Government airport in respect of which the landing provided has become payable, the aircraft has not during the aforesaid period landed at any place other than the Government airport the landing fees are payable in respect of night landing, including any other fee payable in respect of landing; in case of a night landing by a public transport aircraft at any aircraft at any airport specified in the Second Schedule N50 or one half of the standard landing fee applicable whichever may be the least; in any other case, a fee equal to one half of the standard landing fee

applicable to the aircraft[26].

The Minister may in his discretion and subject to such conditions or limitations as he thinks fit, exempt from payment of any or all landing fees any of the following classes of aircraft or any aircraft of such class: military aircraft of the Federation of Nigeria; military aircraft of any other State; aircraft belonging to or employed in the service of the Government of the Federation of Nigeria, not being military aircraft; aircraft belonging to or employed in the service of any of the State Government of Nigeria; aircraft belonging to or employed in the service of any other state or of any person or body entitled to diplomatic privileges. The landing fees provided for in these regulations shall in the case of an aircraft for the time being designated as a customs airport, pursuant regulation 66 of the Air Navigation Regulations, include the use of facilities for the outward clearance of customs, aircraft passengers and passenger's baggage, and for immigration and health facilities. No reduction of landing fees shall be made by reason of unavailability of any airport, air route facility, runway facility, or other facility whatever. A fee determined in accordance with the third schedule by reference to the space occupied by an aircraft for each hour or part of an hour that the aircraft is accommodated in a hanger, shall be paid as the housing fee, and, for each hour or part of an hour the aircraft is accommodated otherwise than in a hanger, as parking fee. If the period between the arrival and departure of an aircraft at a Government airport does not exceed 6hours, no fee shall be payable in respect of any part of the said period during which the aircraft is accommodated otherwise than in a hanger. The person in charge of a Government airport, or any person authorized by him for that purpose may, for reasons of safety or for any other reason which, in his absolute discretion, he may consider good and sufficient for the proper conduct and use of the aircraft at any time order any aircraft on the airport to be housed in

a hanger, and thereupon the fee payable in respect of the accommodation of the aircraft in a hanger shall become payable. The Minister may at any time by notice in the Federal Gazette, amend any of the fees specified in the first, third and fourth schedules concerning certificates, licences, and other documents and with examinations, tests, inspection, investigations, permissions and approvals, required by or for the purposes of the Air Navigation Regulations or any regulations made thereunder[27] .

c. Civil Aviation (Aircraft Performance) Regulations :This regulation is concern about aircraft performance, and provides that the assessment of the ability of an aeroplane to comply with the requirements relating to weight and performance shall be based on the specified information to its performance, in case of aeroplane which the certificate of airworthiness does not include a performance group classification, the assessment may be based on the best information available to the commander of the aircraft, in so far as the relevant information is not specified. It classified aircraft performance into 4 groups namely:[28]

1. Aircraft without a performance group classification: This shall not fly for the purpose of public transport unless: the wing loading of the aeroplane does not exceed twenty pounds per square foot; or the stalling speed of the aeroplane in the limiting configuration does not exceed sixty knots; or the aeroplane with any one of its power units inoperative and the remaining power unit or units operating within the maximum continuous power conditions specified, is capable of a gradient of climb of at least I in 200 at an altitude of 5000ft in the specified international standard atmosphere. The weight of the aeroplane at the commencement of the takeoff run is such that conditions in respect of such aircraft is satisfied. The conditions are: that the weight of the aeroplane at the commencement of take-off does not exceed whichever is the higher of: the maximum takeoff weight if any,

specified for the altitude and the air temperature at the aerodrome at which the takeoff is to be made; the weight of the aeroplane at the commencement of time takeoff does not exceed whichever is the higher of the following weights: the maximum takeoff weight, if any, specified for the altitude and the air temperature at the aerodrome at which the takeoff is to be made; the maximum takeoff weight, if any**,** approved in writing by the Minister after the carrying out of flight tests undertaken on the authority of the Minister for the takeoff of the aeroplane from that aerodrome in the air temperature at the aerodrome. The distance required by the aeroplane to attain a height of fifty feet with all power units operating within the maximum takeoff power conditions specified does not exceed the take-off run available at the aerodrome at which the take off run is to be made; the distance required by the aeroplane to attain a height of fifty feet with all power units operating within the maximum takeoff power conditions specified when multiplied by a factor of either 1.33 for aeroplanes having two power units or by a factor of 1.18 for aeroplanes having four power units, does not exceed the emergency distance available at the aerodrome at which the takeoff is to be made. So the distance required by the aeroplane to attain a height of fifty feet is that appropriate to: the weight of the aeroplane at the commencement of the takeoff run; the altitude at the aerodrome; the air temperature in the aerodrome; the slope of the surface of the aerodrome in the direction of takeoff over the takeoff run available and the emergency distance available, respectively and not more than 50% of the reported wind component opposite to the direction of takeoff or not less than 150% of the reported wind component in the direction of takeoff.

2. Aircraft of performance group A: With reference to Regulation 24 of the Air Navigation Regulations, it shall not fly for the purpose of public transport unless the

weight of the aeroplane at the commencement of the takeoff run is such that the conditions set out in regulation 6 of these Regulations are satisfied. The conditions are: That weight does not exceed the maximum takeoff weight for altitude and temperature specified for the altitude and the air temperature at the aerodrome at which takeoff is to be made; the takeoff run, takeoff distance and the emergency distance respectively required for takeoff specified as being appropriate to: the weight of the aeroplane at the commencement of the takeoff run**;** the altitude at the aerodrome; the air temperature at the aerodrome; the slope of the surface of the aerodrome in the direction of takeoff over the takeoff run available, the takeoff distance available and the emergency distance available, respectively; and not more than 50% of the reported wind component opposite to the direction of takeoff or not less than 150% of the reported wind component in the direction of takeoff; do not exceed the takeoff run, the takeoff distance and the emergency distance available respectively at the aerodrome at which the takeoff is to be made; and in ascertaining the emergency distance required the point at which the pilot is assumed to decide to discontinue the takeoff shall not be nearer to the start of the takeoff run than the point at which in ascertaining the takeoff run required and the takeoff distance required, he is assumed to decide to continue the takeoff, in the event of power unit failure. The net takeoff flight path with one power unit inoperative specified as being appropriate to: the weight of the aeroplane at the commencement of the takeoff run; the altitude at the aerodrome**;** the air temperature at the aerodrome; and not more than 50% of the reported wind component opposite to the direction of takeoff or not less than, I50% of the reported wind *com*ponent in the direction of takeoff; does not exceed the distance of 200ft plus half the wing span of the aeroplane plus one eight of the distance from each point to the end of takeoff distance available measured along the intended line of flight of

the aeroplane; or 5000ft whichever is less. In assessing the ability of the aeroplane to satisfy this condition, it shall not be assumed to make a change of direction of a radius less than the radius of steady turn specified.

3. Aircraft of performance groups C and D: With reference to regulation 24 of the Air Navigation Regulations, it shall not fly for the purpose of public transport unless the weight of the aeroplane at the commencement of the take-off run is such that the conditions set out in regulation 8 of these Regulations are satisfied. The conditions are: that weight does not exceed the maximum takeoff weight specified for the altitude and the air temperature at the aerodrome at which the take off is to be made. The takeoff run required and the takeoff distance required, specified as being appropriate to: the weight of the aeroplane at the commencement of the takeoff run; the altitude at the aerodrome; the air temperature at the aerodrome; the average slope of the surface of the aerodrome in the direction of takeoff over the emergency distance available; not more than 50% of the reported wind component opposite to the direction of takeoff or not less than 150% of the reported wind component in the direction of take-off. Do not exceed the take-off run available and the emergency distance available respectively at the aerodrome at which the take-off is to be made. The net take-off flight path with all power units operating specified as being appropriate to: weight of the aeroplane at the commencement of the takeoff run; the altitude at the aerodrome; the air temperature at the aerodrome; not more than 50% percent of the reported wind component opposite to the direction of take-off or not less than 150 per cent of the reported wind component in the direction of take-off, plotted from a point fifty feet above the end of the take-off distance required at the aerodrome at which the take-off is to be made to the point at which the aeroplane reaches minimum altitude for safe flight on the first stage of the route to be flown in or calculated

from the information contained in the operations manual relating to the aircraft, show that the aeroplane will clear by a safe margin any obstacle the distance from which the nearest point on the ground below the intended line of flight of the aeroplane does not exceed 200 feet plus half the wing span of the aeroplane. In assessing the ability of the aeroplane to satisfy this condition it shall not be assumed to make a change of direction to a radius less than the specified radius of steady turn. The landing weight of the aeroplane shall not exceed the maximum landing weight specified for the altitude and the expected air temperature for the estimated landing at the aerodrome at which it is intended to land and at any alternate aerodrome.

4. Aircraft of performance group *X:* With reference to regulation 24 of the Air Navigation Regulations, it shall not fly in Nigeria for purpose of public transport unless the weight of the aeroplane at the commencement of the take-off is such that the conditions set out in Regulation 10 are satisfied. The conditions are: the weight does not exceed the maximum takeoff weight specified for the altitude at the aerodrome at which the take-off is to be made, or for the altitude and the air temperature at such aerodrome as the case may be. The minimum effective takeoff runway length required, specified as being appropriate; the weight of the aeroplane at the commencement of the takeoff run; the altitude at the aerodrome; the air temperature at the time of takeoff; the overall slope of the takeoff run available; and not more than fifty percent of the reported wind component opposite to the direction of take-off or not less than 150 per cent of the reported wind component in the direction of takeoff, and not exceed the takeoff run available at the aerodrome at which the takeoff is to be made; the take-off flight path with one power unit inoperative, specified as being appropriate; the weight of the aeroplane at the commencement of the take-off run; time altitude at time aerodrome: and not more than fifty percent of the

reported wind component opposite to the direction to take-off or not less than 150 percent of the reported wind component in the direction of take-off . The required landing runway lengths respectively specified as being appropriate to the aerodrome of intended destination and the alternate aerodromes do not exceed the aerodrome at which it is intended to land or at any alternate aerodrome as the case may be, the landing distance available on the most suitable runway for a landing in still air conditions, and the runway that may be required for landing because of the forecast wind conditions, the required landing runway lengths being taken to be those specified as being appropriate to: the landing weight; the altitude at the aerodrome; still air condition in the case of the most suitable runway for landing in still air conditions; and not more than 50% of the forecast wind component opposite to the direction of landing or not less than 150% of the forecast wind component in the direction of landing in the case of the runway that may be required for landing because of the forecast wind condition.

d. Civil Aviation (Birth, Death and Missing Persons) Regulations: This requires that birth or death in an aircraft be reported to the Minister. The owner of an aircraft registered in Nigeria shall as soon as practicable but not later than 6 months after the occurrence in any part of the world of a birth or death in the aircraft or a traveler in the aircraft who is killed on a journey in consequence of an accident transmit to the Minister a return of such birth or death in the form, in accordance with the instructions and containing the particulars prescribed in the first schedule to these Regulations in case of birth or second schedule (in case of a death). Provided that if such particulars are not known to the owner of the aircraft he shall transmit as aforesaid to many of such particulars as he is reasonably able to ascertain having regard to the circumstances of the birth or death. To facilitate the rending of returns in accordance with this regulation, the

person in command of an aircraft registered in Nigeria shall forthwith on the occurrence in any part of the world of a birth or death in the aircraft, or of the death outside Nigeria of a traveler in the aircraft who is killed on the journey in consequence of an accident, record in the journey log book, or other appropriate document relating to that aircraft, the particulars of such birth or death and shall make such record available to the owner as soon as practicable. If all such particulars are not known to the person in command of an aircraft and cannot be readily ascertained by him, he shall record and make available as aforesaid so many of such particulars as are readily ascertainable. Where an aircraft has been *bona fide* demised, let or hired out for a period exceeding 14 days to any other person by the owner thereof, and no pilot, commander, navigator or operative member of the crew of the aircraft is in the employment of the owner, the provision of this regulation shall apply as though references to the owner were substituted for the person to whom the aircraft was so demised, let, or hired out[29].

The Minister shall keep a separate record of births in the form set out in the third schedule in which shall be recorded the particulars transmitted to him of deaths occurring in or over Nigeria in aircraft registered in Nigeria; and a separate record in the fifth schedule of persons reported to him as missing persons. The Minster shall within 7 days of the completion of an entry in any record kept in his Ministry pursuant to the provisions of this regulation cause certified copy of such entry to be transmitted to the appropriate registrar. The appropriate registrar shall be as ascertained as follows: where it appear to the Minister that an entry in the record of birth relates to the but of a child the father of whom, or if the child in illegitimate the mother of whom, was at the time of the birth usually resident in the Federal Capital Territory (FCT), Abuja or in any state of the Federation, a certified copy of the entry shall be sent to the Registrar of Birth and Death

in the F.C.T, Abuja or the State concerned as the case may require; when it appears to the Minister that an entry in the record of death or missing persons relates to a person who, at the time of the death, or in the case of a missing person at the time when he was reported missing, was usually resident at FCT or any state of the Federation a certified copy of the entry shall be sent to the Registrar of the Birth and Death in the FCT, Abuja or the State concerned as the case may require; in every other case, a certified copy of entry in the record of births, deaths, or missing persons shall be sent to whichever registrar may be thought appropriate. In case of the birth of an illegitimate child, the name of any person as father of such child shall not be entered in any return of record of particulars of the birth of such child unless the mother of the child and person acknowledging himself to be the father of the child shall have signed a completed form of return informants. If the Minister is satisfied that there is an error or omission in any entry made in the record of births, deaths or missing persons kept by him pursuant to regulation 4, he may in accordance with evidence of the true facts relating entry, rectify in such manner as many appear to him appropriate within 7days after the correction of any entry in his records in accordance with this regulation. The Minister shall cause a certified copy of such corrected entry to be transmitted to the appropriate registrar[30].

e. Civil Aviation (Rules of the Air and Traffic Control) Regulations: This ensures safety of flight operation. The commander of an aircraft shall, on meeting with hazardous condition in the course of a flight or as soon as possible thereafter, send to the appropriate air traffic control unit by the quickest means available information containing such hazardous conditions as may be pertinent to the safety of other aircraft. An aircraft shall not fly closer than 500 feet to any person, vessel, vehicle or structure. Nothing in this rule shall prohibit any aircraft from taking off, landing or practicing approaches to landing; or

flying for the purpose of checking navigational aids or procedures in accordance with normal aviation practice at a Government or licensed aerodrome in Nigeria or at any aerodrome in any other state; or flying in such a manner as may be necessary for the purpose of saving life. Provided in the case of practising approaches to landing as aforesaid such practicing is confined to the airspace customarily used by aircraft when landing o*r taking* off in accordance with normal aviation practice at the aerodrome concerned. This rule shall not apply to any captive balloon or kite. By night an aircraft shall display such lights specified in these Rules as may be appropriate to the circumstances of the case, and shall not display any other lights which might obscure or otherwise impair the visibility of, or be mistaken for, such lights. Nothing in this paragraph shall prevent the display of an anti-collision light. I*n* the event of failure of any light which is required by these Rules to be displayed in flight, cannot be immediately repaired or replaced, the aircraft shall land as soon as in the opinion of the commander of the aircraft it can safely to do so, unless authorised by the appropriate air traffic control unit to continue its flight[31].

Immediately before an aircraft flies, the commander of the aircraft shall examine the current reports and forecasts of the weather conditions on the proposed flight path being reports and forecasts which it is reasonably practicable for him to obtain in order to determine whether instrument meteorological conditions prevail or are likely to prevail during any part of the flight. An aircraft which is unable to communicate by radio with an air traffic control unit at the aerodrome of destination shall not begin a flight to an aerodrome within a control zone if the information which is reasonably practicable for the commander of the aircraft to obtain indicates that it will arrive at that aerodrome when the ground visibility is less than five nautical miles or the cloud ceiling is less than

1,500ft unless the commander of the aircraft has obtained from an air traffic control unit at that aerodrome permission to enter the aerodrome traffic zone. Notwithstanding that the flight is being made with air traffic control clearance, it shall remain the duty of the commander of an aircraft to take all possible measure to ensure that his aircraft does not collide with any other aircraft. It shall not be flown in such a proximity to other aircraft as to create danger of collision. An aircraft which is obliged by these rules to give way to another aircraft shall avoid passing over or under the other aircraft, or crossing ahead of it, unless passing well clear of it; an aircraft which has the right of way under this rule shall maintain its course and speed. *S*ubject to the provisions of sub-paragraph (a) of this paragraph, when two aircraft are converging in the air at approximately the same altitude, the aircraft which has the other on its right shall give way: when two aircraft are approaching head-on or approximately so in the air and there is danger of collision, each shall alter its course to the right. An aircraft being overtaken in the air shall have the right of and the overtaking aircraft, whether climbing, descending, or in horizontal flight, shall keep out of the way of the other aircraft by altering its course to the right, and shall fail to keep out of the way of the aircraft until the other aircraft has passed and is clear, notwithstanding any change in the relative positions of the two aircraft. An aircraft while landing or on final approach to land shall have the right of way over other aircraft in flight or on the ground or water. In case of two or more aircraft approaching any place for the purpose of landing, the aircraft at the lower altitude shall have the right of way, but it shall not cut in front of another aircraft which is on final approach to land or overtake it. When an air traffic control unit has communicated to any aircraft an order of priority for landing, the aircraft shall approach to land in that order. When the commander of an aircraft is aware that another aircraft is on emergency landing, he shall give way to that

aircraft, and at night notwithstanding that he may have received permission to land, shall not attempt to land until he has received further permission to do so. An aircraft flying within Nigeria in sight of the ground and following a landmark, railway, canal, or coastline, or any other line of landmarks shall keep such line of landmark. The commander of an aircraft entering or leaving Nigeria on any flight for which a flight plan has been submitted shall take all reasonable steps to ensure upon landing that notice of the arrival of the aircraft is given to the aerodrome of departure. The commander of an aircraft who has caused notice of its intended arrival at any aerodrorne to be given to the air traffic control unit or other authority at that aerodrome shall be informed as quickly as possible of any change of intended destination and any estimated delay in arrival of 45 minutes or more[32].

An aircraft flying at night shall be flown in accordance with Instrument Flight Rules, or, in a control zone, in accordance with the Instrument Flight Rules. In the case of a special Visual Fight Rules flight, the aircraft shall be flown in accordance with any instructions given by the appropriate air traffic control. When an aircraft is threatened by grave and Imminent danger and needs immediate assistance It gives such signals as MAYDAY', SOS, a continuous sounding with any sound apparatus. If the commander of the aircraft wishes to give notice of.difficulty but does not require immediate assistance he gives signal such as: *a* succession of white pyrotechnic lights; the repeated switching on and off of the aircraft landing lights; the repeated switching on and off of its navigation lights in a distinct manner. If the commander of the aircraft has an urgent message to transmit concerning the safety of the aircraft or of any person or property he signals. PAN'; XXX; a succession of green pyrotechnic lights; a succession of green flashes. If the commander of the aircraft has a message to transmit concerning the safety

of navigation or giving meteorological warnings he gives SECURITE'; TTT. If an aircraft is required to change its course it will be given a warning signal such as: by day, a series of projectiles discharged at intervals of tea seconds, each showing on bursting black or white smoke; or by night - a series of projectiles discharged at intervals of ten seconds. each showing on bursting white lights or stars or an intermittent white luminous beam directed at *the* aircraft, indicates that the aircraft is required to land at the nearest aerodrome in accordance with the provisions of regulation 63 of Air Navigation Regulations[33].

f. Civil Aviation (Investigation of Accidents) Regulations: This covers accident in connection with aircraft. An accident shall be notified between the time when any person boards an aircraft with the intention of flight or traveling and such time as all persons have disembarked therefrom, any person suffers death or serious injury while in or upon the aircraft or by direct contact with the aircraft or anything attached thereto or the aircraft receives substantial damage. Also where an accident occurs of which the person in command of the aircraft involved at the time of the accident, or if he is killed or incapacitated then the owner, operator, hirer or the person on whose behalf he was in command of the aircraft, as the case may be, shall forthwith send notice thereof to the Minister by the quickest means of communications available and in the case of accident occurring in or over Nigeria shall also notify forthwith the nearest police authorities of the accident and of the place where it occurred. The notice to the Minister shall state as far as possible the type and nationality and registration marks of the aircraft; the name of the owner, operator and hirer, if any of the aircraft; name of the person in command of the aircraft, date and Greenwich mean time of the accident, the last point of departure and the next point of intended landing of the aircraft; the position of the aircraft with

reference to some easily defined geographical point; number of person (if any) killed, seriously injured as a result of the accident, the nature of the accident as far as known, brief particulars of damage to the aircraft. Where an accident occurs, whether in or over Nigeria or elsewhere, the owner, operator or hirer of the aircraft shall, if so required by notice in writing from the Minister, send to the Minster within such time as may be specified in the notice, such information with respect thereto in such form as the Minister may require. Where an accident occurs in or over Nigeria of which notification is required to be given no person other than an authorized person such as police officer or any Nigeria Custom Service shall have access to the aircraft involved in the accident and the aircraft shall not except under the authority of the Minister, be removed or otherwise interfered with, provided the aircraft may be removed or interfered with so far as may be necessary for the purpose of extricating persons or animals involved, removing any mail carried by the aircraft, preventing destruction by fire or other cause, or preventing any danger or obstruction to the public or to air navigation or to other transport; goods or passengers' baggage may be removed from the aircraft under the supervision of a police officer, but if the aircraft came from a place outside Nigeria, it shall not be removed from the vicinity of the aircraft except on clearance by or with the consent of an officer of the Nigeria Customs Service; if an aircraft is wrecked on the water, the aircraft or any content thereof may be removed to such extent as many be necessary for bringing it or them to a place of safety[34].

For the purpose of carrying out investigation into the causes and circumstances of accidents the Minister appoints persons as Inspectors of Accidents, one of whom shall be appointed by him as the Chief Inspector of accidents. The Chief Inspector of Accident, if he think fit, may himself carry out an investigation or cause an investigation to be carried

out by an Inspector of Accident of any accident whether or not such accident is one whereof notification is required. Public notice that such investigation is taking place shall be given in such manner as the Minister may think fit and shall state that any person who desires to make representation concerning the circumstances or causes of the accident may do so in writing within a time specified in the notice. The Inspector of Accident making the investigation has power: by summons under his hand to call before him and examine all such persons as he thinks fit, to require such person to answer any question or furnish any information or produce any book, paper, document and articles which the Inspector may consider relevant, and to retain any such book, paper, document and article until the completion of the investigation; to take statements from all such persons as he thinks fit and to require such person to make and sign a declaration of the truth of the statement he made; to have access to and examine any aircraft involved in the accident and the place where the accident occurred, and for that purpose to inquire any such aircraft or any part of equipment thereof to be preserved unaltered pending examination; to examine, remove, test, take measures for the presentation of, or otherwise deal with the aircraft or any part thereof or anything contain therein; to enter and inspect any place or building the entry or inspection whereof appears to the Inspector to be requisite for the purpose of the investigation; to take measures for the preservation of evidence. Where accident occurred in or over Nigeria to an aircraft registered in country other than Nigeria, the Minister may authorize an investigator appointed by the duly competent authority of that other country to carry out an investigation, and in that event the Minister shall so far as he is able, facilitate inquiries by the investigator so appointed. The investigation shall be held is private. Where it appears to the Inspector that in order to resolve any conflict of evidence or any other reason it is expedient so to do, he may

permit any person to appear before him and call evidence and examine witnesses. Where it appears to the inspector that any degree of responsibility for the accident may be attributable to any person, and if it appears to the Inspector to be practicable so to do that person or, if he be deceased, his legal personal representatives, shall be given notice that blame may be attributed to him and be permitted to make a statement or give evidence and to produced witnesses and to examine any witness from whose evidence it appears he may be blameworthy. The Attorney-General of the Federation may intervene at any stage of an investigation in order to make representations or examine witnesses, if it appears to him expedient so to do in the public interest. Every person summoned by the inspector as a witness shall be allowed such expenses as the Minister may from time to time determine. Where an Inspector's investigation or a public inquiry relates to an accident which occurred in or over Nigeria to an aircraft registered in another country, an accredited representative of that country, or of any country which has, on request, furnished information in connection with the accident, may take part in the investigation or in the inquiry as the case may be; he may be accompanied by such technical and other advisers as may be considered necessary by the authorities of the country that appointed him[35].

Report of Accident Investigation upon completion of an investigation, the Chief Inspector of Accident or such other inspector as may be authorized by the Minister, shall make a report to the Minister. The Chief Inspector of Accidents shall state the circumstances of the case and his conclusions as to the cause of the accident, adding any observations and recommendations which he thinks fit to make with a view to the preservation of life and the avoidance of similar accidents in future and to what extent effect has been given to the provision of paragraph (6) of regulation 8 of this regulation.

The Minister may cause the whole or any part of such report to be made public in such manner as he thinks fit. Where it appears to the Minister that it is expedient to hold a public inquiry into the causes circumstances of an accident, he may direct that a public inquiry be held by a Commissioner referred to as 'the court' who shall be a barrister of not less than 10 years standing appointed by the Chief Justice of Nigeria and in any such case any Inspector's investigation relating to the accident shall discontinued. The court shall be assisted by not 1ess than 2 assessors possessing aeronautical, engineering or other special skill or knowledge one of whom may be the Chief Inspector of Accidents, or one of the Inspectors of Accident[36].

g. Civil Aviation (Air Navigation) Regulations: Has to do with operation of aircraft. Subject to the provisions of paragraph (2) of this regulation, an aircraft shall not fly over Nigeria unless it is registered in Nigeria; or Contracting state; or some other country in relation to which there is in force an agreement between the Government of the Federation of Nigeria and the government of that country which makes provision for the flight over Nigeria of aircraft registered in that country, any aircraft may fly unregistered on any flight which begins and ends in Nigeria without passing over any other country; and is in accordance with the "B Conditions" set fort in the Second Schedule to these Regulations. The Minister may, in such special circumstances and subject to such conditions or limitations as he may think fit, temporarily exempt from the above provisions an aircraft registered elsewhere. If an aircraft flies over Nigeria in contravention of the above provisions in such manner or circumstances that if the aircraft had been registered in Nigeria an offence against these Regulations would have been committed, the like offence shall be deemed to have been, committed in respect of that aircraft. The Minister shall he the authority for the registration of aircraft in Nigeria. An

aircraft shall not be registered or continue to be registered in Nigeria if it appears to the Minister that: the aircraft is registered anywhere outside Nigeria, or an unqualified person is entitled as owner to any legal or beneficial interest in the aircraft or any share therein; or it would be inexpedient in the public interest for the aircraft to be or continue to be registered in Nigeria. An aircraft (other than an aircraft permitted by or under these Regulations to fly without being registered) shall not fly unless it bears painted thereon or affixed thereto, in manner required by the law of the country in which it is registered, the nationality and registration marks required by that law[37].

An aircraft shall not fly without certificate of airworthiness duly issued or rendered valid by the law of the country in which the aircraft was registered and any conditions subject to which the certificate was issued or rendered valid complied with. The Minister may issue, in respect of any aircraft, a certificate of airworthiness if he is satisfied that the aircraft is fit to fly having regard to the design, construction, workmanship and materials of the aircraft including in particular any engines fitted therein), and of any equipment carried in the aircraft which he considers necessary for the airworthiness of the aircraft. Every certificate of airworthiness shall specify such categories as are in rhe opinion of the Minister, appropriate to the aircraft in accordance with the Third Schedule to these Regulations and the certificate shall be issued subject to the condition. An aircraft registered in Nigeria, being an aircraft in respect of which a certificate of airworthiness issued or rendered valid under these Regulations is in force, shall not fly if any part of the aircraft its equipment as is necessary for the airworthiness of the aircraft has been overhauled, repaired, replaced or modified or has been inspected as provided above unless there is in force a certificate of compliance issued in accordance with this regulation and relating to the overhaul, repair, replacement, modification or inspection, as

the case may be: If repair or replacement of a part of an aircraft or its equipment is carried out when the aircraft is at such a place that it is not reasonably practicable for the repair or replacement to be carried out in such manner that a certificate of compliance can be issued under this regulation in respect thereof: or for such a certificate to be issued while the aircraft is at that place, the aircraft may fly to a place at which such a certificate can he issued, being the nearest placeto which the aircraft can in the reasonable opinion of the commander thereof, safely fly by a route for which it is properly equipped, to which it is reasonable to fly having regard to any hazards to the property or health of any person on board, and in such case the commander of the aircraft shall cause written particulars of the flight, and the reasons for making it, to be given to the Minister within ten days thereafter. An aircraft shall not fly unless it is so equipped as to comply with the law of the country in which it is registered, and to enahle lights and markings to be displayed, and signals to be made, in accordance with these Regulations and any regulations made thereunder. An aircraft shall not fly unless **it** is so equipped with radio apparatus as to comply wi*th the* law of the country in which the aircraft is registered and to enable communications to be made, and the aircraft to be navigated, in accordance with the pr*ovisions of these* Regulations and any other regulations made thereunder[39].

An aircraft shall not fly unless it carries a flight crew of the number and description required by the law of the country in which it is registered. An aircraft registered in Nigeria shall carry a flight crew adequate in number and description to ensure the safety of the aircraft and of at least the number and description specified in the certificate of airworthiness issued or rendered valid under these Regulations or if no certificate of airworthiness is required under those Regulations to be in force, *the* certificate of airworthiness, if any, *last* in force under these *Regulations, in res*pect of that aircraft.

Subject to the provisions of this regulation, a person shall not act as a member of flight crew of an aircraft registered in Nigeria unless he is the holder of an appropriate licence granted or rendered valid under these Regulations: The Minister may grant licences subject to such conditions as he thinks fit of any of the following classes: student pilot's licence; private pilot's licence (flying machines); commercial pilot's licence flying machines; commercial pilot's licence (flying achines); airline transport pilots licence (flying machines); Private Pilots licence (balloons and airships); commercial pilot's licence (balloons); *c*ommercial pilot's licence (airships); commercial pilot's licence (gliders); flight navigator's licence; flight Engineer's licence; flight radiotelephony operator s general licence; Right radiotelephony operator s restricted licence; Right radiotelephony operators licence; Flight radiotelephony operator s temporary licence. Upon his being satisfied that the applicant is a fit and proper person to hold the licence and is qualified by reason of his knowledge, experience, competence, skill and physical fitne*ss* to act in the capacity to which the licence relates and for that purpose the applicant furnish such evidence and undergo such examinations and tests (including in particuilar medical examinations) as the Minister may require of him. A licence of any class shall not be granted to any person who is under the minimum age specified for that class of licence under Part A of the Ninth Schedule of these Regulations. Subject to any conditions of the licence, a licence shall entitle the holder to perform the functions specified in respect of that licence in Part A of the Ninth Schedule the heading "privileges": The Minister may issue a certificate of validation rendering valid for the purpose of these regulations any licence of a member of the flight crew of an aircraft granted under the law of any country other than Nigeria. A certificate of validation may be issued subject to such conditions and for such period as the Minister thinks fit.

The operator of an aircraft registered in Nigeria shall not permit the aircraft to fly for the purpose of public transport without first designating from among the flight crew a pilot to be the commander of the aircraft for the flight; and satisfying himself by every reasonable means that the aero-nautical radio stations and navigational aids serving the intended route or any planned diversion therefrom are adequate for the safe navigation of the aircraft; and satisfying himself by every reasonable means that the aerodrome at which it is intended to takeoff or land and any alternate aerodrome at which a landing may be made, are suitable for the purpose and in particular are adequately manned and equipped to ensure the safety of the aircraft and its passengers[40].

The operator of a aircraft registered in Nigeria shall not cause or permit it to be loaded for a flight for the purpose of public transport or any load to be suspended therefrom except under the supervision of a person whom he has caused to be furnished with written instructions as to the distribution and securing of the load so as to ensure that the load may safely be carried in the flight. The commander of an aircraft registered in Nigeria shall satisfy himself before the aircraft takes off that the flight can safely be made, taking into account the latest information available as to the route and aerodromes to be used, the weather reports and forecasts available, and any alternative course of action which can be adopted in case the flight cannot be completed as planned. An aircraft shall not carry any munitions of war, it shall be unlawful for any person to take or cause to be taken on board an aircraft, or to deliver or cause to be delivered for carriage thereon, any goods. Which he knows or has reason to believe or suspect to be munitions of war.

Dangerous goods shall not be carried in an aircraft except as follows: goods carried in accordance with any regulations which the Minister may make to permit

dangerous goods to be carried either in an aircraft generally or in an aircraft of any class or type specified in the Regulations; goods carried with the written permission of the Minister and in accordance with any conditions to which such permission may be subject; goods carried in an aircraft with the consent of the operator thereof for the purpose of ensuring the proper navigation or safety of the aircraft or the wellbeing of any person on board; goods permitted to be carried under the laws of the country in which aircraft is registered, if there is in force in relation to such country an agreement between the Federal Government of Nigeria and the government of that country permitting the carriage of dangerous goods within Nigeria in aircraft registered in that country, Dangerous goods permitted by or under these regulations to be carried in aircraft shall not be loaded as cargo therein unless: the consignor of the goods has furnished the operator of the aircraft with particulars in writing of the nature of the goods and the danger which they give rise to; and the goods or any container in which they are packed are clearly marked so as to indicate the danger to the person loading the goods in the aircraft. The operator of the aircraft shall, before the flight begins inform the commander of the aircraft of the identity of the goods, the danger to which they give rise and the weight or quantity of the goods. It shall be unlawful for any person to take or cause to he taken on board an aircraft or to deliver or cause to be delivered for loading thereon, any goods which he knows or has reason to believe or suspect to be dangerous goods, the carriage of which is prohibited by this regulation. A person shall not willfully or negligently act in a manner likely to endanger aircraft or any person therein.

A person shall not willfully or negligently cause or permit an aircraft to endanger any person or property. A person shall not enter any aircraft when drunk or be drunk in any aircraft. A person shall not, when acting as a member of the crew of any aircraft or

being carried in any aircraft for the purpose of so acting, be under the influence of drink or a drug to such an extent as to impair his capacity so to act. Notices indicating when smoking is prohibited shall be exhibited in every aircraft registered in Nigeria so as to be visible from each passenger seat therein. A person shall not smoke in any compartment of an aircraft registered in Nigeria at a time when smoking is prohibited in that compartment by a notice to that effect exhibited by or on behalf of the commander of the aircraft.

Every person in an aircraft registered in Nigeria shall obey all lawful command of the commander of that aircraft may give for the purpose of securing the safety of the aircraft and of persons or property carried therein, or the safety, efficiency or regularity of air navigation[44]. It shall be the duty of every operator of an aircraft to ensure, in respects of each person flying as a member of the flight crew of that aircraft that the periods during which that *person* is required or permitted by that operator to carry out any work or other duties are so limited in length and frequency, and that that person is afforded such periods for rest, that his said work and duties are not likely to Cause him such fatigue while he is flying in the aircraft as may endanger the safety thereof. For the purposes of securing that the requirements of those provisions are complied with, every operator of an aircraft to which this regulation applies, shall establish for every person flying in that aircraft as a member of the flight crew thereof limits on the aggregate of all his flight times during every period of thirty consecutive days limits on his flying duty periods; and minimum rest periods which he is to have immediately before any duty period in the course of which he makes any such flight as aforesaid, being limits and minimum rest periods which the operator is satisfied after taking into account the nature of the work, and other duties which those persons will carry out and all circumstances arising out of the carrying out of that work and those duties which may affect the degree of fatigue from which

those persons may suffer while they are making a flight, are such that, if every member of the flight crew observes those limits and has those minimum rest periods, the safety of the aircraft on any flight is not likely to he endangered by reason of any fatigue which may be caused by the work or other duties which the members of the flight crew are required or permitted by that operator to carry out. Different limits and different minimum rest periods may be established either for different persons or for different classes of persons and for different circumstances[41].

2. 1.2 Sources Of Aviation Law

Aviation law is derived from several sources such as:

1. Treaties: Further source is international multilateral treaties, which are agreements concluded among states. The most important sources of international air law are conventions and treaties whether multilateral or bilateral. These are written agreement by which two or more states or international organization create or intend to create a relation between themselves.. Other words, used synonymously with treaty are convention, protocol, accord, arrangement, understanding, compromise, regulation, provision, pact, charter, statute, act, covenant, and so on. Operation within the sphere of international law owing to the states' reluctance to relinquish their sovereignty over airspace there is growing list of bilateral and multilateral treaties concerning all aspects of air law such as Paris Convention 1919. This distinguished between scheduled and nonscheduled flights, provided for registration of aircrew, certificate of airworthiness, aircraft, licences, rules of traffic. Paris Convention had 38 states. It defined the right of states in airspace over their territory and established international right of way, laid down elaborate rules governing nationality and registration of aircraft, their fitness for flight, sufficiency of their equipment, competence of aircrew and the flight, navigation and landing of aircraft

engaged in international navigation set up machinery for the enactment and administration of international air law on subjects covered by the Convention. Madrid Convention of 1926 signed by Spain and 20 Latin American states but ratified by only 7 of the signatories and is a dead letter. The Havana Convention 1928 was signed as a result of the refusal of U.S and other South American states to become parties to the Paris Convention. By 1944 Havana Convention was ratified by 16 states. These 3 conventions are superseded and of historic interest only[42]. Convention on the Unification of Certain Rules Relating to damage caused by Aircraft to 3rd party on the surface, Rome 1933. The object is to produce uniformity in place of the existing conflict of differing national laws covering liability of the owner or operator of an aircraft which caused damage to persons or property on the ground or water. The operator was made absolutely liable but limited his liability to a sum proportionate to the weight of the aircraft and to make it compulsory to insure or provide security against his liability. It was ratified by the minimum number of 5 signatories required to bring it into force[43]. The Chicago Convention 1944:during the 2nd world war it became obvious that a new basis for international civil aviation was required which would do away purely regional arrangement and establish a worldwide organisation to deal with available problems thus at a conference held in Chicago the following agreements were signed on 7 December 1944: the final Act, signed by 52 states, an interim agreement signed by 40 states, a Convention on International Civil Aviation signed by 38 states, an International Air Services Transit Agreement known as the transit or 2 freedom agreement, Air Transport Agreement signed by 20 states. Also Chicago Convention 1944 provides for standards and codes of operations for health and safety rules, registration, customs regulations and established International Civil Aviation Organization (ICAO) which adopted the annexes. The annexes are: Annex 1 ‘personnel

licensing' contains standards and recommended practices adopted by the international civil Aviation organization (ICAO) as the minimum standards for personnel licensing; Annex 2 'Rules of the Air' these were adopted by the council as standards and recommended practices relating to rules of the air; Annex 3 'Meteorological Services for international Air Navigation' these are standards and recommend practices relating to meteorology; Annex 4 'Aeronautical Charts' standards and recommended practices for aeronautical charts; Annex 5 'Units of measurement to be used in air and ground Operations are international standards and recommended practices for dimensional units to be used in air–ground; Annex 6 'Operation of Aircraft' these are standards and recommended practices for the operation of aircraft; Annex 7 'Aircraft Nationality and Registration marks' are standards adopted by ICAO as the standards to be displayed of marks to indicate appropriate nationality and registration which have been determined to comply with article 20 of the Convention; Annex 8 'Airworthiness of Aircraft' these are standards and recommended practices for the airworthiness of aircraft; Annex 9 'Facilitation' are standards and recommended practices on facilitation; Annex 10 'Aeronautical Telecommunications' are standards and recommended practices for aeronautical telecommunications; Annex 11 'Air Traffic Service' are standards and recommended practices for air traffic control; Annex 12 'Search and Rescue' are standards and recommended practices for search and rescue; Annex 13 'Aircraft Accident and Incident Investigation' are the standard and recommended practices for aircraft accident; Annex 14 'Aerodromes' these are the standard and recommended practices for aerodromes; Annex 15 'Aeronautical Information Services' these are the standards and recommended practices for aeronautical information services; Annex 16 'Environmental Protection' these are the standards and recommended practices for aircraft noise; Annex

17 'Security' it is for safeguarding civil aviation against acts of unlawful interference and Annex 18 'Safe Transport of Dangerous Goods by Air' this is adopted to achieve compatibility with the regulations covering the transport of dangerous goods by other modes of transport which the international standards and recommended practices and associated procedures (SARPS). The adoption of SARPS is considered one of the most important functions discharged by ICAO in matters concerning the safety, regularity and efficiency of air navigation as may from time to time appear appropriate. This is with view to achieving the highest practical degree of uniformity, in regulations, standards procedures and organisation in relation to aircraft, personnel, airways, and improving air navigation. ICAO was created in 1944 to promote the safe and orderly development of civil aviation worldwide. It is a specialized agency of the UN with Headquarters in Montreal Canada. It develops international air transport standards and regulations and serves as the medium of cooperation in all fields of civil aviation among its 189 contracting states[44]. It defined aviation law as a body of principles and rules of public, private, national or international law, which governs the legal relationship arising from the civilian uses of air transport activities. Convention on the International Recognition of Rights in Airspace Geneva, 1948. It was in force for 11 states. It was designed to protect the rights in aircraft which have been duly constituted and recorded according to the laws of the state of registration. It also includes rights pertaining to property in craft, parts, acquisition, lease for 6 months or more instruments of security for indebtedness. Another important international development was the Tokyo Convention held in 1963. This Convention came about because of increase in incidents like 'hijacks' that ICAO states decided to hold a 'Convention on Offences and Certain Other Acts Committed on Board Aircraft'. The Tokyo Convention determined that signatory states would adopt

appropriate measures to achieve three main aims, should such offences or acts be perpetrated. The aims are to restore control of the aircraft to the lawful undertaking, to permit the passengers to continue their journey, to return the aircraft to the lawful owner.

Under Bilateral air transport agreements, two states may grant each other transit right to fly across each other's state without landing or to land only for the purpose of refueling and repairs, or traffic rights to carry passengers, cargo and mail from grantee state to grantor state or to carry passengers, cargo and mail from grantor state to grantee state or freedom to carry passengers, cargo and mail from grantor and grantee states as well as from or to third state. In 1946 the United States of America and Yugoslavia agreed that in peace time intruding military aircraft should not be shot down without being given opportunity to comply with orders to land[45]. Bilateral treaties are only sources of law for the 2 parties to them.

2. International Customary law: This is the general practice of states that is accepted as custom under certain conditions. Customs remained the most importance source of international law until recently when the situation was changed by the large number of multi-lateral law-making treaties. Customs may be gleaned from the practice of states as in press conferences, official statements, opinions of legal officers, statements and act of state, official instructions to diplomats, consuls, military commanders, decisions of municipal courts and tribunals and the practice of international institutions and tribunals. For rules to become customs, there must be, in the words of ICJ, 'a constant and uniform usage'. *The Aslum case*[46]. International custom is no longer the principal source of international air law however, where there is no treaty covering question of international law, custom will become the source of the rules to be applied. Sovereignty in international law is the right to exercise the function of a state to the exclusion of all other

states in regard to a certain area of the world. It is clear that complete sovereignty extends to the airspace above the territory of the state. In international aviation the concept of sovereignty is the keystone upon which virtually all air law is built. Since any flight in international aviation requires the prior consent of the state over flown, which is usually granted by treaty. In international law in general, sovereignty is also the basis for other fundamental doctrines such as jurisdiction, nationality and responsibility. Jurisdiction is on the basis of nationality, nationality is on the basis of registration, aircraft have the nationality of the state of their registry. In international air law responsibility involve a breach of the provision of a treaty.

3. General Principles of Law Recognized by Civilized Nations: These are principles of equity emanating from practices and consideration of public policy. They are used to fill in lacuna in the law so that the court is not incapacitated from giving a judgment. They are reservoir of principles from which the courts may draw in appropriate cases. They include principles of Roman law, substantive, procedural and evidentiary law common to legal system which exist in both municipal and international laws. *In the Charzow Factory*[47] *(Indemnity) case. The* PCIJ applied the principle of *res judicata* and referred to the general principle of law that a breach of an engagement is followed by reparation in law and a party cannot benefit from his own wrongdoing. These general principles are applied by analogy, and are derived by selecting concepts common to all systems of municipal law. If there is a relevant treaty or custom, general principles do not applied *.the case of Diversion of Water from the Meuse*[48]. Judge Hudson said *the court might apply Anglo-American equitable doctrines as general principles*. The English doctrine of trusts was considered in reviewing the mandate system in Advisory Opinion on *the Status of South West–Africa*[49]. *T*he court referred to circumstantial evidence in the Corfu

Channel[50] case and said: *This indirect evidence is admitted in all systems of law, and its use is recognized by international decisions*.

4. Judicial Decisions: Although subject to article 59 of ICJ Statute, judicial decisions are subsidiary means for determination of the rules of law, they are of some importance in international law. Thus municipal court decisions interpreting the terms of the Warsaw Convention for example, have had profound effect and became important sources. Various international tribunals such as International Court of Justice (ICJ) are given jurisdiction to settle dispute arising in international air law. ICJ may inter alia, entertain disputes concerning international airspace, give advisory opinions to ICAO, determine questions regarding the interpretation or application of individual convention concerning air laws and hear appeals from the decisions of ICAO Council concerning disagreement or complaints. Only states have standing to appear before it. ICJ is the principal judicial organ of UN and is the continuation of the Permanent Court of International Justice (PCIL) created by the League of Nations. The statute of ICJ is based on the statute by the old permanent court and all declarations of acceptance of the jurisdiction of that court or treaties calling for reference to it now apply to the ICJ. It is composed of 15 members sitting at The Hague no two of them are to be nationals of the same state. They are to be independence and are elected regardless of nationality by the General Assembly and Security Council of the UN from list of persons nominated by the national groups in the Permanent Court of Arbitration. Judges are elected for 7years and may be reelected. Decisions are binding upon the parties[61].

5. Principles of Equity: .In *Diversion of Water from the Meuse[52] case* Judge Menley affirmed that the principles of equity were a source of law. Werned Levi concludes that equity, pleaded to rectify unequal obligations imposed on new states may be more

palatable to the older states than the doctrine of unequal treaties. In the view of Akehurst, if equity is a source at all, it is low-ranking in view of the doubts over its existence[53]. There can be no doubt but that equity, in the sense of reasonableness, fairness or mutuality is an important source. Its importance lies in compelling a reasonable interpretation of principles. In the *Continental Shelf (Tunisia-Libya)*[54]. The court said:

> *Equity as legal concept is a direct emanation of the idea of justice. Is bound to apply it ... when applying positive international law, a court may choose among several possible interpretations of the law the one which appears, in the light of the circumstances of the case, to be closest to the requirements of justice.*

In their pursuit of national interests, states give disparate meanings to both treaty and international rules. Sovereignty, for instance, is an undisputed principle of international law but how can a reasonable interpretation be induced in order to prevent a flagrant breach as sometimes takes place? Equity is relevant in the search for the right interpretation or application. If parties were to exchange positions and imagine that the interpretations they advocate be mutually applicable to them, a vista may be opened that conduces to a fair settlement. Equity thus does not go as far as aeguo et bone but has element of it. Equity thus applied, minimizes extreme position and submits states to the scrutiny of certain standards regardless of their relative power position[55].

6. Contracts between airlines: is another source, airlines may come together mainly to improve their operating result, for example, to reduce cost without losing business. The scheduled air carriers agreed among themselves in International Air Transport Association (IATA) upon equal minimum tariff and in 1961 Lufthansa and Alitalia agreed upon their respective quota and formed Air Union[56]. The terms of their contract is a source of aviation law.

7. Contracts between State and Airlines: a state can contract an airline to be her flag

carrier. For instance, Sosoliso Airline was appointed to be Liberia's flag carrier, it started West Coast flights in February 2006 operating from Robertsfield International Airport in Monrovia into cities like Accra, Freetown and Lagos[57]. A state can also grant an airline cabotage right to operate domestically within the state. The terms of the contracts form part of aviation law.

8. British Ordinances on Colonial Aviation: Such as the Air Navigation Act 1920 Section 1 which extended to all the territories within His Majesty's dominion.[58]

2.1.3. Scope Of Aviation Law

Aviation law covers the

a. Medium in which aerial navigation takes place: Aviation law covers the Medium in which aerial navigation takes place that is air the aerial medium where the aircraft fly, its status that it is free to an extent but states have sovereignty over it. It covers flight separation and avoidance of collision covered in Annex 2 'Rules of The Air'[59].

b. Vehicle with which aerial navigation is carried out: It covers the vehicle with which aerial navigation is carried out that is the aircraft itself, its registration; aircraft must possess a nationality by being on the register of a contracting state, maintenance, airworthiness and so on covered in Annex 8 "Airworthiness of Aircraft"[60].

c. Persons and properties which are transported by air are covered as Warsaw Convention 1929 provides for the carrier's liability if during carriage by air a passenger is killed or injured, or his baggage or possession are lost or destroyed, also liable for damage caused by delay[61].

d. Travel by air and the legal implications which arise are covered. For example in the area of jurisdiction Tokyo Convention 1963 On Offence And Other Acts Committed On Board Aircraft ensures that offenders are punished and resolved jurisdiction conflict by

stating that the state involved has jurisdiction, other states may exercise jurisdiction if: the offence has effect in their territory or is against their security; the offence was committed by or against a national or permanent resident; the offence relates to the rules of navigation in the state; the exercise of jurisdiction is in furtherance of an obligation under a multilateral treaty. Also International Convention Against Taking Of Hostages 1979 deals with international terrorism that parties can either prosecute or extradite the offender to the state wishing to try him[62]. Besides, the question as to whether an invasion of air space above an owner's land is a trespass or nuisance was settled in the case of Swetland V Curtis Airport Corporation supra, which has to do with flying an aeroplane through the airspace of a landowner. The United States Court of Appeal, sixth circuit, rejected the view that all decision concerning air space must be decided upon the theory of nuisance rather than that of trespass. It refused to hold that in every case it is a trespass against the owner of the soil to fly an aeroplane through the air space overlying the surface. This does not mean the owner of the surface has no right at all in the air space above his land. He has a dominant right of occupancy for purposes incident to his use and enjoyment of the surface, and there may be such a continuous and permanent use of the lower stratum which he may reasonably expect to use or occupy himself as to impose a servitude upon his use and enjoyment of the surface. As to the upper stratum which he may not reasonably expect to occupy, he has no right except to prevent the use of it by others to the extent of an unreasonable interference with his complete enjoyment of the surface. That his remedy for this latter use is an action for nuisance and not trespass.

2.2 THE PARIS CONVENTION 1919

When the First World War ended, an Aeronautical Commission was established to advice the Peace Conference at Versailles on all air matters and also to draft a

convention for the general regulation of post-war international aviation. The Treaty of Versailles itself, signed on 28 June 1919, contained a number of articles aimed at preventing the restoration of Germany's air power For example, Germany was forbidden to have military or naval air forces and temporarily the aircraft of the Allied and Associated Powers were to have rights of passage, transit and landing in German territory. The same philosophy of discrimination against Germany dominated the Convention for the Regulation of Aerial Navigation agreed in Paris on 13 October 1919. In Article 1 of this Convention the High Contracting Parties recognized 'that every Power has complete and exclusive sovereignty over the airspace above its territory' - territory for this purpose being defined as including adjacent territorial waters. This statement of historic significance in the evolution of air law was followed up in Article 2 by a provision to the effect that 'each contracting state undertakes in time of peace to accord freedom of innocent passage above its territory to the aircraft of the other contracting states, provided that the conditions laid down in the present convention are observed'. Thus, whilst sovereignty over the air space above its territory was asserted as a right of all states under customary international law (except where expressly derogated from, as in certain provisions of the Treaty of Versailles), freedom of passage for foreign aircraft was set forth merely as a contractual right under the Convention to which Germany was forbidden to become a party for the time being (Article 42). Further, under Article 3 of the Convention, contracting states were given the right 'for military reasons or in the interest of public safety' to prohibit the aircraft of the other contracting states from flying over certain areas of their territory, provided no discrimination was shown in favour of their own aircraft.[63]

On the whole, however, the Convention was inspired by a liberal spirit. Following

ideas already sketched out in Fauchille's code of 1902 and in the abortive draft convention of 1910, the scheme was that all aircraft should possess a nationality through being on the register of a contracting state; that the state where the aircraft was registered should be responsible for issuing certificates of airworthiness to the aircraft and of certificates of competency and licences to the crew; that these certificates should be recognized as valid by the other contracting states; and that aircraft thus certificated should be permitted certain rights of flight in territory of each contracting state.[48] There were naturally certain restrictions. Apart from the prohibited areas already mentioned, each contracting state was given the 'right to establish reservations and restrictions in favour of its national aircraft in connection with the carriage of persons and goods for hire between two points on its territory' (Article 16). This was the 'cabotage' right, named after the similar right which coastal states enjoy as regards maritime traffic. States were also given complete power to prohibit or regulate the carriage or use of photographic apparatus (Article 27). 'State aircraft', defined as (a) Military aircraft and (b) Aircraft exclusively employed in state service, such as posts, customs and police, were excluded from the scheme (Article 30). But aircraft engaged in commerce, even if owned by a state or by a state-supported corporation, were treated as 'private aircraft' and entitled to the benefits of the Convention – a most significant and progressive step. Finally, in case of war, the provisions of the Convention were not to affect the freedom of action of the contracting states, either as belligerents or as neutrals (Article 38).[64]

There was also to be constituted an International Commission for Air Navigation (usually known as CINA after its French initials 'Commission Internationale de Navigation Aerienne'), whose main task would be to keep up to date the technical provisions of the Convention. These were embodied in Annexes (save for Annex H,

which dealt with customs matters) could be amended by a qualified majority vote within the commission. The latter was thus given limited quasi-legislative powers, a significant stage in the evolution of international institutions. The greatest uncertainty surrounded the extent of the freedom of innocent passage granted under Article 2. This should have been cleared up by Article 15, which however, only succeeded in complicating the situation. This article provided that 'every aircraft of a contracting state has the right to cross the airspace of another state without landing'. Such aircraft were, however, required to follow the route fixed by the subjacent state and could 'for reason of general security' be obliged to land. Moreover, all aircraft passing 'from one state into another' could be required to land at one of the aerodromes 'fixed by the latter'. Finally, and most ambiguously of all, it was provided that 'the establishment of international airways shall be subject to the consent of the states flown over. The latter provision, in the British view, was intended to refer to the navigational practice of aircraft flying regularly along a fixed route. However, it could be interpreted to mean that the establishment of a commercial route itself, operated by an airline company, should be made subject to the consent of the state flown over. This matter was argued about for many years, but finally, on 15 June 1929, at an extraordinary session of the International Commission for Air-Navigation in Paris, an amendment was adopted stating definitely that the provision was to be understood in the latter restrictive sense, viz: 'Every contracting state may make conditional on its prior authorization the establishment of international airways and the creation and operation of regular international air navigation lines, with or without landing on its territory'.At the same meeting in 1929 the opportunity was taken to make Article 3 more restrictive in the sense that, if a state declare a prohibited area, it was now to be allowed 'as an exceptional measure and in the interest of public safety', to authorize

flights over the area by its own national aircraft. A state was also to be allowed, 'in exceptional circumstances in time of peace and with immediate effect temporarily to restrict or prohibit flight over its territory or over part of its territory on condition that such restriction or prohibition shall be applicable without distinction of nationality to the aircraft of all the other states,` but while discrimination must be avoided as between`, all the other states, a state was, under this provision, too, entitled to reserve the right of flight to its own aircraft. Ultimately thirty-eight states became parties to the Paris Convention. They included Great Britain and the Dominions, nineteen European States, eight Latin-America States, Iran, Iraq, Japan and Siam. Significant absentees were Germany, the Soviet Union and the United States.[65]

Despites its failures to guarantee effectively the right of flight, and despite the limited number of states that were parties to it, the Paris Convention, supplemented as it was by many bilateral agreements, provided a framework in which international civil aviation was able, if not to flourish, at least to expand between the two world wars. In order to give effect to the Convention, the British Parliament passed the Air Navigation Act, 1920. Under Section 1 of this Act, power was conferred on His Majesty to make Orders in Council for the purpose of carrying out the Convention, including any amendments that might be made to it. Section 3 enumerated a long list of purposes connected with the control of air navigation for which Orders in Council might also be made, thus enabling the Acts of 1911 and 1913 to be repealed. Section 9 enacted the important principle that `No action shall lie in respect of trespass or in respect of nuisance, by reason only of the flight of aircraft over any property at a height above the ground, which, having regard to wind, weather and all the circumstances of the case is reasonable, or the ordinary incidents of such flight, so long as the provisions of this Act

and any Order made thereunder and of the Convention are duly complied with'. The effect of this Section has been virtually to prevent the courts from having to deal with litigation of a type that has been fairly common in the United States. Finally, it is interesting to note that the Preamble of the 1920 Act, using words in some respects similar to those of the Territorial Waters Jurisdiction Act, 1878, asserts the following: Whereas the full and absolute sovereignty and rightful jurisdiction of His Majesty extends, and has always extended, over the air superincumbent on all parts of His Majesty's dominions and the territorial waters adjacent thereto…[66]

2.3 MADRID CONVENTION 1926 AND HAVANA CONVENTION 1928

In addition to the Paris Convention, a Convention was signed in Madrid in 1926 by Spain and a few Latin-American States, and another one in Havana in 1928 by the U.S.A and rather more Latin-American States. Only seven States ratified the former Convention, and only sixteen the latter. Neither resulted in the establishment of an organization as productive as CINA[67]. At a time when the range of aircraft was limited, these regional Conventions played a useful, if limited, role in the elaboration of air Law. It is useless to pretend, however that aviation can be regulated satisfactorily otherwise than on a world basis. Fortunately, the division of the world into separate Convention areas did not prevent a coming together over what was, from the ordinary passenger's point of view, a most important matter. This was the question of the unification of the rules relating to international carriage by air, especially as regards the liability of carriers for `damage sustained in the event of the death or wounding of a passenger or any other bodily injury suffered by a passenger, if the accident which caused the` damage so sustained took place on board the aircraft or in the course of any of the operations of embarking or disembarking', for 'damage sustained in the event of the destruction or loss

of, or to any registered luggage or any goods, if the occurrence which caused the damage so sustained took place during the carriage by air', or for `damage sustained by delay in the carriage by air passengers, luggage or goods'. Such was the main subject matter of the Convention signed at Warsaw on 12 October 1929, which was made part of English law by means of the Carriage by Air Act, 1932. This Convention is still in force, and there are now more than seventy parties to it – far more if one counts separately all the various territories in respect of which the United Kingdom is a party. The United States also became a party to the Convention in 1934. For the convenience of the courts, the legal profession, the airlines and the traveling public, the British Government issues from time to time Carriage by Air (Parties to Convention) Orders. Based on information received from the Polish Government the custodian of the Convention, these keep interested persons informed as to who are the parties to the Convention and in respect of what territories they are respectively parties.[68]

2.4 HAGUE CONVENTION 1955 AND GUADALAJARA CONVENTION 1961

The Warsaw Convention has since been amended by a Protocol concluded at the Hague on 28 September 1955, and supplemented by a Convention concluded at Guadalajara in Mexico on 18 September 1961. Powers have been taken under the Carriage by Air Act, 1961, and the Carriage by Air (Supplementary Provisions) Act, 1962, to bring these changes into force, so far as the United Kingdom is concerned. The Warsaw and Guadalajara Conventions, and the Hague Protocol, operate largely in the field of private law, These are, however, of capital importance in air law, and they deserve to be mentioned here as ultimate by-products of the Paris Convention. Although the Convention was not directly concerned with the private international air law, CINA had its seat in Paris, and in that city there met in 1925 upon the invitation of the French

Government, the first International Conference on Private Air Law. This initiative led to the establishment of the 'Comite Internationale Technique d'Experts Juridiques Aeriens (CITEJA), the forerunner of the present Legal Committee of ICAO and equivalent, in the air law field of the international law Commission of the United Nations. In addition to the question of the liability of air carriers (brought to a successful conclusion at Warsaw in 1929), a number of other important matters were referred to CITEJA. They included damage caused by aircraft to property or persons on the ground; compulsory insurance; air collisions; and the legal status of the commanding officer of an aircraft. Some progress has been made with the questions originally referred to CITEJA, as well as with others, but, on the whole, apart from the questions dealt with at Paris in 1919 and at Warsaw in 1929, air law has proved remarkably resistant not merely to change and growth but even to the initial elaboration of its basic rules. The reason is not far to seek. From the early preoccupation with the threat to security caused by photographically-equipped balloons down to the present desire to operate airlines as symbols of recently-won independence, aviation is a matter, which Governments have never been content to leave to private initiatives or to market forces. Never, as a matter of fact, was the political aspect more to the fore than it was during the inter-war period. It was only too well understood that, just as the great expansion of civil aviation was made possible by the availability after the war of large numbers of surplus military aircraft, so these aircraft, and their successors, could readily be converted back to their original use. For this very reason it was to the Disarmament Conference in 1932 that the French Government submitted, in addition to a proposal to prohibit air attacks against civilians and indeed to abolish bombardment from the air altogether, a plan for the internalization of civil air transport under a regime organized by the League of Nations. The proposal came to

nothing.[68]

2.5 CIVIL AVIATION UNDER CHICAGO CONVENTION 1944

During the wars, President Rosevelt realized the necessity of providing a sound basis for the organisation of civil aviation after the war. He therefore invited a large number of Governments to attend a Conference in Chicago. 52 Governments attended. Implicit in this was the recognition that it would no longer do to organize civil aviation on a partial or regional footing. Owing to the increased range of aircraft nothing less than a worldwide arrangement would suffice. The most important achievement of the Conference was the formulation of the Convention on International Civil Aviation. Part II of this Convention is the constitution of the International Civil Aviation Organisation (ICAO) it came into force on 4th April 1947. In the intervening period there was in existence a Provisional Civil Aviation Organisation (PICAO), established on 6th June 1945 and operated under an interim Agreement on International Civil Aviation also concluded at the Chicago Conference[69].

The Chicago Convention drew up two other agreements namely. The International Air Services Transit Agreement known as the 'Two-Freedoms Agreement. and the International Air transport Agreement known as the 'five-freedoms' agreement. The Convention also adopted a number of resolutions in which it resolved that certain studies technical matters of the kind dealt with in the annexes in the Paris Convention, which had been carried on at Chicago but not completed, be accepted as models for the annexes to the new Chicago Convention. In another, the conference recognizing the part bilateral agreements would play in developing international civil aviation, prepared a form of Standard Agreement for Provisional Air Routes: It was recommended that the states parties to such agreements set out in the annex thereto a description of the routes

and of the rights granted whether of transit only, of non-traffic stops or of commercial entry as the case may be and the conditions incidental to the granting of the rights and that the agreements themselves provide for such matters as equality of treatment in airport charges and the right to bring in fuel, lubricating oil and spare parts. Further, the agreement should provide for exemption from customs duties of the fuel, lubricating oil, spare parts, regular equipment and aircraft stores retained on board civil aircraft of the airlines of the contracting parties authorised to operate the routes and services described in the annex', and should allow contracting states to revoke a permit granted to the airline or another state in cases where such parties are not satisfied that substantial ownership and effective control of the airline in question are vested in nationals of a party to the agreement or in case of failure of an airline to comply with the laws of the state over which it operates or to perform its obligations under the agreement. The Convention has three main parts. Part 1 deals with Air Navigation, Part II is the constitution of ICAO, Part III deals with 'International Air Transport'. Although there is no rigid dividing line and both raise issue of great legal importance, it may be generally said that "air navigation" refers to the technical and operational aspects, of civil aviation, and 'air transport' to the commercial and economic aspects. In the preamble the parties to the Convention mentioned their desire 'that international civil aviation may be developed in a safe and orderly manner and that international air transport services may be established on the basis of equality of opportunity and operated soundly and economically.[70]

Despite the provisions of ICAO individual states still have their local civil aviation laws that govern their national civil aviation activities. However, those domestic laws must be in substantial conformity with the international standards developed by ICAO. Thus, Gary V. Bristow states:

"When flying over or even landing at a foreign state, you must obey

the law of the country. Therefore your aircraft is not to be used for a purpose that is prejudicial to the security, public order, health, or safety of air navigation in relation to the country. However, whenever your own country's (i.e. the country of the aircraft's registration) legislation (on any particular issue) is more limiting, then this should take precedence and should be adhered to".[71]

The types of air space are:[72] controlled airspace which is an airspace of defined dimension within which air traffic control services is provided to instrument flight Rules (IFR) flight and visual flight Rule (VFR) flight in accordance with the airspace classification; advisory airspace is an airspace of defined dimension or designated route, within which air traffic advisory service is available; uncontrolled airspace is the remainder of the flight information region (FIR) and classification of airspace from A-G.

2.6 DUTIES OF AIRLINES, AIRCREW PERSONNEL AND PASSENGERS IN ENSURING FLIGHT SAFETY

To ensure flight safety, ICAO obligates the entities involved in air travel to perform certain responsibilities because all hands must be on deck to encourage aviation sector as traveling by air still remains the safest means of transportation in the world.

2.6.1 DUTIES OF AIRLINES

An operator or airliner shall establish and maintain an accident prevention and flight safety programme. An operator shall ensure that all employees when abroad know that they must comply with the laws, regulations and procedures of the states in which their operation are conducted. Operator shall ensure that all pilots are familiar with the laws, regulations and procedures, pertinent to the performance of their duties, prescribed for the areas to be traversed, the aerodromes to be used and the air navigation facilities relating thereto. The operator shall ensure that other members of the flight crew are familiar with such of these laws regulations and procedures as are pertinent to the

performance of their respective duties in the operation of the aeroplane. An operator or a designated representative shall have responsibility for operational control (the rights and obligations of a state in respect to the operation of aeroplane registered in that state are not affected by this provision) [73].Operator shall ensure that pilot-in-command have available on board the aeroplane all the essential information concerning the search and rescue services in the areas over which the aeroplane will be flown. For each flight, the operator shall designate one pilot to act as pilot-in- command. An operator shall formulate rules to limit flight time and flight duty periods and for the provision of adequate rest periods for all its crewmembers. These rules shall be in accordance with the regulations established by the state of the operator or approved by that state and included in the operating manual. An operator shall maintain current records of the flight time, flight duty periods and rest periods of all its crewmembers[74]. An operator shall ensure that passengers are made familiar with the locations and use of seat belt, emergency exits, life jackets if the carriage of life jackets is prescribed, oxygen dispensing equipment, if the provision of oxygen for the use of passengers is prescribed, other emergency equipment provided for individual use, including passengers emergency briefing cards. The operator shall inform the passengers of the location and general manner of use of the principal emergency equipment carried for collective use. In an emergency during flight, passengers shall be instructed in such emergency action as may be appropriate to the circumstance. The operator shall ensure that during take-off and landing and whenever, due to turbulence or any emergency occurring during flight, the precaution is considered necessary, all passengers on board an aeroplane shall be secured in their seats by means of the seat belt or harness provided. The operator shall provide operations staff and flight crew with an aircraft-operating manual, for each aircraft type operated, containing the

normal, abnormal and emergency procedure relating to the operation of the aircraft. The manual shall include details of the aircraft systems and of the checklists to be used. The flight manual contains the information specified in annex 8. The flight manual shall be updated by implementing changes made mandatory by the state of registry. Operators shall ensure that in accordance with procedures acceptable to the state of registry: each aeroplane they operate is maintained in an airworthy condition; the operational and emergency equipment necessary for an intended flight are serviceable and the certificates of airworthiness of each aeroplane they operate remains valid[75]. An operator shall not operate an aeroplane unless it is maintained and released to service by an organisation approved in accordance with chapter 8.7 of annex 6 or under an equivalent system, either of which shall be acceptable to the state of registry. When the state of registry accepts an equivalent system, the person signing the maintenance release shall be licensed in accordance with annex 1. Chapter 8.7 of annex 6 states that a maintenance release shall be completed and signed to certify that the maintenance work performed has been completed satisfactorily and in accordance with the procedures described in the maintenance organization procedure manual. A maintenance release shall contain a certification including: basic details of the maintenance carried out; date such maintenance was completed; when applicable identity of the approved maintenance organisation; the identity of person or persons signing the release. An operator shall employ a person or group of persons to ensure that all maintenance is carried out in accordance with the maintenance control manual. The operator shall ensure that the maintenance of its aeroplane is performed in accordance with the maintenance programme[76].

An operator shall ensure that all operations personnel are properly instructed in

their particular duties and responsibilities and the relationship of such duties to the operation as a whole. An aeroplane shall not be taxied on the movement area of an aerodrome unless the person at the controls: has been duly authorised by the operator or a designated agent; is fully competent to taxi the aeroplane; is qualified to use the radio telephone; has received instruction from a competent person in respect of aerodrome layout, routes, signs, marking, lights, ATC signals and instructions, phraseology and procedures, and is able to conform to the operational standards required for safe aeroplane movement at the aerodrome. The operator of an aeroplane over 5700kg maximum certificated take-off monitor and assess maintenance and operational experience with respect to continuing air worthiness and provide the information as prescribed by the state of registry and report through the system specified in annex 8, Part II, 4.2.5 and 4.2.8. The operator of aeroplane over 5,700kg maximum certificated take-off mass shall obtain and assess continuing airworthiness information and recommendations available from the organisation responsible for the type design and shall implement resulting actions considered necessary in accordance with a procedure acceptable to the state of registry. An operator shall not assign a pilot to act as pilot–in–command of an aeroplane unless, on the same type of aeroplane within the preceding 90days, that pilot has made at least three take offs and landings. An operator shall not assign a co-pilot to operate at the flight control during take off and landing unless on the same type of aeroplane within the preceding 90 days that co-pilot has operated the flight controls as pilot-in-command or as co-pilot, during three take offs and landings or has otherwise demonstrated competence to act as co-pilot, as a flight simulator approved for the purpose. An operator shall not utilize a pilot as a pilot-in-command of an aeroplane on a route or route segment for which that pilot is not currently qualified until such pilot has

complied with annex 6 chapters 9:4 3.2 and 9.4.3.3 [77]:

An operator shall not continue to utilize a pilot as a pilot–in–command on a route unless within the proceeding 12 months, the pilot has made at least one trip between the terminal points of that route as a pilot member of the flight crew, or as a check pilot, or as an observer on the flight deck. In the event that more than 12 months elapse in which a pilot has not made such a trip on a route in close proximity and over similar terrain, prior to again serving as a pilot-in-command on the route, that pilot must re-qualify in accordance with 9.4.3.2. and 9.4.3.3. An operator shall assure that piloting technique and the ability to execute emergency procedures is checked in such a way as to demonstrate the pilot's competence. Where the operation may be conducted under instrument flight rule (1FR), an operator shall ensure that the pilot's competence to comply with such rule is demonstrated to either a check pilot of the operator or to a representative of the state of the operator. Such checks shall be performed twice within any period of one year. Any two such checks which are similar and which occur within a period of four consecutive months shall not alone satisfy this requirement. In all aeroplanes equipped with a flight crew compartment door, this door shall be capable of being locked. It shall be locked from within the compartment only. An operator shall ensure that there is on board a checklist of the procedures to be followed in searching for bomb in case of suspected sabotage. The checklist shall be supported by guidance on the course of the action to be taken should a or suspected object be found and information on the least-risk bomb location specific to the aeroplane. Specialized means of attenuating and directing the blast should be provided for use at the least-risk bomb location. An operator shall establish and maintain a training program, which enables crewmembers to act in the most appropriate manner to minimize the consequences of acts of unlawful interference. An

operator shall also establish and maintain a training programme to acquaint appropriate employees with preventive measures and techniques in relation to passengers baggages, cargo, mail, equipment, stores and supplies intended for carriages on an aeroplane so that they contribute to the prevention of acts of sabotage or other forms of unlawful inerference[78].

An operator shall establish, to the satisfaction of the state of the operator, the minimum number of cabin crew required for each type of aeroplane, based on seating capacity or the number of passengers carried, in order to effect a safe and expeditious evacuation of the aeroplane, and the necessary function to be performed in an emergency or a situation requiring emergency evacuation. The operator shall assign these functions for each type of aeroplane. An operator shall establish and maintain a training programme approved by the state of the operator, to be completed by all persons before being assigned as a cabin crewmember. Cabin crew shall complete a recurrent training programme annually. These training programmes shall ensure that each person is a. competent to execute those safety duties and functions which the cabin crew member is assigned and to perform in the event of an emergency or in a situation requiring emergency evacuation; b. drilled and capable in the use of emergency and life saving equipment required to be carried, such as life jackets, life rafts, evacuation slides, emergency exits, portable fire extinguishers, oxygen equipment and kits; c. when serving on aeroplanes operated above 3,000m (10,000ft), knowledgeable as regards the effect of lack of oxygen and in the case of pressurized aeroplane, as regards physiological phenomena accompanying a loss of pressurization; d. aware of other crew members' assignments and functions in the event of an emergency so far as is necessary for the fulfillment of the cabin crew member's own duties; e. aware of the types of dangerous

goods which may and may not be carried in a passenger cabin and has completed the dangerous goods training programme required by Annex 18; and f. knowledgeable about human factor performance as related to passengers cabin safety duties including flight crew–cabin crew co-ordination[79].

An operator shall not accept dangerous goods for transport by air unless the dangerous goods are accompanied by a completed dangerous goods transport document, except where the technical instructions indicate that such a document is not required and until the package, overpack or freight container containing the dangerous goods has been inspected in accordance with the acceptance procedures contained in the technical instructions. An operator shall develop and use an acceptance checklist as an aid to compliance with the above provision. Inspection for damage or leakage or danger before loading on an aircraft or into a unit load device. Leaking or damaged packages, overpacks or flights containers shall not be loaded on an aircraft. A unit load device shall not be loaded aboard an aircraft unless the device has been inspected and found free from any evidence of any leakage from, or damage to, any dangerous goods contained therein. Where any package of dangerous goods loaded on an aircraft appears to be damaged or leaking, the operator shall remove such package from the aircraft, or arrange for its removal by an appropriate authority or organization, and thereafter shall ensure that the remainder of the consignment is in a proper condition for transport by air and that no other package has been contaminated. Packages or overpacks containing dangerous goods and freight container containing radioactive materials shall be inspected for signs of damage or leakage upon unloading from the aircraft or unit load device. If evidence of damage or leakage is found, the area where dangerous goods or unit load were stowed on the aircraft shall be inspected for damage or contamination.

Dangerous goods shall not be carried in an aircraft cabin occupied by passengers or on the flight deck of an aircraft, except in circumstances by the provisions of the technical instructions. Any hazardous contamination found on an aircraft as a result of leakage or damage to dangerous goods shall be removed without delay. An aircraft which has been contaminated by radioactive materials shall immediately be taken out of service and not returned to service until the radiation level at any accessible surface and the non-fixed contamination are not more than the values specified in the technical instructions. Packages containing dangerous goods which might react dangerously one with another shall not be stowed on an aircraft next to each other or in a position that would allow interaction between them in the event of leakage. Packages of poisons and infections substances shall be stowed on an aircraft in accordance with the provisions of the technical instructions. Packages of radioactive materials shall be stowed on an aircraft so that they are separated from persons, live animals and undeveloped film, in accordance with the provision of the technical instructions. When dangerous goods subject to the provisions contained herein are loaded in an aircraft, the operator shall protect the dangerous goods from being damaged, and shall secure such goods in the aircraft in such a manner that will prevent any movement in flight which would change the orientation of the packages. For packages containing radioactive materials, the securing shall be adequate to ensure that the separation requirements of 8.6.3 are met at all times. Except as otherwise provided in the technical instructions, packages of dangerous goods bearing the “Cargo aircraft only” label shall be loaded in such a manner that a crew member or other authorized person can see, handle and, where size and weight permit, separate such packages from other cargo in flight[80].

2.6.2 DUTIES OF CREW MEMBERS

The pilot-in-command shall be responsible for the operation and safety of the aeroplane and for safety of all persons on board, during flight time. In case of incident the pilot-in-command shall notify the incident to the Director General of Civil Aviation within 48 hours of its occurrence. Pilot-in-command shall ensure that the approved checklist specified in annex 6 chapter 4.2.5 are complied with in detail. The pilot-in-command shall be responsible for notifying the nearest appropriate authority by the quickest available means of any accident involving the aeroplane resulting in serious injury or death of any person or substantial damage to the aeroplane or property. The pilot-in-command shall be responsible for reporting all known or suspected defect in the aeroplane to the operator at the termination of the flight. Pilot-in-command shall be responsible for certifying the journey log book or the general declaration containing the information listed in annex 6 chapter 11.5.1. (Equivalent document). If any emergency situation which endangers the safety of the aeroplane or persons necessitates the taking of action which involves violation of local regulations or procedures, the pilot-in-command shall notify the appropriate local authority without delay. If required by the state in which the incident occurred, the pilot–in–command shall submit a report on any such violation to the appropriate authority of such state; in that event, the pilot-in-command shall also submit a copy of it to the state of the operator. Such reports shall be submitted as soon as possible and normally within 10 days. The checklists provided in accordance with annex 6 chapter 6.1.3 shall be used by flight crews priors to, during and after all phases of operation and in emergency to ensure compliance with the operating procedures contained in the aircraft operating manual or other documents associated with the certificate of airworthiness and other operations manual. The design and utilization

of checklist shall observe human factor principles. Following an act of unlawful interference the pilot-in-command shall submit without delay, a report of such an act to the designated local authority[81].

Besides, a flight dispatcher when employed in conjunction with a method of flight supervision in accordance with annex 6 chapter 4.2.1 shall assist the pilot–in–command in preparation and provide the relevant information required; assist the pilot-in-command in preparing the operational air traffic service (ATS) flights plans, sign when applicable and file the ATS flights plan with the appropriate ATS; furnish the pilot-in-command while in flight by appropriate means with information which may be necessary for the safe conduct of the flight, and in the event of an emergency, initiate such procedures as may be outlined in the operations manuals. Shall avoid taking any action that would conflict with the procedures established by: air traffic control, The meteorological service; or the communication service. Moreover, all flight crewmembers required to be on flight deck duty shall remain at their stations en route except when their absence is necessary for the performance of duties in connection with the operation of the aeroplane or for physiological needs. All flight crewmembers shall keep their seat belts fastened when at their stations. Any flight crewmember occupying a pilot's seat shall keep their safety harness (includes shoulder straps and a seat belt which may be used independently) fastened during take-off and landing phases, all other flight crew members shall keep their safety harness fastened during the take-off and landing phases unless the shoulder straps interfere with the performance of their duties, in which case the shoulder straps may be unfastened but the seat belt must remain fastened[82].

Furthermore, cabin crew members assigned to emergency evacuation duties shall occupy a seat provided in accordance with annex 6 chapter 6.16 during take off and

landing whenever the pilot-in-command so directs. Each crewmember shall be seated with belt or, when provided safety harness fastened during take-off or and landing and whenever the pilot-in-command so directs[83].

State of the operator shall establish regulations specifying the limits applicable to flight time, flight duty periods and rest period for cabin crew[84]. Its major duty is that of oversight ensuring through her civil aviation authority (CAA) that operators function according to laid down rules.

2.6.3 Duties Of Passengers

The passengers must obey the rules concerning dangerous goods by not carrying forbidden items on board an aircraft such as: matches, cigarette lighter, they may carry them only in their hand luggage. All kinds of flammable liquids, paint, varnishes, and adhesive, such solvents as thinner and acetone, flammable gases, like lighter or camping gas refills, explosives, fireworks and signal flares, aerosols, pesticides, bleaches, and cleaners are all forbidden. Magnetic items may disturb the function of the aircraft instruments, and radioactive items may cause damage through radiation. So passengers must not carry them. Passengers are not to use Radio, small video camera, CD player, cellular telephone, remote control toys because they can disturb the navigation system of the aircraft, but can pack them in their luggage with their batteries removed[85]. Most airlines print in their timetable the restrictions concerning hazardous items. Passengers ticket also has a listing of items and goods that are restricted. Therefore passengers should obey the rules concerning dangerous goods so as to ensure flight safety.

The precautionary measures they took helped in averting disaster. Airlines contributed by keeping their planes in good condition through checking and servicing at regular intervals. Stress corrosion cracks were discovered in the front spar of the centre

section of horizontal stabilizer in two Boeing 737-100, 200 and 200C series airplanes during regular maintenance which led the Federal Government of Nigerian to ground Boeing 737-100, 200 and 200C series of aircraft in the country based on U.S. Federal Aviation Administration (FAA) maintenance report[86]. Also by operating modern range of aircraft for example Aero Contractors acquired Dush 8-300 aircraftand Cuba purchased 5 new passenger jets to replace Soviet-era aircraft[87]. Besides, states perform their oversight duty, in 2003 aircraft that were 22years and above were ban in Nigeria[88]. Recently NCAA grounded Kings Airline and Sudan Airways for safety lapses. It also upgraded Lagos instrument landing system (ILS) to category (CAT.111). ILS is used by pilots for precision approach and landing on the runway. Recently the authorities of PortHarcourt International Airport shot down operations for three hours due to heavy rain to avoid a repeat of the 10 December 2005 episode in which Sosoliso aircraft crashed due to poor weather[89]. The top Management of Premium Shuttle was given 7days ultimatum within which to employ the services of a quality Assurance Manager and show evidence of compliance without which the authority would have to carry out a review of its Air Operating Certificate. The Management of FAAN directed the Fire and Safety Department to enforce regulations barring the refueling of aircraft while passengers are boarding or on board[90]. NAMA introduced slot allocation system (SAS) for both foreign and domestic airlines. SAS provides for and ensures that airlines stick to approved time frame for departures and arrivals. It improves air traffic control capacity and decreases congestion within the airspace[91]. States are more security conscious now than ever before which led to the abortion of al-Qaida plot to cause another air disaster recently and there is international exchange of information on terrorism. Following security alarm raised on 10 August 2006 by British Airport Authority (BAA) at Heathrow Airport in London, the

Federal Government beefed up security and imposed strict screening of passengers at Murtala Mohammed Airport Lagos. There is now 100% body search in all international airports in Nigeria as a result of global tendency. British authorities sent a signal to other countries including Nigeria to beef up security at airports due to alleged threats that terrorists could simultaneously blow up several aircrafts heading to US by using explosives smuggled in through luggages. Security experts are already in Nigeria to assess the security situation in the country. Officials searching for explosives barred nearly every form of liquid outside baby formula. US Homeland Security Secretary Michael Chertoff, said the terrorists planned to use liquid explosives disguised as beverages and other common products and set them off with detonators disguised as electronic devices. Washington raised threat alert to its peak for commercial flights from Britain to US amid fears that the plot has not been completely crushed. The alert for all flights coming into or going out of US was also raised. Police arrested 24 persons in that regard US officials said it had sign of an al-Qaida plot[92] Moreover, the Brazilian pilot Charles and 2 other crew members of a 10-seater Cessna 208 plane belonging to Messrs Fugo Canada, on aerial survey on behalf of Federal Ministry of Solid Mineral on discovering that it was impossible to continue the journey due to declining fuel and invisibility problems caused by heavy rain decided to bring the aircraft down at the available space along Lagos-Abeokuta expressway at Itori Ogun State[93]. Besides, recently, pilot of Chanchangi Airlines made an air return to its point of take off Murtala Mohammed Airport Lagos, on discovering problem with the aircraft's cabin coupling. So also the pilot of the presidential jet made an air return to Nnamdi Azikiwe International Airport Abuja due to technical problem few minutes after takeoff for France with President Obasanjo and his aides on board[94] thus saving the nation great tragedy.

Passengers submit themselves for screening and not caught with forbidden items.

2.7 SAFETY STANDARDS

ICAO general standard for flight safety and recommended practices and associated procedures (SARPs) are contained in the annexes. So operators and contracting states are expected to establish their own flight safety standards and programme in line with SARPs. Thus Annex 6 provides in its chapter 1.6 that an operator shall establish and maintain an accident prevention and flight safety programme. Also annex 17 chapter 3.1.2 provides that each contracting state shall ensure that the objective of their national civil aviation security programme shall be to safeguard international civil aviation operations against acts of unlawful interference through regulations, practices, and procedures, which takes account of the safety, regularity and efficiency of flight.

A flight shall not be commenced until the pilot-in-command is satisfied that: the aeroplane is airworthy, duly registered and that appropriate certificates with respect thereto are aboard the aeroplane; the instruments and equipment installed in the aeroplane are appropriate taking into account the expected flight conditions; any necessary maintenance has been performed; the mass of the aeroplane and center of gravity location are such that the flight can be conducted safely taking into account the flight conditions expected; any load carried is properly distributed and safely secured; the aeroplane operating limitations contained in the flight manuals, or its equivalent, will not be exceeded. It further recommends that the pilot-in-command should have sufficient information on climb gradient that can be achieved during the departure phase for the existing take-off conditions and intended take-off technique.

Limiting conditions shall be established for the aeroplane, its power units and its equipment. The limitations shall be sufficiently removed from any condition(s)

prejudicial to the safety of the aeroplane to render the likelihood of accident arising therefrom extremely remote. Sufficient data on the performance of the aeroplane shall be determined and scheduled in the aeroplane flight manual to provide operators with the necessary information for the purpose of determining the total mass of the aeroplane on the basis of values, peculiar to the proposed flight, of the relevant operational parameters, in order that the flight may be made with reasonable assurance that a safe minimum performance for that flight will be achieved[95].

International standards and recommended practices are established for licensing the following personnel[96]: flight crew-private pilot-aeroplane; commercial pilot-aeroplane airline transport pilot-aeroplane. Private pilot-aeroplane; private pilot-helicopter; Commercial pilot-helicopter; airline transport pilot-helicopter; glider pilot; free balloon pilot; flight navigator; flight engineer; other personnel- aircraft maintenance (technician/engineer/mechanic air traffic controller; flight operations officer; aeronautical station operator). To satisfy the licensing, requirement of medical fitness for the issue of various types of licenses, the applicants must meet certain appropriate medical requirement which are specified as 3 classes of medical assessment. Details are given in 6.2, 6.3, 6.4 and 6.5 to provide the necessary evidence to satisfy the requirements of 1.2.4.1, Licensing Authority, issues the licence holders with the appropriate medical assistant, class 1, class 2 or class 3. This can be done in several ways such as a suitably titled separate certificate, a statement on the licence, a national regulation stipulating that the Medical Assessment is an integral part of the licence and so on. An applicant for a licence shall, when applicable, hold a medical assessment issued in accordance with the provision of chapter 6 which says an applicant for medical assessment issued in accordance with the terms of 1.2.4.1 shall undergo a medical examination based on the

following requirements; physical and mental, visual and colour perception and hearing.

A contracting state, having issued a licence, shall ensure that the privileges granted by the licence, or by related ratings, are not exercised unless the holder maintains experience established by that state. Holders of licences provided for in this annex shall not exercise the privileges of their licences and related ratings at any time they are aware of any decrease in their medical fitness which might render them unable to safely and properly exercise these privileges. And recommended that each contracting state should as far as practicable ensure that licence holders do not exercise the privileges of their licence and related ratings during any period in which their medical fitness has, from any cause, decreased to an extent that would have prevented the issue or renewal of their medical assessment. Holders of licences provided for in this annex shall not exercise the privileges of their licenses and related ratings while under the influence of any psychoactive substance which might render them unable to safely and properly exercise these privileges. Holders of licences provided for in this annex shall not engage in any problematic use of substance. And recommends that contracting states should ensure; as far as practicable, that all licence holders who engage in any kind of problematic use of substance are identified and removed from their safety-critical functions. Return to the safety-critical functions may be considered after successful treatment or in cases where no treatment is necessary, after cessation of the problematic use of substances and upon determination that the person's continued performance of the function is unlikely to jeopardize safety. Also noticed that guidance on suitable methods of identification (which may include biochemical testing on such occasions as pre-employment upon reasonable suspicion, after accidents/incidents, at intervals, and at random) and on other prevention topics contained in the Manual on Prevention of Problematic Use of Substances in the

Aviation Workplace (Doc. 9654). A person shall not act either as pilot-in-command or as co-pilot of an aircraft in any of the following categories unless that person is the holder of a pilot licence issued in accordance with the provisions of this chapter: aeroplane; helicopter; guider: free balloon. The category of aircraft shall be included in the title of the licence itself, or endorsed as a category rating on the licence.

The applicant commercial pilots licence shall be not less than 18 years of age.; applicant shall have demonstrated a level of knowledge appropriate to the privileges granted to the holder of a commercial pilot licence – aeroplane, in at least the following subjects: air law that is rules and regulations relevant to the holder of a commercial pilot licence-aeroplane, rules of the air, appropriate air traffic services practices and procedures; aircraft general knowledge that is principles of operation and functioning of aeroplane powerplants, systems and instruments; operating limitations of appropriate aeroplane and powerplants; use and serviceability checks of equipment and systems of appropriate aeroplanes; maintenance procedures for airframes, systems and powerplants of appropriate aeroplanes; flight performance and planning that is the effect of loading and mass distribution on aeroplane handlings flight characteristics and performance, mass and balance calculations; use and practical application of take-off, landing and other performance data; pre-flight and en-route flight planning appropriate to operation under VFR; preparation and filing of air traffic services flight plans; appropriate air traffic services procedures; human performance and limitations relevant to the commercial pilot-aeroplane; Meteorology, this concerns interpretation and application of aeronautical meteorological reports, charts and forecast; use of, and procedure for obtaining, meteorological information, pre-flight and in-flight altimetry; aeronautical meteorology, climatology of relevant areas in respect of the elements having an effect upon aviation,

the movement of pressure systems, the structure of fronts, and the origin and characteristics of significant weather phenomena which affect take-off, en-route and landing conditions, hazardous weather avoidance; navigation. air navigation, including the use of aeronautical charts, instrument and navigation aids; an understanding of the principles and characteristic of appropriate navigation system; operation of airborne equipment, operational procedures use of aeronautical documentation such as AIP, NOTAM, aeronautical codes and abbreviations; appropriate precautionary and emergency procedures; operational procedures for carriage of freight; potential hazards associated with dangerous goods; requirements and practices for safety briefing to passengers, including precautions to be observed when embarking and disembarking from aeroplanes; principles of flight relating to aeroplanes; radiotelephony procedures and phraseology as applied to VFR operations; action to be taken in case of communication failure[97].

2.8 IMPLEMENTATION OF SAFETY STANDARDS

To ensure the enforcement of safety standards ICAO provided a guide called Safety Oversight Manual which contains contracting states' oversight responsibilities and provide information and guidance for Government decision-makers on the establishment and management of a safety oversight system. Safety oversight is defined as a function by means of which states ensure effective implementation of the safety-related standards and recommended practices and associated procedures contained in the Annexes to the Convention on International Civil Aviation and related ICAO documents. Safety oversight also ensures that the national aviation industry provides a safety level equal to, or better than, that defined by the SARPs. As such, an individual state's responsibility for safety oversight is the foundation upon which safe global aircraft operations are built.

Lack of appropriate safety oversight in one contracting state therefore threatens the health of international civil aircraft operation[98].

In 1992, during the twenty-ninth ICAO Assembly, a concern was raised on the apparent inability of some contracting states to carry out their safety oversight functions. Major reasons cited for this included lack of a regulatory framework and lack of technical and financial resources to carry out the minimum requirements of the Chicago Convention. As a result, the Assembly adopted Resolution A29-13: Improvement of Safety Oversight, reaffirming individual state's responsibility for safety oversight as one of the tenets of the Convention and calling on contracting states to reaffirm their safety oversight obligations, especially the important safety provisions contained in Annexes 1 and 6 to the Chicago Convention. The Assembly Resolution, by reaffirming individual state's responsibilities, re-established the obligations of states for safety oversight over the whole spectrum of civil aircraft operation in their state and also of aircraft registered in their states but operating in other contracting states. A state's responsibilities cannot be underestimated in this regard as safety oversight is a major obligation whose implementation ensures the continued safety and regularity of international air transport. In order to perform its oversight responsibility effectively a state must establish a civil aviation authority (CAA), headed by a Director, with the necessary technical supervisory and support personnel with adequate resources. The provision of technical guidance sufficient to allow the technical and support personnel to perform their functions in a standardized manner is also necessary. State should as well make available qualified technical personnel to inspect the activities of aviation community to the level of complexity required. Furthermore, state should perform her licensing and certification obligations by providing processes which aviation community must complete before

initiating the tasks and operations associated with the level of certificate issued. It should continue to perform its surveillance obligations by providing processes used to ensure that the aviation community continues to function at minimum required levels of competency and safety. Besides, state must provide processes and methodology to facilitate resolution of safety issues which includes the ability to take action to penalize, suspend or revoke individuals' or operators' authority to participate in aviation activities.

2.8.1. ICAO Contracting States' Responsibilities:

The majority of the articles of the Chicago Convention establish the privileges and obligations of all contracting states and provide for the adoption of International Standards and Recommended Practices regulating international air transport. The Convention accepts the fundamental principle that every state has complete and exclusive sovereignty over the airspace above and within its territory. For the past five decades, the main technical achievement of ICAO has been the agreement of its contracting states on the necessary level of standardization for the safe, efficient and regular operation of air services. This standardization has been achieved primarily through the adoption of Annexes to the Chicago Convention, containing specifications known as International Standards and Recommended Practices (abbreviated as "SARPs"). The eighteen Annexes adopted to date cover the entire spectrum of civil aviation operations. Article 37 of the Chicago Convention provides that state must collaborate in securing the highest practical degree of uniformity in regulations, standards, procedures and organization in relation to aircraft, personnel , airways and auxiliary services in all matters in which such uniformity will facilitate and improve air navigation. To this end, ICAO has adopted SARPs dealing with practically all activities concerning the operation of an aircraft. However, it is the integration of such SARPs in the national regulations and practices of

contracting states and their timely implementation that will ultimately achieve safety and regularity of aircraft operations worldwide.

Through the provision of national regulations states are expected to implement and enforce SARPs contained in the Annexes to the Convention. Article 12 of the Chicago Convention is very clear in this respect. It states that "each contracting state undertakes to adopt measures to insure that every aircraft flying or manoeuvring within its territory and that every aircraft carrying its nationality mark, wherever such aircraft may be, shall comply with the rules and regulations relating to the flight and maneuver of aircraft there in force. Each contracting state undertakes to keep its own regulations in these respects uniform, to the greatest possible extent, with those established from time to time under this Convention". Further, the Article states that each contracting state undertakes to insure the prosecution of all persons violating the regulations applicable[99]. These and other related articles enshrine state responsibilities for safety oversight in the Convention and leave no doubt as to a contracting state's responsibilities for control and supervision of all its aviation activities.

2.8.2. Nature Of States' Safety Oversight Obligations:

A state's responsibility under the Convention includes the licensing of operational personnel, the certification of aircraft, air operators and maintenance organizations, and control and supervision of licensed personnel, certified products and approved organisations. Ensuring that this responsibility is carried out in the most effective manner is fundamental to the health of aircraft operations throughout the world. This responsibility is enshrined in several Articles of the Convention. For example, Article 31 requires the state of registry to issue a certificate of airworthiness or validate a certificate of airworthiness issued by another contracting state for every aircraft engaged in

international air navigation. In Article 32, the same state is charged with issuing certificates of competency and licenses or validating such certificates or license issued by other contracting states to the pilot of every aircraft and to other members of the operating crew of every aircraft engaged in international navigation. The basis of these obligations is the desire to promote and conduct safe and regular aircraft operations through the development and implementation of internationally acceptable certificating and licensing processes. Furthermore, this process is extended to domestic operations to ensure the overall safety of aircraft operation wherever it takes place[100].

2.8.3. General Obligations Of A Contracting State

When permitting or undertaking aviation activities, the state incurs certain obligations under the Chicago Convention and its Annexes. For example, every state that is a signatory to the Convention is obligated to provide for the safe and efficient operations of aircraft within its airspace. Some of the general obligations include ensuring provisions for transient general aviation and commercial air transport operations such as adequate[101]: airports; navigation aids; charting and instrument approach minima; weather reporting; air traffic control; search and rescue; aviation security; and timely correction of safety deficiencies with respect to these obligations. Each of these obligations will require consideration of the critical elements of safety oversight system to ensure that the state's system is appropriate to the complexity of its aviation community.

2.8.4. State Of Registry Specific Obligations

The act of registering an aircraft may not by itself be safety issue. However, this action imposes on the state of registry several Convention obligations, which directly

relate to the safety of the aviation system as a whole. Thus on registering an aircraft, a state of register is obligated to[112]: a. determine whether the airworthiness of the aircraft meets minimum established standards; b. issue or validate the airworthiness certificate for the aircraft; c. ensure the continuing airworthiness of the aircraft regardless of where it is operated in the world; d. determine that the personnel performing maintenance work on the aircraft meet minimum experience, knowledge and skill requirements; e. issue or validate maintenance personnel certificate; f. determine that the flight crew operating the aircraft meet minimum experience, knowledge and skill requirements to safely operate the aircraft; g. issue or validate the flight crew with licenses and/or ratings as appropriate; h. verify that the aircraft and personnel related with its operation continue to meet the conditions which were required for the initial issue of certificates and licenses; and i. take timely and appropriate actions to correct all deficiencies that are found with respect to the maintenance of the aircraft and its operation by the flight crews.

State of the operator is responsible for issuing the Air Operator Certificate, or equivalent document, required by Annex 6. This responsibility entails the control and supervision of the aircraft operation-related activities of all aircraft operators in the state. The responsibility also confers several specific Convention obligations to the state of the operator. Thus, a state of the operator is obligated to: ensure the adequacy of the air operator's ability to provide safe and efficient operations prior to the initiation of international flight operations; ensure the air operator's ability to conduct operations with respect to the original certification criteria on a continuing basis; and take timely and necessary actions to resolve safety issues that are found with respect to the maintenance of aircraft, flight operations, and other air operator responsibilities, including the actions of the operator's personnel. When determining the adequacy of the system as a whole, the

state of the operator should consider the critical elements of a safety oversight system and the complexity of the operations conducted.

Air operator is responsible for the safe, regular and efficient conduct of aircraft operations, wherever they may occur, and for compliance with any laws or regulations which the state of the operator and the state where the aircraft is operating may promulgate. In the event that an operator utilizes an aircraft registered in a state other than the state of the operator, it will also need to comply with relevant laws and regulations promulgated in the state of registry. These laws and regulations, which are the means by which the state implements the provisions of the Annexes, are not in themselves sufficient to provide the operator with comprehensive and detailed instructions on which to base an operation. The responsibility for the development of operating instructions necessary for the safety of an operation must therefore rest with the operator. Operating instructions must not conflict with the laws and regulations of the state of the operator or those of other states into or over which operations are conducted. The primary means used by an operator to promulgate these operating instructions is the operations manual, which should be presented to the civil aviation authority as part of the documents to be evaluated prior to the certification of an air operator[102].

Balanced approach to control and supervision should be ensured by state**.** In order to discharge its responsibility, each state should enact a basic aviation law, which will provide for the development and promulgation of a code of air navigation rules and regulations, which should be consistent with the provisions of the Annexes to the Convention. In the development of this code, the state has the option of adopting provisions, which will govern its role in the implementation of the operational regulations; this may range from a stringent regulatory presence to a passive role. In a

stringent regulatory role, close day-to-day involvement in industry direction and control of activities would be carried out by the state through an inspection organization. In a passive role, the state would intervene only to institute proceedings or investigatory action in the case of a violation of the regulations. A state exercising a passive role relies almost completely on the industry's technical competence and commitment to safety. The industry becomes responsible for both the interpretation and the implementation of the regulations, thus becoming essentially self-regulating. The state is not in a good position to assess the adherence of the industry to the regulations, other than by knowledge acquired fortuitously or in the course of accident or incident investigation. Such a system would not enable the state to exercise the necessary preventive and corrective responsibilities required under the Convention. States should also avoid the opposite extreme. The state safety oversight system should not be so rigorous as to amount to a complete domination and dictation of the conduct of operations. Such a system creates an environment where the industry is not empowered with the responsibility and self-sufficiency for safe operations. This can undermine the morale of the industry's personnel, resulting to a lowering of safety standards. It is also cost prohibitive for the state to maintain the large enforcement organization required to sustain this level of oversight. In practice, neither of these extremes is compatible with the objective of a well-balanced division between the state and the aviation community. The public interest would best be served by a balanced approach, where both the state and the aviation community have responsibilities for the safe and efficient conduct of their functions:

A balanced safety oversight system is one in which both the state and the aviation community share responsibility for the safe, regular and efficient conduct of civil aviation activities. This relationship is established in the primary aviation regulations, and aviation

regulations and put into practice as a matter of policy and methodology of the CAA. The characteristics of an effective state safety oversight system include a well balanced allocation of responsibility between the state and the industry for the safety of air navigation, economic justification within the resources of the state, maintaining continued state supervision of the activities of operators without unduly inhibiting their effective direction and control of their own organization and the cultivation and maintenance of harmonious relationships between the states and the industry. States need to carefully consider the public interest in establishing various safety oversight functions and to ensure that a proper system of checks and balances is maintained. The state should retain effective control of important section functions. Such functions cannot be delegated; otherwise, aviation personnel, maintenance organization, general aviation, commercial operators, and so on will in effect be regulating themselves and will not be effectively monitored by civil aviation authority inspectors. The aviation industry has the overall responsibility for preserving safe, regular and efficient aircraft operations and maintenance, aviation personnel training and aircraft and aviation equipment manufacture. Some states may share some of the responsibilities for monitoring internal safety standards with organizations (operators, approved maintenance organizations, manufacturers, and so on.), which have been found to be reliable and to act responsibly. The objective of a safe and orderly civil aviation system cannot be attained unless each designated member of the aviation industry is prepared to readily accept the implications of this policy, including that of committing the necessary resources to its implementation. Crucial to the confidence that the CAA may place in organizations and to the associated freedom and flexibility it can give, is that the organizations establish an adequate quality system which must be reviewed and approved by the CAA. In those states where the

state is both the regulatory authority and an operator, manufacturer or maintenance organization, the requirement of the Convention will be met, and public interest be best served, by clear separation of authority and responsibility between the state operating agency and the state regulatory authority. The certification and continuing surveillance procedures should be followed as though the operating agency was a non-government entity[103].

State commitment to aviation safety is necessary for regular and efficient aircraft operations**.** Over the years, ICAO and its contracting states have collaborated to develop uniform SARPs and procedures that ensure that implementation of the principles and arrangements agreed upon by the founding members of ICAO in order that international civil aviation may be developed in a safe and orderly manner and that international air transport services may be established on the basis of equality of opportunity and operated soundly and economically. United by a common cause and common commitment, ICAO and the contracting states have been able to confront crucial issues and, to a great degree, overcome the challenges encountered. Through the years, however, the challenges faced by state civil aviation authorities have increased in number and complexity; This has in turn required that state commitment to aviation safety increase at the same rate. There are a number of forces at work which underline the importance of a renewed commitment and political will on the part of Governments: there is an increased involvement of non-traditional sectors in civil aviation necessitating a significantly increased attention to matter of aviation safety within the context of wider policy initiatives; there is increasing globalization of civil aviation itself, exemplified by foreign and multinational ownership and alliances of airlines, joint marketing arrangements, multinational approaches to both technical and economic regulations along with increasing interaction between domestic

and international civil aircraft operations. there are increasingly intense economic, political, environmental and other pressures on civil aviation policy, particularly at the national and regional levels. Such pressures can result from rapid changes to socio-economic systems, which can have global effects; and d. in many states, civil aviation is still, considered an essential public service, making a fundamental contribution to socio–economic development and, some areas, providing service to otherwise inaccessible points.

Responding to these pressures and to the increase complexity and cost of aviation systems places significant financial constraint on civil aviation administrations throughout the world. These constraints have a significant bearing on the fundamental objectives of the Convention, as it has been observed that they are the root cause of non-implementation of minimum International Standards. Information available to ICAO shows that a significant number of contracting states have experienced major difficulties in carrying out their safety oversight functions. The reason for their inability to effectively carry out an exercise which is one of the tenets of the Convention may be many and varied. Nevertheless, the obligation remains with individual states and the successful resolution of difficulties requires a solid and transparent commitment from Governments. State authorities responsible for safety oversight should be provided with the necessary resources, both human and financial, to be able to effectively carry out safety oversight obligations on behalf of the state. Without such a commitment on the part of the state, efforts put into resolving difficulties experienced will remain simply efforts, with no significant positive effect[104].

Taking into account difficulties encountered by many contracting states in fulfilling their Convention obligations, the manual highlights the critical elements involved and provides

guidance in resolving difficulties experienced in implementing SARPs

2.8.5. Critical Elements Of A Safety Oversight System

There are some necessary and critical elements, which must be considered by all 1CAO contracting states in the implementation of their safety oversight system. The state should address these elements in a way that assumes the shared responsibility of the state and the aviation community. Critical elements of a civil aviation system encompass the whole spectrum of civil aviation including areas such as aerodromes, air traffic control, communications. Critical elements in the area of aircraft operation include:[:105]

2.8.6. Primary Aviation Legislation

The Convention on International Civil Aviation does not specifically require a state to promulgate "primary aviation legislation", a national legislative framework commonly known as the "civil aviation code" or the "civil aviation act", proclaiming the establishment of a state's civil aviation organization. However, the Convention, in most of its Articles, refers to a state's national laws and regulations relating to the admission to or departure from its territory of aircraft engaged in international air navigation. It also refers to state regulations in respect of the operation and navigation of such aircraft while within its territory, the registration of aircraft in the state and the flight and manoeuvring of aircraft, including the certification of airworthiness and personnel. Further, the Convention requires that "each contracting state undertakes to keep its own regulations in these respects uniform, to the greatest possible extent, with those established from time to time under the Convention". While it can be argued that the above-mentioned Articles refer to specific aviation regulations (subsidiary-legislation), which can be satisfactorily implemented without having to establish an aviation legislation at a national level, Article 12 does not stop at requiring states to align

their operational regulations with those provided by the Annexes to the Convention. It explicitly obligates states by stipulating that "each contracting state undertakes to ensure the prosecution of all persons violating the regulations applicable". Adhering to the Convention requires a state, without exception, to fulfil the requirements of the Articles of the Convention and the associated Annex provisions in international operations. Implementation of the requirements contained in the ninety-six Articles of the Convention and the hundreds of Annex provisions requires that states' own aviation laws and regulations be built on a solid national legislation foundation at par with all other national codes legislated by the sovereign state. For example, in order to prosecute a person for violating a specific aviation regulation, it is essential that the state legislate that violation of civil aviation regulations is punishable in accordance with the national penal code or other penal legislation. Thus, by inference, all Convention Articles referring to a state's aviation laws and regulations require the state to promulgate primary aviation legislation to serve as the legal basis for the establishment of a civil aviation organization responsible for all aviation activities in the state. Ideally, primary aviation legislation should contain provisions to enable the government and its administration to actively supervise and regulate civil aviation activities, notably the qualifications and competency of aviation personnel (issuance, validation, renewal, suspension or cancellation of licences and certificates of competency as appropriate), airworthiness of aircraft (registration; issue/validation of Type Certificates; issue, renewal or validation of Certificates of Airworthiness; airworthiness directives; approval of design, manufacturing and maintenance organizations as appropriate; and so on) and operations of aircraft (issue, renewal, suspension of Air Operator Certificate). There should also be provisions for the establishment of a civil aviation authority responsible for the above and including a personnel licensing system, an operations inspection organization and

an airworthiness organization (airworthiness inspection division and airworthiness engineering division, as appropriate). Primary aviation legislation is the key to effective safety oversight by the state. The establishment of a civil aviation authority, the extent of its authority and empowerment and that of its Director must be based on the solid foundation of a legal document legislated at the highest possible level of rule-making in the state. Specific operating regulations**,** safety oversight manual used the term "regulations" in a generic sense to include what may be variously considered by states as rules, edicts, directives, orders, and so on. The specific status given to a regulation when it is applied within the state and the penalty assigned in the event of non-compliance are matters for the judgment of individual states, taking into account their responsibilities under the Convention[106].

Generally it is required that state laws and regulations should be in conformity with the Annexes to the Chicago Convention. The Annex provisions are designed to provide the minimum requirements to be met by all contracting states, regardless of the size and complexity of their civil aviation operation. The individual states are then responsible to develop equivalent regulations and rules containing sufficient details to ensure that satisfactory compliance will result in the desired level of safety. Annexes 1,6 and 8 to the Chicago Convention, which specify international requirements covering personnel licensing, aircraft operations and airworthiness of aircraft respectively, set out SARPs in order to achieve uniformity and to facilitate incorporation into national regulations. Licensing and certification of personnel, air operators and aircraft maintenance organizations are governed by a state's own laws and regulations. In discharging its responsibilities in this respect, however, the state has an obligation to collaborate in securing the highest practicable degree of uniformity in regulations, standards, procedures and practices, as required by Article 37 of the Convention. The Annexes provide a clear presentation of the broad international specifications for

licensing and certificating, as applicable, agreed upon by contracting states. For this reason, many specifications are not given enough detail for the day-to-day handling of licensing certificating, supervising and controlling matters. In some parts of the Annexes, it is left to states to decide on the details which form part of the requirements provided for the Annexes. Because of this, it is inevitable that states implement the provisions of the Annexes in different way but in general, with the same ends in view. Thus, legislative systems naturally vary and amendments to existing regulations and orders can be carried out more quickly in some states than in others. It is certainly convenient if state's aviation legislation can be expressed in a form that will allow for easy and fast amendment of the technical details contained in that legislation.

Adapting or adopting regulations from other states is state's choice. A contracting state always has the options of adopting another contracting state's regulations to meet their requirements for regulations. Even though unilateral adoption of another state's regulations may have some advantages, such as enhanced exchange of operating crew and aircraft, it should be done only after ensuring that the regulations have been updated to include all ICAO standards. The complexity of the other state's aviation environment should also be considered. A state with a limited aviation environment should be careful not to place undue burden on its aviation community and its inspectorate staff by adopting excessively restrictive regulations. A better alternative would be to adapt the regulations to meet the aviation environment while still maintaining harmony with other states. Difference between national regulations and ICAO Annex Standards is provided in Article 38 of the Chicago Convention which highlights conditions for departure from international standards. It states that if any state finds it impracticable to comply in all respects with any such standards or to bring its own regulations or practices into full accord with international

standards as amended, or if it deems it necessary to adopt regulations or practices differing from those established by ICAO, it shall give immediate notification to ICAO of the differences between its own practice and that established by the international standard. In any such case, the ICAO Council is obligated to make an immediate notification to all other states of the difference which exists between one or more features of an international standard and the corresponding national practice of the notifying state. It should be noted, however, that the filing of differences with international standards does not mean that a state can then continue to do business as usual. Several Articles of the Chicago Convention make it clear that if standards and recommended practices adopted by a state are lower than that required by international standards, aircraft or personnel having certificates or licences endorsed by that state cannot participate in international air navigation, except with the permission of the state or states whose territory is entered. The responsibility to obtain such permission is that of the individual or operator whose certificate has been so endorsed, although a state may also request blanket permission on behalf of its licence or certificate holders[107].

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CHAPTER THREE

AIR ACCIDENT

3.1 HISTORY OF AIR ACCIDENT

Air accident is a mishap involving aircraft. Air accident dates back to the beginning of aeronautics. At the balloon stage, it was the danger of rain, fire, or strong wind. The first public flight experiment with animate on 19 September 1783 had a sheep, a duck and a cock as passengers. During its landing, the wicker cage was broken open by a branch as the balloon sank through the trees, the sheep was placidly grazing, the duck seemed to be in excellent heart, but the cock slightly damaged one of its wings. This mishap seemed to have caused a quite disproportionate amount of concern, being attributed to the peril of aerial travel until ten witnesses solemnly testified that they saw the sheep kick the cock before the balloon took off.[1] With advancement in aviation technology, accident keeps increasing with diverse causes. Air accident has continued till date and is the concern of mankind especially authorities and those involved in aviation industry one way or the other.

Pilatre de Rosier planned to fly the English Channel, he had hoped to be the first to do so. He was too large and generous a man to begrudge Blanchard his triumph and he is known to have been present at one or more of Blanchard's ascents from London in May 1785: It was at this time that Pilatre got engaged to a Yorkshire girl named Susan Dyer. She begged him to strop flying, although he had been forestalled by Blanchard, Pilatre refused to give up his channel project but assured her that would be his last flight.[2]

Who first suggested the risky idea of combining a hydrogen balloon or 'Charliere' with a Montgolfiere for this channel attempt is not known, but the idea is commonly credited to Pilatre and the type is referred to as a 'Rozier'. The Contre de Provence

sponsored the enterprise; Jules Romain constructed and exhibited the Royal Balloon, as it was called in Paris. Pilatre seem to harbour doubts about the balloon from the start but felt honour bound to the Count and Romain to fulfill his undertaking to fly it. The reason behind the notion of combining both types of balloon was that the Montgolfiere portion would make the craft self-regulating and despite the dangers involved, this was attractive at a time when pilots of hydrogen balloon had not mastered the act of using and conserving their ballast to the advantage. Construction of the balloon was slow and difficult, involving drastic modifications. As completed, it consisted of a spherical hydrogen envelope 33ft in diameter with a cylindrical Montgolfiere below it made of green silk lined with paper, 24ft high and 12 ft in diameter. This was very much smaller than the Montgolfiere section originally designed and its calculated useful lift was only 60 Ib. Its regulating power was therefore so limited as to be almost valueless and indeed when he ascended, Pilatre carried sand ballast as well as faggots and charcoal on the gallery. This annular gallery surrounded the Montgolfiere cylinder and was suspended by cords extending from the rim of its 3ft high balustrade to the net enclosing the upper hemisphere of the hydrogen envelop. The iron furnance pan was normally suspended 8ft below the gallery but could be lowered further at will. Some contemporary prints of the balloon show its two portions united, its appearance resembling that of a gigantic button mushroom, but the account in which the above dimensions are given states that the Montgolfiere cylinder was suspended 5ft below the hydrogen envelop, an arrangement which sounds more logical since it would prevent the direct transfer of heat from one envelop to the other. For obvious reasons the line controlling the valve at the north pole of the balloon could not pass through its centre in the normal manner but hid to travel round its periphery. This was an unsatisfactory arrangement because, when it was pulled,

the valve line, instead of overcoming the resistance of the valve springs, would tend merely to deform the envelop at its equator. Finally, the neck of the hydrogen envelope was extended in the form of a long tube terminating well below the furnace. Thus, it was argued any gas passing through the neck due to expansion, as the balloon ascended would be exhausted sufficiently far beneath the fire to be safely dissipated. As it was intended that the valve would be opened only to initiate a descent, no risk of fire was envisaged from this source. Pilatre planned to ascend with Romain from Boulogne, a difficult starting point for if there was any west in the wind it would drive the balloon out into the North Sea instead of across the English Coast. Many weary weeks were spent in waiting for suitable conditions during which de Rozier's spirits sank lower and lower. His friends joined Susan in imploring him to abandon so desperate a venture he refused and burst out passionately; for God's sake don't mention such a thing. It is now too late, encourage me for I would rather take a knife and pierce my heart than give up the attempt which I have engaged in although I was certain of meeting with death. At 7:15am of 15th June 1785, the balloon at last took off from Boulogne and rose swiftly into the air. An eyewitness described the ascent as horribly magnetic and daringly august. The same on looker also noticed that the gallery was at least a foot out of balance and that the balloon looked crazy and ill contrived: At first the balloon appeared to be drifting out to sea, but at a height of 5,000ft it evidently encountered contrary air current. For it began to float back over the land. Then, before the horrified gaze of the spectators, disaster struck, swift and deadly. What exactly happened has been the subject for much debate. The account of eye-witness were confused and in some cases conflicting with one exception, however, they all agreed the balloon caught fire and this led those who were not on the spot to assume too readily that the disaster was due to the risky combination principle.

According to an eyewitness account preserved in the Roman collection (Vol. 11) Pilatre tugged repeatedly at the valve line as the balloon ascended and at the same time the Montgolfiere fire basket, normally 34ft below the base of the hydrogen balloon, was lowered still further. At a height of about 5,000ft this same witness perceived a column of smoke ascending from the top of it and goes on to declare that the next instant he saw two portions of the balloon part company and fell in different directions. This separation was not confirmed by others but the origin of the fire at the top of the hydrogen balloon was corroborated, not only by other witnesses but by Blanchard who afterwards paid a special visit to Boulogne to inspect and report upon the balloon. He found the evidence of burning confined to the 15ft circle of the fabric and net around the valve. From this statement it seems evident that the neck with its overlong extension pipe proved incapable of sufficiently relieving the balloon of pressure when gas expanded on a rapid ascent. The balloon may have been overfilled while heat radiated from the Montgofiere portion would increase the expansion rate. Pilatre immediately sought to remedy this situation by opening the valve, at the same time ordering Romain to lower the Montgolfiere fire-basket as a precautionary measure. Owing to the tortuous path taken by the valve line he had difficulty opening the valve, but when he at last succeeded the escaping gas immediately caught fire. The theory advanced by Boulogne physicist Dyriez that the gas was ignited by a spark produced by a sudden discharge of static current. The valve was of copper and the envelope, elaborately decorated with these sheets of gold, would all too readily act as a condenser. Moreover, the friction of the external valve line in the envelope during the aeronaut's efforts to open the valve may have helped to induce the static change, as would the rush of gas through the valve. The rapid fall of the balloon thereafter would naturally limit the fire to the area immediately round the valve. Susan

Dyer was among the shocked and silent crowd at Boulogne who saw the wrecked balloon plummet down the sky until it disappeared below their horizon. So overcome was she by the sight that she collapsed and died soon after. The aeronauts crashed to earth at Huitmile Warren near the town not far from the scene of Blanchard's triumphal landing after his channel crossing barely six months before. Just before the end of their fearful fall, one of them shouted through a speaking trumpet, alerting some men working nearby. Running to the spot and lifting the pitiful heap of crumpled silk that was all that remained of the Royal Balloon, they found them. Romain only whispered O Jesu! But Pilatre de Rozier was already dead, so perished the world's first aeronaut in the world's first aerial disaster.[3]

Concerning Lunardi J. E. Hodgson said, he was widely praised for his courage in ascending under adverse weather conditions in order not to disappoint his public, but in this respect, like many aeronauts after him, Lunardi was faced with a choice of evils and evidently preferred an angry sky to an angry crowd. By forcing aeronauts to take off ill prepared or under dangerous conditions, this fickleness of the public, whose cheers could in an instance turn to jeers, account for more accidents and tragedies than any factor in the history of ballooning. Lunardi's second ascent from Liverpool was particularly venturesome, for a north-west wind was blowing so strongly that even the exacting spectators relented crying 'Don't let him go up!' Lunardi wearing a resplendent uniform dramatically draw his sword and swore that he would cut off the hands that held down the balloon if his 'hands off' signal were not instantly obeyed. To avoid collision with nearby buildings he jettisoned a quantity of ballast. Shot up swifter than a rocket and in 4 minutes had been blown out of sight of Liverpool. Little over an hour later he came down in a cornfield near Tarporley, but his anchor would not hold and he suffered the most

terrifying and dangerous experience that can befall a balloonist, that of being dragged helplessly along or a little above, the ground at the mercy of the wind. The balloon tore through hedges and trees and was finally brought to rest with the help of several countrymen in a lane near Beeston Castle.[4]

Apart from those like Blanchard and de Rozier, who deliberately set out to make a sea crossing, there was always the risk that an incautious aeronaut, ascending near the coast, might be blown out to sea by an unexpected shift of wind. The first aeronaut to suffer this alarming experience was the English ballooning enthusiast Major (later General) John Money on the second of his three ascents. On 22nd July 1785 Money went up alone in Zambeccari's hydrogen balloon from Norwich in a light northeasterly air. Unfortunately he subsequently encountered what a contemporary account called 'an improper current' which began to bear him rapidly to the southeast. He prepared to descend but found he could not open the valve because, it was afterwards alleged, a piece of silk had been sewn over it during inflation. In the early evening the balloon was seen to cross the coast at Pakefield, near Yarmouth, at a high altitude and to disappear over the sea. Boats at once put out from Lowestoft and south world, but their crews failed to find any trace of the balloon and as dusk fell they returned to port convinced that Money had been drowned. Meanwhile Money had come down into the sea at 6p.m. 20m offshore. For 5hours he fought for his life. Twice before darkness fell his hopes were raised when he sighted craft, which appeared to be coming towards him, but they bore away. The car sank so that he had to climb into the hoop and as the balloon gradually lost gas so the water rose about him. With a refinement of torture the balloon was drowning him by inches. Money confessed afterwards that at this time he wished providence would grant him the swift fate of Rozier rather than such lingering death. By 11:30p.m the water was

nearly up to his chin and he was so weak that he could scarcely keep his hold on the suspension cords, but at this eleventh hour the balloon was sighted in the moonlight by the Revenue cutter Argus and Money was lifted from the sea. After several glasses of grog, he quickly revived. He was landed at Lowestoft early next morning were he received a tumultuous welcome. The popularity of two high dramatic mezzotints of the incident, one from a drawing by P. Reinagle and the other by an unknown artist, made this the best known of all the early balloon adve ntures.[5].

On 7th October, 1785 the people of Yarmouth saw another balloon pass over and head out to sea at a great height. Its car contained the Rev. Peter Routh, Mr. Robert Davy and Mrs. Hines who had ascended from Beccles. Again the balloon was given up as lost, but the trios were picked up off the coast of Holland by a Dutch ship whose master, Captain Andrew Van Swieten, had sighted the balloon scudding over the sea with its car in the water. On their return to Beecles the lucky aeronauts were paraded through the streets wearing laurel crowns inscribed in gilt letters with the legend. 'The favoured of Heaven.'[6]

On his second Edingburgh ascent of 20th December 1785 Vincent Lunardi came down into the firth of Forth near the Fidra Rock and was driven rapidly through the water towards the island of May near the north shore. He had made some provision for such an emergency by equipping his car with inflated bladders and cork floats, but even so he had been forced to climb unto the hoop by the time he was rescued by the crew of a small fishing boat. It was typical of Lunardi that when a revenue cutter subsequently came up and offered to take him aboard he refused out of gratitude to his humble rescuers who eventually landed him near North Berwick.[7]

Notwithstanding Rozier's fate the idea of the 'combination' balloon continued

particularly in Italy were at least two aeronauts Olivari (Orlean, 25th November 1802) and Count Zambeccari, lost their lives as a result. After an adventurous spell of service in the Russian Navy in the course of which he was shipwrecked and taken prisoner by the Turks, the intrepid Zambeccari returned to his native Bologna in 1800 and resumed his aeronautical career. Balloons had never been out of his thoughts for he had beguiled the two-and-a-half years of his imprisonment by writing a treatise on the subject. He evolved a combined hydrogen and hot air balloon in which the latter was inflated by a form of 'lamp', as he called it, burning spirit of wine instead of by a solid fuel furnace. On an early ascent in this device from Boulogne the balloon caught in the upper branches of a tree just after take-off causing the spirits of wine to spill, and setting fire to his clothing. This blaze increased the balloons lifting power and enabled it to free itself. The horrified crowd, which included Zambeccari's wife and children, saw the balloon sail into the sky with its pilot surrounded by flames. However, he managed to extinguish the fire and landed safely. Undeterred by this hair-raising experience he took off from Bologna with two companions, Andreoli and Grassetti on 7th October, 1804. Many exasperating delays and difficulties, including 48hrs of continuous rain, made Zambeccari determined to ascend although by the time it was possible to do so the three men were already tired out, it was midnight and the weather was cold and threatening. The lamp, which was intended to increase our ascending force, became useless; writes the count but the hydrogen portion alone proved sufficient to lift them to a very high altitude. Here the effect of the height, the darkness and the bitter cold on men who had worked all day without food was stupefying. Zambeccari and Grassetti fell asleep. It was 2a.m. before Andreoli managed to rouse his companions. It was evident by this time that the balloon was loosing height but in the darkness they could not read their barometer. Eventually they managed with

great difficulty to light a small lantern by means of flint and steel, but by then it was too late. A distant, ominous murmur rapidly grew out a whole sack of ballast, but the balloon had now gained too much momentum and at a little after 3a.m. it plunged into the Adriatic. Immediately great waves began to sweep over them and in this nightmare situation the desperate men threw all their remaining ballast and everything that was portable into the sea. Thus lightened, the balloon suddenly shot upwards to such a height that it became difficult to breathe. The Count was violently sick, Grassetti began bleeding from the nose and all three became temporarily deaf so that they shouted to each other in vain. They became covered in ice as their sea-soaked clothing froze upon them. 'I could not', wrote Zambeccari, 'account for the reason why the moon, which was in its last quarter, appeared on a parallel line with us, and looked blood red.' For half an hour they remained suspended between this devil of a deadly cold and the deep sea. The balloon began gently to descend again and at 4a.m. it fell once more into the sea. The balloon was now so much deflated that the strong wind flattened the lower portion of the envelope into a sail and drove them before it through a heavy swell which often submerged them completely. They had no idea of their position for it was pitch dark, but somehow they clung on and survived that terrible night. When dawn broke at last they found to their joy that Pesaro lay straight ahead of them, not more than 4m away but just as they were congratulating themselves on their escape the wind changed. Blowing off the shore, it swept them out into the open sea once more and they were soon out of sight of land. The few boats they sighted appeared deliberately to avoid them until their only faint hope was that they might reach Dalmatian coast. It was 8a.m. before help came. The master of a passing ship, more enlightened than the others, realized that the strange object in the sea was a fallen balloon and lowered a long boat. The sailors lifted the aeronauts on board,

but the balloon escaped them, shooting into the air to be seen no more. They were landed and taken to Ferrara, but all three were suffering from exhaustion and frostbite, so much so that Zambeccari had to have his fingers amputated while Grassetti was in such a state that he only survived. After such experience most men would have called it a day, but the indomitable Zambeccari. He continued to fly and is said to have come down in the Adriatic on another occasion, though not with such dire consequences. Moreover, he still favoured the dangerous combination balloon and it was this, which eventually caused his death. Coming into land near Boulgne on the branch of a tree jerking and tilting the car. This overset the lamp and in a few seconds the balloon became a mass of flames. The Count and his companion, Singnor Bonaga, jumped for their lives from tree-top height Bonagga, though seriously injured, survived but Zambeccari died on the spot.Otto Lilicnthal read his adventures in a book called 'The Travels of Count Zambeccay' and was inspired to begin the historic experiments with gliders that led to his own death but not before he had paved the way for successful powered flight.[8].

The first attempt at crossing Irish Sea was made on 17th June, 1785 by Dr. Potain, a Frenchman living in Dublic, in a balloon equipped like Blanchard's with wings. Rudder and moulinet. These aids proved of no avail, the wind was so contrary that the Doctor never got over the sea but made a very rough landing in the hills near Powerscourt, 16m from his Dublin starting point.[9]

The next to make the attempt was the first Irish aeronaut, Richard Crosbie. His second ascent from Dublin was pure farce. He had proposed ascending with an army officer named Richard McGuire, but due to his large and heavy built the balloon proved incapable of lifting him, let alone a passenger. So McGuire though inexperienced went in instead and precipitately departed, narrowly missing a neighbouring chimney. He was

blown straight out to sea where, 9m off Howth Head, the balloon burst, McGuire having broken the valve line. When the balloon hit the sea, McGuire was thrown out of the car but his ankle got entangled in a rope and as the balloon rose slightly he found himself suspended head downwards just above the waves. He managed to free himself and after floating and swimming for half an hour he was rescued by Dublin Wherry, which also retrieved the balloon. For this foolhardy and ridiculous exploit McGuire was knighted by the Lord Lieutenant. On 17th July 1785, Crosbie rose from Merrion Square, Dublin on a deliberate attempt to cross Irish Sea. He was soon water borne, but he had prudently equipped the car with bladders, which kept him afloat until he was rescued by Captain Walnutt in a Dunleary barge.[10]

In February 1808, Blanchard made his 60th and last ascent from The Hague in a Montgolfiere. When in mid-air he collapsed with a heart attack and landed heavily. Although he subsequently managed to travel back to Paris, he never fully recovered and died on 7th March 1809.[11]

Sadler returned to ballooning with an ascent at Oxford in July 1810 and he followed this with an ascent from Bristol in September accompanied by a chemist, William Clayfied. This ended in the Bristol Channel from off the Somerset coast at Combe Martin. Fortunately the sea was calm and after floating about an hour they were picked up by a boat from Lynmouth. Of his several flights during the following year, that from Birmingham on the 7th October accompanied by Mr. Burcham was the most eventful. A gale swept the balloon 112m in 80 minutes, almost the fastest journey ever performed then. In attempting to land at Lincolnshire Sadler was thrown out and the balloon carried Burcham for a mile and a half over land until it became entangled in an ash tree and was torn to pieces. Each aeronaut gave the other up for dead so they were

delighted to encounter each other in the nearby village of Hecklington, near spalding. A year later, James Sadler built himself a new balloon of large size, 55ft diameter giving a capacity of 87,114 cubic feet which enabled him to carry 11 cwt of ballast when he went up from Belvedere House, Drumcondra and still make a rapid ascent with the balloon only two-thirds inflated. He appreciated that large capacity was the key to prolonged flight. It enabled him carry on ample reserve of ballast with an envelope only partially filled to allow for expansion without loss of gas. Nevertheless, his attempt was defeated, partly by variable air current and partly because he was too ambitious. When he was directly over Ireland's Eye a rent appeared in the valve cord tube, but the resourceful Sadler improvised a ladder from his grapnel rope, climbed up and stopped the leaking tying his neck cloth round the tube. The southwesterly wind in which he had set off carried him along the southeast coast of the Isle of Man. He then discharged ballast, climbing until he encountered a northeasterly current. This bore him in the direction of Anglesey, which he soon sighted. Passing to the south of the Sherry lighthouse he sailed directly over Anglesey at a height of three and-a-half miles. Had Sadler continued on this course he would almost certainly have achieved his aim, but alas, he over-estimated his ability to pick his destination by playing the air currents. He argued that if he now descends he would again encounter the southwesterly wind and might in this way reach Liverpool. At first this plan look like succeeding; at 4:30p.m., 4 hours after leaving Ireland, he was just off the Great Orme's head and right on course, but then the wind shifted to the southward and began to blow him out to sea. He sought for a better current by varying his attitude but in vain and as dusk was falling he valved and came down in the sea just astern of two ships. They failed to see him, however, so he discharged ballast and rose again, seeing the sunset for the second time. Soon after this the balloon was

sighted and signaled by Douglas herring trowler Victory, Master John Lee who hoisted a Manning flag. Sadler again came down in the sea at 6p.m. and tied most of his clothing to his grappling iron so that it would the better act as a sea anchor and enable the trawler to overhaul him more rapidly. By a pretty piece of seamanship, Captain John Lee managed to run the bowsprit of the Victory through the balloon and Sadler was picked up. Sadler afterwards estimated that in this attempt he traveled 43m over land and 237m over water. His account of the voyage showed how greatly he advanced in the art of balloon management compared with the pioneers. He only failed indeed because his expertise made him over confident and in spite of this experience he continued to maintain that a skilful aeronaut should be able to direct the course of his balloon wherever he wished by adjusting his altitude to different air currents. James Sadler's elder son, John, made a number of ascents both in his father's company and solo, but it was his younger son Windham who became a professional aeronaut. At the age of 17 he made his first solo ascent from Cheltenham on 7th September 1813. He encountered a heavy snows storm at high attitude and this made it difficult to open the valve, but he managed to land safely at Chadlington Bridge, near chipping Norton. Four years later, on 22nd July 1817, the veteran aeronaut had the satisfaction of seeing his son succeed where he had failed. With the help of his father, Windham took off from Portobelle Barracks, Dublin at 1.30p.m. And from an uneventful flight, made a perfect landing in Anglesey at 7:0'clock. Unfortunately the conqueror of the Irish Sea did not live long to enjoy his success. On the 29th September 1824, Windham and his servant James Donnelly ascended from Bolton. In attempting to land in a strong wind the grapnel broke, the balloon was dashed against the chimney of a house at Foxhill Bank, between Blackburn and Hastingden, and Windham was thrown out. For a few fearful moments he hung suspended by his legs in

mid-air before plunging to the ground and died a few hours after[12] his father survived him. The only one of the pioneer aeronauts to live on into the age of the great professionals, James Sadler died at Oxford on 26th March, 1828 and was buried in the churchyard of St. Peter-in-the-East. Though much defaced by the weather he braved so often, his tombstone still stands. It is the only monument to the first English aeronaut.

3.2 ACCIDENT AND INCIDENT

3.2.1 ACCIDENT

Accident is an occurrence associated with the operation of an aircraft which takes place between the time any person boards the aircraft with the intention of flight until such time as all persons have disembarked, in which:[13] a person is fatally or seriously injured as a result of being in the aircraft or direct contact with any part of the aircraft, including parts which have become detached from the aircraft, or direct exposure to jet blast except when the injuries from natural causes, self-inflicted or inflicted by other persons, or when the injuries are to stow away hiding outside the areas normally available to the passengers and crews or; the aircraft sustains damage or structural failure which: adversely affects the structural strength, performance or flight characteristics of the aircraft and would normally require major repair or replacement of the affected component except for engine failure or damage, when the damage is limited to propellers, wing tips, antenna, tires, brakes, fairings, small dents or puncture holes in the aircraft skin or the aircraft is missing or is completely inaccessible. An aircraft is considered to be missing when the official search has been terminated and the wreckage has not been located.

An injury resulting in death within 30 days of the date of the accident is classified as a fatal injury.[14] Serious injury is an injury which is sustained by a person in an accident and which:[15] requires hospitalization for more than 48 hours, commencing within 7 days from

the date the injury was received or, results in a fracture of any bone (except simple fracture of fingers, toes or nose); or involves lacerations which cause severe hemorrhage, nerve, muscle or tendon damage, or involves injury to any internal organ; or involves second or third degree burns, or any burns affecting more than 5% of the body surface; or involves verified exposure to infectious substances or injuries radiation.

3.2.2. INCIDENT

Incident is an occurrence, other than an accident, associated with the operation of an aircraft, which affects or could affect the safety of operation[16]. Serious incident is an incident involving circumstances indicating that an accident nearly occurred. Examples of serious incidents are listed in Attachment C to Annex 13 as follows:[17]near collisions requiring an avoidance manoeuver to avoid a collision or an unsafe situation or when an avoidance action would have been appropriate; controlled flight into terrain only marginally avoided; aborted take-offs on a closed or engaged runway; take-offs from a closed or engaged runway with marginal separation from obstacle(s); landings or attempted landings on a closed or engaged runway; gross failure to achieve predicted performance during take-off or initial climb; fires and smoke in the passenger compartment, in cargo compartments or engine fires, even though such fires were extinguished by the use of extinguishing agents; events requiring the emergency use of oxygen by the flight crew; aircraft structural failures or engine disintegration not classified as an accident; multiple malfunctions of one or more aircraft systems seriously affecting the operation of the aircraft; flight crew incapacitation in flight; fuel quantity requiring the declaration of an emergency by the pilot; take-off or landing incidents; incidents such as undershooting, overrunning or running off the side of runways; system failures, weather phenomena, operations outside the approved flight envelope or other

occurrences, which could have caused difficulties controlling the aircraft and failures of more than one system in a redundancy system mandatory for flight guidance and navigation.

Live examples of incidents are those that occurred in 2005 as follows On 11 June, EAS Airlines' Boeing 737-200 overshot the runway of Jos Airport due to waterlogged nature of the runway.[18] Less than 24hours later Chanchangi Airlines' Boeing 727-200 aircraft with 192 passengers overshot the runway of Murtala Muhammed Airport (MMA) Lagos before skidding into a ditch. It took 4days to remove it from the incident scene. Pilots of both aircraft were banned for three months by the then Aviation Minister Mallam Isa Yuguda[19.] Soon after these IRS Airlines' Fokker 100 with about 100 Passengers made an air return to its point of take off at MMA Lagos after suffering hydraylic problem barely 25nm after take off. It suffered wing collapse while taxiing for a bend in the runway. It took hours to tow it off forcing diversion of local flights to Ilorin Airport and international flights to Accra.[20] On 2 November Associated Airlines' Short 360 Turboprop aircraft landed on a flooded runway 18L of MMA Lagos. The 20 persons on board were unhurt .The pilot was told not to land that there was flood he still landed.[21] About the same time Lockheed Tristar 100 cargo aircraft from Uganda skidded off the Lagos runway as a result of flooded runway 18L and fell into a mud at the end of the runway.[22] This led to the closure of the airport for not less than 24 hours and also for lack of rescue equipment and potholes on the runway. For the period of the closure local airlines grounded their operations while foreign airlines suffered flight diversion to neighbouring West African countries thus bearing extra cost of accommodating their passengers in hotels. Few days later a Bellview Airlines' Boeing 737–200 lost a tyre in Lagos while landing after a heavy downpour, as the pilot was trying to avoid getting into

the pool of water on the runway and stave off skidding into a ditch.[23] On 19 December Bellview Airlines' Boeing 737-200 flight 252 bound for Accra-Freetown piloted by Captain Ugborgu had flat tyre on landing at the Kotoka International Airport Accra with 63 passengers. No one died the airport community prevented it from developing into an accident.[24] An ADC B737–200 aircraft billed to depart Margreth Ekpo Airport Calabar on 28th December for Lagos had taken off when the pilot discovered that the engine had suffered a bird strike. And suddenly came down triggering fear among the passengers including a presidential aide Senator Florence Ita Giwa. Upon making contact with the runway, the passengers were evacuated safely. No damage was discovered in the engine[25]. Notwithstanding, the difference between an accident and a serious incident lies in the result[26].

3.3 TRESPASSING ON AIRSPACE

Another aspect of air disaster is that of intentional shooting down of aircraft by states that claimed the foreign aircraft trespassed on their national airspace. It is not a new problem, in 1904 Russian soldiers shot down a German balloon. The incident gave rise to considerable indignation, the more so as it was alleged that the balloon was not actually over Russian territory at that time. Four years later at least ten German balloons carrying military officers crossed into France, and the desire to avoid such incidents in future seems to have been one of the reasons why the French Government sponsored the conference of 1910[27]. A number of incidents occurred between the two world wars. For instance, in January 1931, two Polish Military aeroplane landed in Germany. The leading pilot was sentenced to 2 weeks imprisonment, but his companion was acquitted. Four months later, the German courts had to deal with a case in which a Polish Military pilot, after landing in Germany by mistake and being informed by the local inhabitants that he

was in Germany, endeavored to fly back to Poland but had to land in German territory again because of lack of petrol. He was sentenced to 3 days detention for attempting to resume his flight without the permission of the German authorities.

Some incidents that have taken place since 1945 have been more serious. For example, on 19th August 1946, an unarmed American military transport aircraft was shot down over Yugoslavia. According to the Americans the aircraft was forced into Yugoslavia unintentionally by bad weather and was shot down without warning. In a note to Yugoslavia, the United States Government described the shooting down of the aircraft as an outrageous act 'a plain violation of the obligations resting upon Yugoslavia under the Charter of the United Nations' and an offence against the law of nations and the principles of humanity. To this strong language the Yugoslav Government replied that it accepted no legal liability. It asserted that the aircraft had flown over Yugoslavia illegally and had refused orders to land. When two governments are at such variance over the facts, it is difficult to deduce legal principles from their correspondence, but it does seem that both parties were agreed that in time of peace intruding military aircraft should not be shot down without at least being given an opportunity to comply with orders to land[28]. Also on 13th June 1952, a Swedish military aeroplane was shot down by Soviet fighters over the Baltic. Again the fact was disputed, and a further complication concerned the actual extent of the Soviet airspace, as the Soviet Union's claim to territorial waters of the 12m and consequently the airspace above those waters – is not recognised by Sweden. Again the notes exchanged revealed an opportunity to land before being fired upon, although, according to the Swedish note, there were 'fundamental differences' in the attitude of the two countries. As the Swedish note puts it: 'While the instructions of the Swedish Air Force mean that the foreign aircraft is not fired upon if it changes course and

flies away, the Soviet instruction seem to imply that the foreign aircraft is fired upon if it flies away instead of landing. This last factor, coupled with the Soviet Union's claim to territorial waters of 12m, probably helps to explain other incidents that have occurred in or near that country[29]. Besides, on 7th October 1952, a United States B29 aircraft was shot down by Soviet fighters between Yuri Island and Akiyuri Island. This was an area, which, in the view of the United States belonged to Japan, although the Soviet Government claimed that the aircraft had violated Soviet air space. Again it is obvious that disputed frontiers are particularly liable to generate aerial incidents. The U.S. referred the case to International Court of Justice (ICJ), but the later, finding that the Soviet Government had not accepted the jurisdiction of the Court, ordered the case to be removed from the list[30]. Similar incidents occurred on 4 September 1954 and on 7th November 1954. Again U.S. referred the cases to ICJ, and again it ordered them to be removed from the list[31]. U.S. also instituted proceedings before the Court against both Hungary and the Soviet Union concerning an American C47 military transport aircraft forced down by Soviet fighters over the Hungary on 19th November 1951. The respondent states declined to accept jurisdiction, and again the Court had to remove the case from its list.[32] The same thing happened when U.S. brought suit against Czechoslovakia over an aerial incident, which occurred on 10th March 1953.[33]

An aerial incident, which nearly led to the Court giving judgment on the merits of the case, was that which occurred on 27th July 1955. A constellation aircraft belonging to E1 A1 Israel Airlines limited was shot down over Bulgaria while on a flight from Vienna to Lydda. All the 51 passengers of varying nationalities and 7 crewmembers also of varying nationalities died. Israel asked the ICJ to declare that Bulgaria was responsible under international law for the destruction of the aircraft and for the loss of lives and

property and all other damage that resulted therefrom and also to determine the compensation due from Bulgaria to Israel. Actions were also brought by U.S. and United Kingdom, which had lost respectively 9 and 4 of their nationals. All the applicant states had some hope of persuading the Court to exercise jurisdiction because on 29th July 1921 Bulgaria had signed and subsequently ratified a declaration accepting the compulsory jurisdiction of the statute of the Permanent Court of International Justice (PCIJ). Moreover, Article 36 (5) of the Statute of ICJ provides that declaration made under Article 36 of the Statute of the PCIJ and which are still in force shall be deemed as between the parties to the ICJ for the period which they still have to run and in accordance with their terms. The Bulgaria declaration had never been withdrawn. However, the Court held that the declaration was not caught by Article 36(5) because Bulgaria, although became a party to the statute of the Court on 14th December 1955; was not represented at the San Francisco Conference in 1945, when the present statute was drafted. It was also held that, even if Article 36(5) did apply to the Bulgarian Declaration, that declaration was no longer 'in force' since it must be deemed to have lapsed with the dissolution of the PCIJ in 1946[34]. The main Israel action having failed, the cases brought by the U.K. and the U.S. were subsequently discontinued[35]. The U.S. aircraft piloted by Francis Gay Powers on 1st May 1960, this high-flying U.S. reconnaissance plane was shot down near Sverdlovsk. This time there was no possible doubt that the plane was over Soviet territory, and even President Elsenhower himself accepted responsibility for the flight. When the Soviet Union raised the matter in the Security Council, Ambassador Lodge gave as a justification for the flight the need for the free world to protect itself against a government 'well known for its expansionist activities and armed to the teeth'. Only Poland supported the Soviet draft resolutions, which would have, the council

condemn the incursion as 'aggressive acts'. The draft resolution was consequently not carried[36]. In the case of American RB47 plane shot down by Soviet aircraft on 1st July 1960. Soviet Union said the American plane had penetrated Soviet airspace and had refused to land when ordered to do so. The American stated that the plane had at no time been nearer than 30m to the Soviet coast. Again the Soviet draft resolution in the Security Council was supported only by Poland, whilst in its turn the Soviet Union vetoed an American resolution supporting that the case be referred to either a fact-finding commission or to ICJ. U.S. planes were also been admitted for sometime to be engaged in reconnaissance flights over Cuba and one was shot down during the missile crisis of October 1962.[37]

Regrettably, despite all these incidents, there was no opportunity to advance the state of the law by judicial decision particularly in the E1 A1 Airliner case, because this case had no serious cold war implications unlike the U2, RB47 and Cuba reconnaissance flights. In all these incidents the government concerned put their views on record, and in the E1 A1 case they had to formulate these views with the greater precision required when a case is presented to a court.

However, recognizing that interception of civil aircraft is always potentially hazardous, ICAO provided that interception of civil aircraft shall be governed by appropriate regulations and administrative directives issued by contracting states in compliance with Convention on International Civil Aviation when contracting states undertake to have regard for the safety of navigation of civil aircraft[38].

3.4 CRIME ON BOARD AIRCRAFT

Airport security procedures are designed to deter, prevent and respond to criminal acts that affect the safety and security of the traveling public. Criminal activity includes the

hijacking of aircraft, known as air piracy, damage or destroying aircraft with explosives, and other acts of terrorism, defined as the systematic use of terror or unpredictable violence against government, public, or individuals to attain a political objective. Criminal activity also includes acts of assault, theft, and vandalism against passengers and their property, aircraft and all airport facilities[39].

3.4.1 HIJACKING OR AIR PIRACY

Hijacking or air piracy is another form of air disaster. It is known as crime or unlawful act on board aircraft. The activities of suiciders. Historically, challenges of security are not new to aviation but as old as the industry, which recorded the first unlawful act in 1950s when an aircraft was hijacked to Peru South America by a loner. In the 1960s there was another breach of security during an era of air piracy or the so-called liberalisation during which aeroplanes were successfully hijacked with impunity by people seeking to express political or religions views. The era witnessed unprecedented hijacks with terrorists being accorded red-carpet reception by some states. This led to the emergence of state sponsored terrorism[40].

During the early cold war era, of the seizing or forcible diversion of military aircraft from one side of the Iron curtain to the other, with the tacit encouragement or aid of the military intelligence units of both sides. There were also the occasional cases of political refugees taking over or commandeering regular passenger aircraft and directing them to a presumed political haven. In the 1960s, however, because of the very frequency of repetition of the incidents and the mounting escalation of the political intensity of those incidents and, in consequence also, the escalation of the disregard for, and gratuitous mistreatmement of the innocent civilian aircraft passengers involved, the act of hijacking itself became recharacterised from an erstwhile occasional adventures to a genuine

international delict. Acts of unlawful interference directed against international civil aviation jeopardize the safety of persons and property, seriously affect the operation of international air services and undermine the confidence of the people of the world in the safety of civil aviation. There were 290 cases of hijacking worldwide between 1968-1972[41]. The ease by which aeroplanes were hijacked and safe haven granted the hijackers encouraged hijackers and also escalated global air piracy or unlawful seizure. The international community saw the danger posed and rose up to the challenge by introducing far-reaching measures. Some of the measures are still in place till date and continuously being developed to meet developing threats.

The United Nations have consistently addressed the problem of terrorism, taking both legal and political steps. In the legal sphere, UN and its specialized agencies such as ICAO, International Maritime Organization (IMO) and International Atomic Energy Agency (IAEA) have developed a network of international agreements that constitute the basic legal instruments. These include:[42] Convention on Offence and Certain Other Acts Committed On Board Aircraft Tokyo, 1963. The growing problem of crimes on board aircraft, especially in relation to jurisdiction and the powers of the aircraft commander, which followed the Convention in 1963. This Convention proscribes certain offences both against the panel law and those which may or do jeopardize the safety of the aircraft or persons on board. The powers of the aircraft commander and jurisdiction over the offences were defined. It came into force on 4 December 1969. Its acceptance is widespread with over 60 parties ratifying it; Convention for Suppression of Unlawful Seizure of Aircraft, The Hague 1970. Commonly known as Hijacking Convention was the immediate reaction to a spate of aircraft hijack in the late 1960. Its purpose is to ensure the prosecution and strict punishment of persons unlawfully seizing aircraft the

importance given to this convention is evident by the large member of states which became parties to it within a short time; Convention for the Suppression of Unlawful Acts Against the Safety of Civil Aviation Montreal, 1971. Known as The Sabotage Convention, covers acts other than seizure of aircraft including acts destroying, damaging or endangering the safety of aircraft aerodromes or air navigation installations. It entered into force on 26 January 1971; Convention for Unification of Certain Rules Relating to the Precautionary Arrest of Aircraft, Rome 1933. It has 22 parties, the object is to limit and regulate the right of arrest. This is defined as any act whereby an aircraft is seized in a private interest, through the medium of agents of justice or of the public administration, for the benefit either of a creditor, or of the owner or the holder of a lien on the aircraft, where the attaching claimant cannot invoke a judgment and execution, obtained beforehand in the ordinary course of procedure, or an equivalent right of execution. The General Assembly brought about three conventions these are:[43] Convention Against the Taking of Hostages 1979, in which states parties agreed to make the taking of hostage punishable by appropriate penalties. They also agreed to prohibit certain activities within their territories, to exchange information, and to enable any criminal or extradition proceedings to take place. If a state party does not extradite an alleged offender, it must submit the case to its own authorities for prosecution. It had 83 states parties as at mid 1998; The International Convention for the Suppression of Terrorist Bombings 1997. Its aim is to deny safe haven to persons wanted for terrorist bombing by obligating each state party to prosecute such person if it does not extradite them to another state which has issued an extradition request. In the political sphere, The General Assembly adopted in 1994 the Declaration on Measures to Eliminate International Terrorism, which condemned all acts and practices of terrorism as criminal and unjustifiable, wherever and

by whomever they were committed; the Assembly urged states to take measures at the national and international level to eliminate international terrorism.

That concerted effort of the international community saved aviation from collapse then. ICAO came up with international standards and recommended practices (SARPs) to strengthen and support civil aviation security. The resolve of international community considerably reduced terrorism in civil global aviation. The Conventions were followed by the adoption in 1974 by the ICAO of Annex 17 dealing on security. One of the most effective methods of combating the threats of sabotage, hijacking, terrorism, and other acts against aviation is for individual governments to ratify such conventions and enact laws that serve to deter and punish such acts. Although not all countries ratified the three security conventions, most have enacted the necessary national legislation, administered through regulations of the governmental administrative departments and courts. In the US, Federal Legislation includes the Anti-hijacking Act of 1974, which serves as the legal basis for the aviation security regulations of the FAA. The Canadian Federal Government in strong legislation enacted an Act of Parliament setting terms of imprisonment from a minimum of 14 years to maximum of life[44]. In the UK the recommendations of the three major conventions were ratified by the Tokyo Convention Acts of 1967, the Hijacking Act of 1971, and the protection of Aircraft Act of 1973. In addition there were other acts of Parliament, notably the Policing of Aircraft Act 1974 and the Civil Aviation Act of 1978, that had a bearing on aviation security. With the exception of the Tokyo Convention Act 1962, all the other acts have been consolidated into the Aviation Security Act of 1982[45]. In Nigeria it is covered by S. 13 Civil Aviation Act Cap C13 LFN 2004.

Terrorism has not disappeared but only driven underground. splinter terrorist

groups or organizations now exist all over the world vicious and ruthless. Prepared to bomb innocent people out of the sky in thousands. Incipiently, terrorism in aviation has become sophisticated and expensive to combat. Terrorists are aware of the resolve of international community poised to block all loopholes and vulnerable points in aviation. Tactics of modern day terrorist have changed. They exploit the slightest available opportunity to maximize casualties and damages. As exemplified in the horrific attack in the U.S. on September 9th and 11th 2001. The multiple attacks on World Trade Centre, New York Pentagon in Washington D.C. and others. The attack was perpetrated through vulnerability of aviation security. This must never be allowed to happen again. The world must not rest its oars, terrorism must be resisted because it's a threat to flight safety.[46]

3.4.2 DISRUPTIVE PASSENGERS

Disruptive passengers as well constitute danger to flight safety. The problem of unruly passengers has become a major concern in the airline industry. This is profound in the first class cabin, where celebrities, VIPS and high-powered professionals who may be unaccustomed to assertions of authority by others frequently travel. Air carriers who cannot control their passengers face risks of lost patronage from disappointed travelers who take offence at bad behavior in the cabin. In response to this problem, the airline industry requested guidance from Federal Aviation Administration (FAA), which responded with an Advisory Circular to assist carriers in establishing program to reduce the number of unruly passenger incidents. On the international front, the International Air Transport Association (IATA) strongly urged that governments enact special legislation to punish offences committed on board aircraft, even if the offence occurs outside the territorial jurisdiction of that country[47]. The more outrageous instances of unruly passengers conduct have not escaped the media's attention and some generated

substantial new coverage, examples during a flight from Houston to Los Angles a couple poured hot coffee on flight attendant, tried to kick in the cockpit door, and threatened to open the aircraft's exit door, all because they were refused a first-class upgrade and a businessman in first-class cabin on a flight from Buenos Aires to N.Y. performed his bodily function on a wine cart after being refused further alcoholic beverages by flight attendants[48].

However, the carrier has the right to remove or restrain disruptive passengers based on three sources of law these are: the 1963 Tokyo Convention on Offences and Certain Other Acts Committed on Board Aircraft which more than 150 nations adhere to. It is a multilateral agreement designed to achieve uniformity of law and to encourage nations to exercise jurisdiction over crimes committed aboard aircraft registered in that nation. By its terms, the Convention applies to offences against penal law and acts, which whether or not they are offences may or do jeopardize the safety of the aircraft or of persons or property therein or which jeopardize good order or discipline on board aircraft registered in that nation. One of the primary purposes of the Convention was to make more certain the powers and authority of an aircraft commander, establish a uniform international standard for judging the actions of the commander, and to encourage countries to punish crimes and certain non-criminal acts committed aboard aircraft. The Convention applies only to acts committed on board aircraft registered in a signatory state, and which take place: in flight; on the surface of the high sea or outside the state of the aircraft's registration. The Tokyo Convention provides that if the commander of an aircraft or where immediate action is required, a member of the crew has reasonable ground to believe that the safety of the flight or of passengers aboard the flight is jeopardized by the actions of a passengers, the aircraft commander may employ reasonable measures,

including restraint to protect the safety of the aircraft or of persons or property therein; maintain good order and discipline on board; deliver such a passengers to competent authorities or disembark the passenger. In furtherance of those objectives, the Convention permits aircraft commander to require the assistance of other crewmembers and passengers. Where an aircraft commander, flight crewmember, or passenger acts in accordance with the provisions of the Tokyo Convention, neither the carrier nor the crew or passenger will be held responsible in any proceeding on account of the treatment undergone by the persons against whom the actions were taken[49]. Another legal source of carrier's right to remove or restrain disruptive passenger is Federal Statutes and Regulations. Section 44902 of the FAA provides in pertinent part that an air carrier, or foreign air carrier may refuse to transport a passenger or property the carrier decides is or might be inimical to safety. This section gives the carrier the authority under appropriate circumstances, to refuse to allow a passenger to board the aircraft, and to make unscheduled stops to remove a passenger from the aircraft. The Regulations promulgated under the FAA provide that no person may assault, threaten, intimidate, or interfere with a crewmember in the performance of his duties aboard an aircraft being operated.

Passenger who appear intoxicated may be precluded from boarding an aircraft, and may be refused service of alcohol during flight. FAA Advisory Circular 120-65, dated 18 October 1996, sets forth general guidelines for the implementation of carrier programs to reduce the frequency of unruly passenger incidents. AC120-65 acknowledges the increase in undisruptive passenger occurrences, and recommends that each carrier develop programs to handle violence, and provide assistance to individual who are involved in passenger disturbances. AC120-65 states that carriers should implement company policies which establish a zero tolerance for unruly passengers

conduct, and provide the public with information concerning the seriousness of inappropriate behaviors on an airplane. The Advisory Circular emphasizes the training of crewmembers; responding to imminent danger, and the reporting of information concerning disruptive passenger incident[50]. In Nigeria this is covered by SS. 37- 40 Civil Aviation (Air Navigation) Regulations[51]. The other source is carrier tariffs. Prior to 1978 all regulated air carriers were required to file tariffs with the Civil Aeronautics Board showing all rates, fees, and charges for air transportation between points served by the carrier and all classifications, rules, regulations, practices and services in connection with such air transportation. When congress deregulated the U.S domestic airline industry in 1978, domestic tariffs filing requirements were abolished. Tariffs are still required for international air transportation. It is well settled that valid tariffs are conclusive and exclusive to the rights and liabilities of airlines and their passengers. The terms and conditions of the tariff may not be added to through reference to outside contracts. The filing of a tariff constitutes constructive notice of the tariff terms and conditions, even though such terms and conditions are not included in the documents of transportation. In this regard a passenger is conclusively deemed to have notice of the contents of a carrier's tariff. As a general rule, tariffs filed by carriers engaged in international air transportation provide that if, in the reasonable judgment of a responsible carrier employee a passenger is or has been known to be abusive, offensive, threatening, intimidating, violent, or otherwise disorderly the carrier may refuse to carry the passenger or remove the passenger from the aircraft. Under the general rules outlined above, these tariff provisions should apply, whether or not the disruptive passenger behavior occurs within the territorial jurisdiction of the U.S, or in the sovereign territory of another country[52].

Unruly behavior is caused by indiscriminate use of alcohol before and after boarding aircraft, increasing length of flight due to advances in aeronautical technology, long lines at boarding gates, unexpected delays and crowded cabins. Experts compared air travel in crowded condition to the phenomenon of road rage; where the drivers of automobiles sometimes lush out at other motorists from sheer frustration at being in congested traffic conditions. There also appear to be lack of awareness among general public that disobeying or verbally abusing a flight crewmember may constitute a federal offence which could subject the passenger to criminal and civil penalties. Federal Law specifically provides that a carrier may refuse to permit a passenger who appears to be intoxicated or otherwise a danger to the flight, to board an aircraft. Provided the carrier acts reasonably, and not arbitrarily or in discriminatory fashion, these regulations permit carrier to screen out potential problem passengers prior to boarding. It has been suggested that the ticket agent and the gate agent are the first line of defense against problem passengers, since both are in a position to observe boisterous or aberrant behavior prior to boarding, at a time when airline security personnel on the ground may be summoned. The disruptive passenger situation on board an aircraft, FAA Advisory Circular AC120-65 categorizes passenger misconduct by increasing levels of seriousness and sets forth specific actions which may be taken to deal with the problem. These actions range from a simple verbal warning to restraint of a violent passenger. In response to passenger actions which do not interfere with cabin or flight safety, denominated a category I action, AC120-65 states that if the passenger complies with a verbal request from the crewmember, no further action is necessary. If the behavior involves a category II action, that is passenger misconduct which threatens cabin safety, such as failure to fasten a seatbelt, or operation of unauthorized electronic equipment, AC120-65 recommends that,

in the event that the passenger refuses to comply with verbal request, the crewmember immediately notifies the cockpit. The flight attendant and captain may then confer on an appropriate course of action. This includes subjecting the passenger to federal criminal and civil penalties; a warning to the passenger that in the event that the captain is forced to leave the cockpit to deal with the situation serious consequences will follow, including a report of passenger misconduct to the FAA. If this warning is ignored, the captain has the option of expelling the passenger from the aircraft. When a crewmember is faced with a credible threat of injury, or actually physically assaulted (category III action) AC120-65 states that the captain should be immediately notified and action taken to restrain the passenger. The crewmember should seek assistance from other crewmembers, or passengers if needed. An unscheduled landing may be in order to deliver the passenger into the hands of local law enforcement authorities[53].

In all cases proper steps must be taken to precisely identify the passenger by name, address, physical description and seat assignment. If law enforcement officials have been requested by radio to meet the aircraft at the airport, all passengers should be instructed to remain seated until they are told to disembark. By this the identity of the passenger and control over him is immediately established. The passenger is precluded from getting lost in the crowd. And other passengers will see the response of the law enforcement which acts as deterrent to future disruptive passenger incidents. In case of serious passenger misconduct, a complaint to the FAA by the carrier may be appropriate and AC120-65 recommends that full cooperation in any subsequent FAA investigation be given by the members of the crew and carrier, including interviews and written statements[54].

Whether a state may assert extra-territorial jurisdiction over a passenger depend on the domestic laws of each particular nation for instance in Japan extra-territorial

jurisdiction exists over Japanese registry, no extra-territorial jurisdiction exists over non-national who commits offence on aircraft of foreign registry. In Nigeria a Nigerian who commits an offence aboard an aircraft outside Nigeria is deemed to have committed the offence in Nigeria. Therefore Nigeria assumes jurisdiction[55]. In U.S. a passenger who commits offence on an aircraft scheduled to land in U.S may be prosecuted in U.S regardless where the offence was committed. However, care must be taken in dealing with disruptive passengers because actions taken by a carrier in response to disruptive passenger incident may result in litigation against the carrier in: tort actions under state tort and common law; and unlawful discrimination under FAA. Under state tort the passenger may sue the carrier alleging common law tort claims of violations of state statutory law. Sometimes flight attendants or other passengers injured by the disruptive conduct can sue the carrier. In *O' Carroll v American Airlines Inc*.[56] a passenger became loud, drunk and boisterous during a flight from Portland, Maine to Alexandria. At one point he warned the pilot that he would help him fly the plane. At a scheduled stop in Dallas, he was ejected from the aircraft he sued the carrier asserting various state law tort clams. The court held that the passenger could not sue the carrier under Texas State Law, as such claims were unrelated to services performed by the carrier. The same ruling was followed in *Zsa Zsa Gabor V Delta airlines*[57] Ms Gaber an actress on a flight from West Palm Beach, Florida to Los Angeles. Prior to departure, she was escorted off the aircraft because she refused to allow a flight attendant to stow her carry-on baggage. She sued the carrier for negligence, defamation, assault and battery under Florida State Law, alleging that she was wrongfully ejected from the aircraft. The court had no difficulty dismissing her lawsuit on the authority of *O' Carroll*. In *Sleigh V Della Airlines*,[58] on flight from N.Y to Istanbul which made intermediate stop in Frankfurt, Germany. Once on ground in

Germany flight attendant observed Mr Sleigh was agitated, nervous and sweating and made 3trips to aircraft lavatory where he stayed long. On one of the trips the lavatory smoke alarm was activated. The captain requested the 9 armed Federal Sky Marshals on board the aircraft as a precaution against hijacking to make security assessment of the situation they followed him to the lavatory in his third trip after other passengers complained to them that they overheard him muttering 'kill all the Jews', and vowing that he was going to get them. The Sky Marshals apprehended him and delivered him to Germany authorities. He was found to have been traveling with altered passport. He sued the carrier, claiming unlawful imprisonment, assault, intentional infliction of emotional distress, slander, loss of comfort, and breach of contract. The court held:

> *Mr. Sleigh's lawsuit was completely barred by S.1511 of FAA which provides the carrier with discretion to eject a passenger who is or might be, inimical to safety. The captain and his crew proceeded in a careful and reasonable manner. The crew informed the captain of their concerns. The captain consulted with all available safety personnel. The airline was not obliged to make a more thorough investigation into Sleigh's background before making its determination that he posed a threat in the airplane. The court should not reject with the benefit of hind sight the consensus reached by those with responsibility to act*.

Under unlawful discrimination a carrier may not subject a person, place, port, or type of traffic in foreign air transportation to unreasonable discrimination. In *Cordero V CIA Mexican de aviation S.A*.[59], plaintiff a passenger in a flight from Los Angeles to Mexico City. During the flight a passenger became unruly uttering obscenities and threatening to strike a cabin attendant. After a stop in Mazolan plaintiff was told he would not be permitted to reboard the aircraft because he insulted the captain and crew. He protested his innocence, insisting that it was another passenger that insulted them. He was not allowed to board the aircraft. He sued Mexican for denied boarding. The jury found that

Mexican did not act reasonably in refusing plaintiff board the aircraft because another passenger confirmed that it was another passenger that insulted them. The jury awarded plaintiff $2,000 in general damage and $35,000 in punitive damages. On appeal the general damage award was upheld, but the punitive damage award was vacated because the evidence showed only that plaintiff was a victim of mistaken identity. Relying on the provision of treaty such as Tokyo Convention as a defense. In *Levy v American Airlines*[60],plaintiff was a criminal defendant being extradited from Egypt to U.S via Zurich. During the flight, plaintiff attempted to slash his wrists, and then engaged in a fist fight, with law enforcement officers who accompanied him. The officers restrained and gagged him, and arranged for a doctor to administer a sedative by injection. Plaintiff's mouth was taped shut. He sued the carrier for battery and false imprisonment. The trial court held:

> *Plaintiff's claims were barred by Tokyo Convention, because theactions taken in restraining him were reasonable. As Levy was clearly jeopardizing good order and discipline on board the aircraft, if not the safety of the aircraft and passengers. Accordingly, it was reasonable for captain and crew to request the assistance of a doctor and to allow the agents to restrain him.*

Applying Warsaw Convention in this case the same court states that for cases involving international air transportation, Article 17 of Warsaw Convention provides that a carrier is liable for damages caused by an accident which occurs during the transportation by air. An accident being defined as an unexpected or unusual event external to the passenger. Applying the definition to Levy's claims, held that Levy's injuries resulted from his own conduct or the acts of the law enforcement agents, not any event related to the operation of Swissair or American flights. To the extent that Levy caused himself injury, those acts are not external to the passenger and thus cannot be considered accident. The court went on to hold that Levy has no claim against either Swissair or American under the

Warsaw Convention.

3.5 TYPES OF ACCIDENT

Accident may fall into more than one category or no category at all. The following definitions were used for the categorizations of accidents by type:[61] Technical problems, which are accidents involving system failures or malfunctions, including engine or propeller failure. Fuel explosion, these are accidents involving fire and/or explosions including post impact fires. Loss of control, which are accidents involving loss of control/deviation from the intended flight path. Icing, are accidents involving icing. Collisions, these are aircrafts collision excluding collisions with packed aircraft. Wind shear, which are accidents involving wind shear.

3.6 CAUSES OF ACCIDENT

Air accident is caused by three major factors namely: human error, mechanical fault and natural phenomenon.

3.6.1. HUMAN FACTOR OR ERROR

According to Annex 6 of International Civil Aviation Organisation (ICAO) human performance is human capabilities and limitations, which have an impact on the safety and efficiency of aeronautical operations[62]. Where the crewmembers, maintenance and air traffic officers fail or neglect to perform their duties properly or pilot disobey instructions from control tower it could cause accident. Pilot's disreguard for aeronautic information service and weather reports constitute threat to air safety. In 2005 the pilots of EAS and Chanchangi Airlines were suspended because they were told not to land due to flood they still landed causing serious incidents. When the pilot sleeps off during flight or gets too familiar with his checklist, takes them for granted and never goes through them before flying, passengers carry what they suppose not to carry accident can occur.

Also when suiciders are on their mission.

Finally according to the conclusion of one author, when there is airplane accident the fault is usually human not mechanical.

3.6.2. MECHANICAL FAULT

Mechanical fault has to do with the functioning of the aircraft itself as in the case of Iranian military transport plane crash where the pilot reported technical difficulties before the crash. Also the American plane crash in Bahamas the pilot as well complained of technical difficulties before the crash.[63]

3.6.3 NATURAL PHENOMENON

Natural phenomenon has to do with unfavourable weather condition and so on as in the case of Sosoliso plane crash, it was said that the aircraft was hit by thunderbolt which made it catch fire on its final descent on runway 21. When it hit the runway, the impact broke it into two. Also the Aero Contractors' Commercial Aircraft aborted flight that was said to have been caused by bird strike. Some of the birds were said to have entered one of the engines of the aircraft when it was on take-off run at about 2:30pm seven blades in the engine were damaged forcing the pilot to abort the flight[64]. In December 2005 Southwest Airlines plane B-737 from Baltimore with 98passengers and 5crewmembers skidded off the snowy runway of Chicago Midway Airport during snow storm into a busy street. Snow was falling when the aircraft made instrument landing. It struck cars 13 people were injured, 6year old Joshua Wood of Indiana was killed his 2 younger brothers and parents were injured when the plane crushed the car they were riding. Besides, recently a Chadian military C-130 aircraft crashed during a dust storm at an airport near the eastern town of Abeche killing 5crew and injuring 2 people on the ground due to poor visibility[65]. Furthermore, bird strike grounded Aerocontractors Airlines' Dash-8 aircraft causing a dislocation in its smooth operation in Escravos. It took off in Lagos and had its nose hit by birds. The airline lost over N10m in a week as it affected the number of flights to Escravos. Aircraft engine hit by bird could cost as much as $200,000 to repair while a twin-engine aircraft hit by bird could drop from the skies[66].

3.7 NATURE OF ACCIDENT

Accident may involve hull loss that is complete destruction of the aircraft. As in the case of Bellview Airlines Boeing 727 flight 200 piloted by Captain Lambert Imasuen with 117 occupants that crashed few minutes after take-off from Murtala Mophammed

Airport (MMA) Ikeja Lagos to Abuja at Lissa village in Ogun State on Saturday 22nd October 2005. Most of the planes hull disappeared in the soft soil. Villagers in the vicinity of the crash site said the plane was in flames even before it plunged into the farmland. All the occupants died. Experts from U.S. makers of the body and engine arrived in Nigeria to collaborate with Nigerians in investigating the cause. Also in September 2005 an aeroplane crashed into a living building in Indonesia shortly after it took off. Over 140 people died many wounded and the aircraft destroyed[67]. Moreover, on 28th November 2005 a private jet Beech-craft 200 plane piloted by Shuaibu Ahmadu Ali crashed about a minute after take-off at Kaduna Airport about 11:20a.m. The two pilots, one a lady (only occupants) died. The bush where the plane landed ignited in a ball of fire, the airport fire fighters could not salvage the situation. The aircraft was destroyed.[68]. On 6th December 2005 an Iranian military transport plane crashed near Tehran after hitting a 10 storey apartment building, killing at least 110 people. The air force C. 130 carrying over 90 people was going to Port city of Bandar Abbas in Southern Iran when the pilot reported technical difficulties and was returning to base when it crashed at about 2pm sparking fires in the apartment building housing military personnel and their families. The aircraft was damaged. On 16th December 2005, a Sosoliso Airlines DC-9 Flight 1145 with registration number 5N-BFD from Abuja piloted by Captain B. Adebayo crashed at Port Harcourt airport at 2:08pm killing 107 people out of which about 50 were students of Loyola Jesuit College Abuja returning home on holidays. The cause of the crash though not known but it was gathered that the aircraft was hit by thunderbolt, which made it catch fire on its final descent on runway. When it hit the runway, the impact broke it into two. The victims were said to have burnt to death while the survivors escaped with serious injuries. The tarmac where the crash occurred was a

gory scene with corpses everywhere. Relevant aviation agencies, including: Federal Airport Authority of Nigeria (FAAN), National Airspace Management Agency (NAMA) and people of the airport community at Omagwa responded promptly for rescue operation. A helicopter, which was about to land at the time of the crash perched down immediately to trigger rescue efforts. The airport was closed to traffic to make way for full rescue operation while preliminary investigation by the Accident Investigation and Prevention Bureau (AIPB) began.

Besides, accident can involve destruction of properties as in the following cases. The Indonesian case above where a plane crashed into a living building destroying it. Also the Iranian military transport plane that crashed into a 10-storey apartment building setting it ablaze. Around June 2005, Air France A330-300 aircraft on its way from Paris collided with a herd of cattle as it taxied to a stop in the early hours of the day at Port Harcourt International Airport. Seven cows died and it suffered severe damage. Power outage that night impaired the pilots' visibility that he could not see the cows on time[69].

Moreover, it may involve passenger fatality or loss of life as in Belleview Plane crash where 117 persons perished. Indonesia case over 140 people died, on 23rd September, 2005 a helicopter crashed in Mexico killing people[70]. The Beech-craft 200 plane crash the two pilots died. On 19 December 2005, in America, an aircraft crashed shortly after take-off in Bahamas the pilot complained of technical difficulties the 20 occupants lost their lives. Also the Sosoliso plane crash that claimed 107 lives and Iranian military transport plane crash at least 110 persons perished.

It may involve injuries as in the case of Indonesia plane crash where over 140 people died and many were wounded. Also the Sosoliso plane crash where 107 persons were burnt to death, the survivors escaped with serious injuries.

Accident may involve damage or grounding of the aircraft in the case of Air France A330-300 aircraft, 7 cows died and the aircraft suffered severe damage. In 2005, IRS Airlines'. Fokker 100 with about 100 passengers made an air return to its point of take-off at MMA Ikeja Lagos after suffering a hydraulic problem barely 25nm after take-off. It suffered wing collapse while taxing for a bend on the runway of MMA Lagos. it took hours to tow it off. In November, 2005 a Belleview Airlines Boeing 737-200 lost a tyre while landing in Lagos after a heavy downpour. It lost the tyre while the pilot was trying to avoid getting into the pool of water on the runway and stave off skidding into a ditch. Two weeks after President Obasanjo spoke on the need to effect reform in the aviation sector, Lufthana Airlines Airbus A330-300 ran into a pothole on runway 18L (left) the only functional runway at MMA Lagos and had very serious body damage. On 19th December Bellview Aircraft lost its tyre in Accra Ghana Airport. Airport community prevented it from developing into serious accident. On November 8th, 2005 Aero Contractors' Commercial Aircraft with not less than 100 passengers on board in Abuja aborted flights, due to bird strike. Some of the birds were said to have entered one of the engines when it was on take-off run at about 2:30p.m. Seven blades in the engine were damaged forcing the pilot to abort the flight, it also lost two tyres.[71]

3.8 EFFECT OF ACCIDENT

Accident has negative effect on the society especially air travelers. As accident almost aborted the entire idea of aeronautics at the early stage, so it scares and discourages people from flying today. De Rozier's experience caused serious set back to ballooning, particularly in France. The unwarranted fears that preceded the first manned ascent from Paris was too soon succeeded by an equally unjustifiable optimism. In the first flush of enthusiasm so many ascents were made all over France by men who were

necessarily novices at the first essay yet suffered no more hurt than a few bruises on landing, that illusion of perfect safety was created. That illusion was shattered and the fact that the victim of the disaster was no raw novice but the great Pilatre de Rozier himself, the man who first showed the world the way to the skies, made its impact far greater. Those who argued that God never intended man to fly saw the fate of the first aeronaut as the just punishment for his presumption, a sign of the wrath of a heaven sore provoked by the insolence of man's invasion. Although a few bold spirits like Blanchard carried on, but the effect of de Rozier's disaster and the French revolution, which followed, was that ballooning did not regain a wide popularity until the early years of 19th century. Throughout England a number of ascents were made until the end of 1788, some of them highly dramatic, but subsequently ballooning lapsed there also until the end of the century[72]. In Nigeria people were scared of traveling by air late 2005 because of recurrent accident. High rate of accident impacts growth and development of an economy critical look at U.S. economy after the 9/11 September 2001 plane crash and that of Nigerian aviation industry during military era may help in understanding this statement of fact. In U.S. 120,000 aviation jobs suddenly evaporated after 9/11 September. Airline loses were estimated at $10billion in 2001. While 170,000 aerospace industry jobs disappeared. Properties worth billions of dollars were damaged or totally destroyed. There was general business depression in the industry. During the military era in Nigeria, persistent security breach kept investors from the economy U.S. Department of Transportation severed direct air link between John F. Kennedy (JFK) Airport New York and MMA Lagos on the basis of inadequate security. Its economic impact jolted Nigerian Airways and tourism business among others. Losses were in millions of dollars weekly. People simply avoided coming to Nigeria as much as possible[73]. .

Furthermore, there is loss of financial and material resources like the destruction of the aircraft, which is very exorbitant to acquire. Some of the aeroplanes crashed into buildings and livestock destroying them including the properties on board the aircraft. Besides, Airline Operators of Nigeria lost N3 billion due to the diversion of international flight to neighbouring African countries and grounding of local airlines during the closure of MMA Lagos in 2005. The money government should have committed to developmental projects were channeled towards setting up taskforces, investigation activities, committees, meetings and so on due to recurrent accident. According to the latest Montreal Convention each passenger is insured for $100,000. So each airline involved is to pay the relations of each victim $100,000.[74] Some of the airlines may never recover financially after this.

Moreover, airlines or brand of aircraft prone to accident may be banned from operation. For instance more than 45 people died in an Angolan air crash involving a Russian–made Antonov–24 planes. A statement from the Civil Aviation National, said the aircraft belonging to a private company 'As a Pesado' crashed soon after take off from the Luanda International Airport on a flight chattered for Angolan Air force base number 1. It added that the plane piloted by an Ukrainian crew and Angolan, was bound for Namibia. A crash involving similar aircraft had occurred in October at Mona Kimbundu, northeastern Lunda-Sul Province, killing around 50 people. As a reaction to the high rate of accident involving this brand of aircraft, Angola's Transport Ministry suspended all operations that involved Antonov 12, 24, 26, 30 and 32 series in the country[75]. Equatorial Guinea Government grounded all but one of the country's airlines. Their operating licences, including that of the national carrier were revoked after aircraft inspections carried out by South African experts due to July 2005 plane crash that killed

60 people. Likewise in Nigeria recurrent accident involving Boeing aircraft led the Federal Government of Nigeria to ground Boeing 737-100, 200 and 200C series of aircraft in the country based on U.S. Federal Aviation Administration (FAA) report.. The aviation Minister Prof Babalola Borishade also set up a special task force led by Engineer Folashade to audit aircraft and airlines in the country. The special panel had in a letter sent to the operators of the Boeing 737-100, 200 and 200C aircraft type said: The Federal Aviation Administration in the United States has recorded a report of stress corrosion cracks discovered by the operators during regular maintenance in the front spar of the centre section of horizontal stabilizer in two Boeing 737-100, 200 and 200 C series airplanes. "The repetitive inspection was, therefore called up to address identified unsafe conditions. In this regard, as a precautionary measure, all operators of the Boeing model airplanes registered in Nigeria are to immediately ground their airplanes"[76]. Besides, the President Olusegun Obasanjo grounded Sosoliso and Chanchangi Airlines until all their aircraft can secure clearance by the new inspection agency within one week. The Federal Government also suspended the Permanent Secretary Mr. Tom Oyelede and Director, Planning, Research and Statistics Mr. Esai Dangab of Aviation Ministry on account of the Sosoliso plane crash. On Monday 19th December 2005 the secretary to the Federal Government, Chief Ufot Ekaette inaugurated the presidential task force on the aviation industry led by Air Vice Marshal Paul Dike and charged it to make public its findings.[77]

3.9 PREVENTION OF ACCIDENT

Air accident may be prevented by being security and safety conscious and taking all safety

precautions seriously. Just as alleged claim of unsafe aircraft operated with expired licence by Ghana Airways, led the United States Federal Aviation Administration to ban

the airline from flying into U.S airspace. A statement from the US department of Transport (DOT) released on July 27, 2004 stated that the DOT had notified the airline that it currently has no authority to operate its service into and out of the U.S until aviation investigators can resolve questions surrounding the safety of the airlines aircraft and why it continued to fly to the U.S despite the fact that it had allowed its operating license to expire earlier in the month of July. Meanwhile passengers flying on that route between Accra and the United States were stranded at Ghana International Airport. U.S DOT said it recognised the vital link Ghana Airways provides to people traveling between U.S and West Africa. However. Ghana Airways actions raised serious questions regarding safety and licensing, which must be answered before the airline would be allowed to resume service to and from U.S. Being sensitive to the plight of stranded passengers, the DOT pledged to work with the airline to resolve these issues as soon as possible for the benefit and safety of the airlines passengers and crew as well as the traveling public. Ghana Airways operates flights between Accra and New York John F. Kennedy International Airport. Since the airline allowed its license to lapse U.S regulations require a thorough review of an application before it can be renewed.[78] Emirates Airline introduced the state-of-the-art Boeing 777-300er on Lagos –Dubai route and added Tunis the capital of Tunisia to its destinations in Africa and selected Messier Services to provide landing gear exchange overhaul and support services for its fleet of 37 A330-200 and A340-300 aircraft. The contract expected to run for 7years is one of the largest of its kind in the landing gear maintenance, repair and overhaul (MRO) industry. Messier has been providing Emirate with landing gear MRO since 1987 and has proved reliable hence the new contract. detailed loading plans and instructions are carefully designed for each flight, luggage, freight and mail are placed in the cargo space according

to those instructions, accurate weight-and-balance calculations concerning the flight are made. For example British Airways new baggage policy states that the maximum weight for any checked baggage will be 23kg according to health and safety recommendations. Flyers must be able to lift their bags unaided into the overhead locker of the aircraft. Passengers traveling to U.S, Canada, Bermuda, Caribbean, Nigeria, Brazil, and Mexico will be able to check-in 2 bags maximum, 23kg each no matter which cabin they are booked to fly in[79] and to ensure good health during flight airlines' medical department ensures first aid kit is easy to open and medical amenities easy to locate. Crewmembers are made aware that airlines' duty doctor is always available to give advice to crew in flight[80]

Furthermore, to prevent accident the Nigerian Aviation Minister directed airline operators to carefully select alternate and supplementary airports to avoid any negative result. National Airspace Management Agency (NAMA) are to update notice to airmen (NOTAM) for all airports in Nigeria. He warned of gloomy weather in the country between June and September 2006. The warning came in the heels of global and regional climate models indicating very intense tropical weather systems that portend increase in thunderstorm and high rainfall index along with associated hazards. The global trend in weather has become a source of concern for aviation safety. The weather prediction also indicated that storms will develop and bring weather in form of rain, thunderstorm, squeal, lighting turbulence wind shear, microburst and convergences that may have significant effect on flight operations and passengers comfort from June to August 2006 as there is the likelihood of more unstable and turbulent atmosphere. Weather had been identified as a major factor in aviation accidents worldwide. Expert say over 80% of aircraft accidents are caused by weather related problems as there is widespread

inaccurate weather forecast. As a way to preventing accidents the Minister called a meeting of stakeholders of the industry to intimate them of the danger ahead and to fashion out ways of preventing ugly incident. Unfortunately, the Minister could not attend because his flight from Abuja to Lagos was cancelled due to bad weather. So he was represented by the Director General of Nigerian Civil Aviation Authority Mr Harold Demurin. The forum was made up of pilots, airline operators, industry regulators and foreign aviation experts. It highlighted the need for pilots to exercise caution during flight. The Minister announced the intervening strategies aimed at enhancing the overall safety of flight operations within the airspace during the rainy season such as strict adherence to state weather minimal. Weather minimal for every airport in Nigeria is set by NCAA in conjunction with NAMA and attached to the operational manual of each aircraft. The aviation Minister however hinted that any airport that has below the approved state weather minimal will be shut. NAMA was charged with ensuring continuous serviceability of all the communication equipment including the existing SATCOM to guarantee uninterrupted dissemination of air traffic services data and en-route weather to pilot. Nigerian Meteorological Agency was directed to provide accurate real time weather information for departure, enroute and destination as well as alternate airports to pilots; it is also to provide appropriate forms to all pilots flying within Nigeria and into Nigeria to provide aircraft meteorological data. FAAN was directed to provide pilots, crew briefing rooms at all airports to enable NAMA and NIMET put them into operational use and recommended that pilots should be able to obtain and view correct pictures of real time weather. Airlines were directed to ensure that flight crews are provided with all the necessary equipment to ensure that they are well informed about weather conditions before commencement of any flight. Operators were advised not to

bring undue pressure to bear on their pilots to operate flights when the pilot feels the forecast weather condition is unsafe for flight and to respect the authority of the pilot in command of aircraft regarding his final decision whether to commence a flight or not and availability of functional and serviceable airborne weather radar, operators were asked to intensify pilot and flight dispatcher training in aerodynamics and meteorology while pilot training and simulator program should emphasize bad weather scenarios such as windshear and hydroplanting. Flight crew would be familiar with all available meteorological information appropriate to an intended flight and fully comply with all laid down regulations regarding weather minimal and should shun social and organisational pressure aimed at influencing their judgment regarding weather related decisions. Pilots were advised to carefully select alternate airport for landing in case of emergency and to carry adequate fuel uplift for destination and alternate aerodrome at all times. The Minister advised general aviation and helicopter operators to be more careful especially for low level windshear which will be predominant in low level collective activities expected during the period. He advised pilots who were not used to wet landing to be more cautious as most runways will be prone to flooding and aquaplanting during the period and should collect weather information from NIMET in line with standard professional practices before embarking on any flight. NAMA and NIMET were encouraged to have one-on-one briefing with pilots at airports for professional interpretation of synoptic features of their areas of operation before takeoff and landing data and enroute forecast in flight.

The Recovery Analysis and Presentation System (RAPS) facilities developed by Canadian Government is very important and mandatory for accident prevention programme in that it is used to monitor crew performance, engine condition and

condition of navigational aid. RAPS is also useful in determining the G-forces of aeroplane on impact and whether an aircraft had a hard landing in the cause of accident investigation. It is mandatory that aeroplane are maintained in accordance with RAPS. The use of RAPS is such that flight data recorder (FDR) is taken out at least once a week for study and condition monitoring for any premature failure. Corrective and preventive measures are then taken immediately to forestall eventual accident. It is ridiculous to operate a modern aeroplane without adequate and periodic monitoring of flight data recorders (FDR) by recovery analysis and presentation systems. The fault of Nigeria Airways Limited (NAL) is that there was no condition monitoring of their equipment over the years. So assessment of the state of navigational aids and facilities at the airports with a view to ascertaining their serviceability is a vital component of accident prevention because early detection of equipment gaps and replacements helps in avoiding air accident[81] thereby promoting air safety.

In terms of capacity building, staff should attend both local and foreign refresher courses periodically. So every navigator should acquire a sound knowledge of basic principles and continue to improve his theoretical knowledge whilst attaining practical proficiency as a result of continued experience. This will go a long way to prevent accident because navigation is a specialist job and consequently demands a very high standard of knowledge.[82] Potential cause(s) of likely accident/incident should be found out and forestall such likelihood from developing into accident. If adopted recommendations of accident final reports are religiously implemented it may prevent further accident. In the area of search and rescue (SAR) comprehensive brief for a public enlightenment should be made available detailing the role of civil society and armed forces in search and rescue efforts and satellite thereby increasing safety consciousness.

International Standards and Recommended Practices (SARPs) and Procedures for Air Navigation Services (PANS) if followed. may prevent accident. According to ICAO, the objective of accident prevention measures is to promote accident prevention by analysis of accident and incident data and by a prompt exchange of information:[83]

3.9.1. INCIDENT REPORTING SYSTEM

A state shall establish a mandatory incident reporting system to facilitate collection of information on actual or potential safety deficiencies. A state should establish a voluntary incident reporting system to facilitate the collection of information that may not be captured by a mandatory incident reporting system. A voluntary incident reporting system shall be non-punitive and afford protection to the sources of the information. A non-punitive environment is fundamental to voluntary reporting. States are encouraged to facilitate and promote the voluntary reporting of events that could affect aviation safety by adjusting their applicable laws regulations and policies as necessary.

3.9.2. DATABASE SYSTEM

A state should establish an accident and incident database to facilitate the effective analysis of information obtained, including that from its incident reporting system. The database systems should use standardized formats to facilitate data exchange. Guidance material related to the specification for such databases will be provided by ICAO upon request from states. States are encouraged to foster regional arrangements, as appropriate, when implementing accident and incident databases.

39.3. ANALYSIS OF DATA–PREVENTIVE ACTIONS

A state having established an accident and incident database and an incident reporting system shall analyse the information contained in its accident/incident reports and the database to determine any preventive actions required. If a state in the analysis of the

information contained in its database, identifies safety matters considered to be of interest to other states, that state should forward such safety information to them as soon as possible. In addition to safety recommendations arising from accident and incident investigation, safety recommendation may result from diverse sources, including safety studies. If safety recommendations are addressed to an organisation in another state, they should also be transmitted to that state's investigation authority.

3.9.4. EXCHANGE OF SAFETY INFORMATION

States should promote the establishment of safety information sharing networks among all users of aviation system and should facilitate the free exchange of information on actual and potential safety deficiencies. Standardized definitions classifications and formats are needed to facilitate data exchange. Guidance material on the specifications for such information – sharing networks will be provided by ICAO upon request.

3.9.5. INVESTIGATION

The sole objective of investigation of an accident or incident shall be the prevention of accidents and incidents not to apportion blame or liability. At any stage of the investigation the accident or incident investigation authority of the state conducting the investigation shall recommend to the appropriate authorities including those in other states, any preventive action that it considers necessary to be taken promptly to enhance aviation safety. The state of occurrence shall institute an investigation into the circumstances of the accident and has responsibility for the conduct of the investigation, but it may delegate the whole or any part of the conducting of such investigation to another state by mutual arrangement and consent. In any event the state of occurrence shall use every means to facilitate the investigation. When the whole investigation is delegated to other state, such a state is expected to be responsible for the conduct of the

investigation including the issuance of the final report and accident/incident report (ADREP). When a part of the investigation is delegated, the state of occurrence usually retains the responsibility for the conduct of the investigation. When the accident or serious incident occurred in the territory of non-contracting state which does not intend to conduct an investigation in accordance with Annex 13, the state of registry or failing that, the state of the operator, the state of design or the state of manufacture should endeavour to institute and conduct an investigation in cooperation with the state of occurrence but, failing such cooperation, should itself conduct an investigation with such information as is available or delegate in part or whole to another state by mutual arrangement or consent. When the location of the accident or serious incident cannot definitely be established as being in the territory of any state, the state of registry shall institute and conduct any necessary investigation of the accident or serious incident. However it may delegate the whole or any part of the investigation to another state by mutual arrangement and consent. States nearest the scene of an accident in international waters shall provide such assistance as they are able and shall, likewise, respond to request by the state of registry. Generally, the investigation shall include: the gathering, recording and analysis of all available information on that accident or incident; if appropriate, the issuance of safety recommendations; if possible, the determination of the causes; and the completion of the final report. When possible, the scene of the accident shall be visited, the wreckage examined and statements taken from witnesses. In the interest of accident prevention, the state conducting the investigation of an accident or incident shall release the final report as soon as possible.

According to Donald R. Whitnah “air accident, though certain and offering the favourable type of publicity sought, had to be investigated by the Aeronautic Branch with

the statistics retained by Air Information. At the outset, the cause of individual accidents was not released to the public for fear of legal implication, but the causes of accident became a part of later summaries which listed the type of causes, type of aircraft operation involved and the total number of accidents in the various categories. The first annual report issued byAir Information Division of American Federal Aviation Agency listed 25 fatal accidents during January – June 1927, 4 miscellaneous flying (all non schedule). 13 of these mishaps involved pilot error, 3 power failure, 2 weather conditions, 7 were attributed to structural failure. Practically all these accidents occurred with unlicensed pilots and uncertified airplanes, killing 15 pilots and 28 passengers. In contrast, only 2 pilots and 1 passenger lost their lives during the same one-half year on operations of the contract routes for airmail, here, 2 accidents caused the fatalities and both were related to adverse weather. Accidents not involving fatalities also came under the scrutiny of Earnest Jones Chief of the Air Information Division of American Federal Aviation Agency[84].

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CHAPTER FOUR

ACCIDENTS INVESTIGATED AND REPORTED IN NIGERIA

4.1. HISTORY OF AIR ACCIDENT IN NIGERIA

Accident includes any fortuitous or unexpected event by which the safety of an aircraft or any person is threatened[1]. Air accident is not a new experience in Nigerian aviation industry.

In 1946 the sector witnessed air disaster that claimed 22 souls when a Douglas DC-3 crashed near Oni and prior to this time there was a plane crash in Kano without fatality[2]. On 24 June 1956, the nation was startled by another disaster that took 32 souls when a Canadair Airlines' C-4 BOAC with 45 passengers crashed in Kano[3]. Also on 17 June 1961 a Continentale Dutsche Luftreederei Airlines' Douglas DC-54B-1-DC with 5crewmembers and 2 passengers crashed killing 1person. It was chartered to fly from Hamburger to Leopoldville with intermediate stops at Luxembourg (where the passengers boarded the plane and some cargo was taken on). It took off from Tripoli International Airport to Kano. During a night time approach to kano runway 07 the plane crashed 2nm short of the threshold and caught fire. The probable cause of the accident was error of judgment on the part of the captain, who after sighting the runway lights, concentrated on keeping them in sight and failed to make adequate reference to his flight instruments. As a result, he allowed the aircraft to descend below the obstacle clearance limit of 360ft. In the darkness with no ground reference, the distant runway lights gave him insufficient guidance as to his height and angle of approach, and he was unaware that the aircraft had descended to ground level. The fatigue of the captain and the failure to illuminate the aircraft's landing lights were contributory factors[4]. Besides, on 22 January 1973, Alia Royal Jordanian Airlines' B707-3D3C chartered by Nigeria Airways to fly pilgrims back

from Jeddah to Lagos, diverted to Kano due to bad weather in Lagos. After touchdown the right main gear leg collapsed as it hit a depression in the runway (or the edge of the runway). The Boeing turned 180^0, skidded off the side of the runway and caught fire 176 out of the 202 occupants perished[5]. Furthermore, on 1 March 1978 a Nig eria Airways' Fokker F-28 Fellowship 1000 on final approach in daylight with clear visibility had in flight collision with a Nigeria Air Force Jet fighter (MiG-21U), performing touch-and-goes. The fighter was told to let the Fokker land first, but both aircraft collided short of runway 05. All 16 occupants were killed and the 2 crewmembers in the military aircraft were also killed[6]. In addition, on 15 February 1992, 158 people died when a military transport plane went down near Lagos[6]. Likewise on 15 November 1992 the MK Air Cargo McDonnell Douglas DC-8-54F with 5 crewmembers crashed and caught fire while landing in Kano[7]. On 25 November 1992 Diaro Air Services DAS Air Cargo B707-320C service with 5 occupants departed from London-Gatwick to Portharcourt Airport undershot the runway by 5km in a sandstorm, coming down in army barracks. The Kano instrument landing and distance measuring equipment (DME) were inoperative no one died and on 19 December 1994 a Nigerian Airways (NIS) B707-3F9C from Jeddah-King Abdullaziz International Airport to Kano, after declaring emergency due to smoke in the cabin, went down in a marshland near Hadejiya 3 out of its 5 occupants were killed[8]. On 18 January 1996 a Nigerian Air force Hawker Siddeley HS-748 NAF with 14 occupants crashed and the 14 persons died[9] Finally, in November 1996, 142 people died when an ADC Airlines'B27 aircraft plunged into the lagoon 85km from Lagos[10].

4.2 NOTIFICATION OF ACCIDENT

An accident is required to be notified if between the time when any person boards an aircraft with the intention of flight and such time as all persons have

disembarked therefrom any person suffers death or serious injury while in or upon the aircraft or by direct contact with the aircraft or anything attached thereto, or the aircraft receives substantial damage; also where an accident occurs of which the person in command of the aircraft involved at the time of the accident, or if he is killed or incapacitated then the owner, operator, hirer or the person on whose behalf he was in command of the aircraft, as the case may be, shall forthwith send notice thereof to the Minister by the quickest means of communications available and in the case of accident occurring in or over Nigeria shall also notify forthwith the nearest police authorities of the accident and of the place where it occurred. The notice to the Minister shall state as far as possible the type and nationality and registration marks of the aircraft; the name of the owner, operator and hirer, if any of the aircraft; name of the person in command of the aircraft, date and Greenwich mean time of the accident, the last point of departure and the next point of intended landing of the aircraft; the position of the aircraft with reference to some easily defined geographical point; number of person (if any) killed, seriously injured as a result of the accident, the nature of the accident as far as known, brief particulars of damage to the aircraft. Where an accident occurs, whether in or over Nigeria or elsewhere, the owner, operator or hirer of the aircraft shall, if so required by notice in writing from the Minister, send to the Minster within such time as may specified in the notice, such information with respect thereto in such form as the Minister may require. Where an accident occurs in or over Nigeria of which notification is required to be given no person other than an authorized person such as police officer or any Nigeria Custom Service shall have access to the aircraft involved in the accident and the aircraft shall not except under the authority of the Minister, be removed or otherwise interfered with, the aircraft may be removed or interfered with so far as may be necessary for the

purpose of extricating persons or animals involved, removing any mail carried by the aircraft, preventing destruction by fire or other cause, or preventing any danger or obstruction to the public or to air navigation or to other transport; goods or passengers' baggage may be removed from the aircraft under the supervision of a police officer, but if the aircraft came from a place outside Nigeria, it shall not be removed from the vicinity of the aircraft except on clearance by or with the consent of an officer of the Nigeria Customs Service; if an aircraft is wrecked on the water, the aircraft or any content thereof may be removed to such extent as many be necessary for bringing it or them to a place of safety[11].

4.3 INVESTIGATION OF ACCIDENT

For the purpose of carrying out investigation into the causes and circumstances of accidents the Minister appoints persons as Inspectors of Accidents, one of whom shall be appointed by him as the Chief Inspector of accidents. The Chief Inspector of Accident, if he thinks fit, may himself carry out an investigation or cause an investigation to be caused out by an Inspector of Accident. Public notice that such investigation is taking place shall be given in such manner as the Minister may think fit and shall state that any person who desires to make representation concerning the circumstances or causes of the accident may do so in writing within a time specified in the notice. The Inspector of Accident making the investigation has power by summons under his hand to call before him and examine all such persons as he thinks fit, to require such person to answer any question or furnish any information or produce any book, paper, document and article which the Inspector may consider relevant, and to retain any such book, paper, document and article until the completion of the investigation; to take statements from all such persons as he thinks fit and to require such person to make and sign a declaration of the

truth of the statement he made; to have access to and examine any aircraft involved in the accident and the place where the accident occurred, and for that purpose to require any such aircraft or any part of equipment thereof to be preserved unaltered pending examination; to examine, remove, test, take measures for the presentation of, or otherwise deal with the aircraft or any part thereof or anything contain therein; to enter and inspect any place or building the entry or inspection whereof appears to the Inspector to be requisite for the purpose of the investigation; to take measures for the preservation of evidence. Where accident occurred in or over Nigeria to an aircraft registered in country other than Nigeria, the Minister may authorize an investigator appointed by the duly competent authority of that other country to carry out an investigation, and in that event the Minister shall so far as he is able, facilitate inquiries by the investigator so appointed The investigation shall be held is private. Where it appears to the Inspector that in order to resolve any conflict of evidence or any other reason it is expedient so to do, he may permit any person to appear before him and call evidence and examine witnesses. Where it appears to the inspector that any degree of responsibility for the accident may be attributable to any person, and if it appears to the Inspector to be practicable so to do that person or, if he be deceased, his legal personal representatives, shall be given notice that blame may be attributed to him and be permitted to make a statement or give evidence and to produced witnesses and to examine any witness from whose evidence it appears he may be blameworthy. The Attorney-General of the Federation may intervene at any stage of an investigation in order to make representations or examine witnesses, if it appears to him expedient so to do in the public interest. Every person summoned by the inspector as a witness shall be allowed such expenses as the Minister may from time to time determine. Where an Inspector's investigation or a public inquiry relates to an accident

which occurred in or over Nigeria to an aircraft registered in another country, an accredited representative of that country, or of any country which has, on request, furnished information in connection with the accident, may take part in the investigation or in the inquiry as the case may be; he may be accompanied by such technical and other advisers as may be considered necessary by the authorities of the country that appointed him[12].

4.6 REPORT Of ACCIDENT INVESTIGATION

Upon completion of an investigation, the Chief Inspector of Accident or such other inspector as may be authorized by the Minister, shall make a report to the Minister. The Chief Inspector of Accidents shall state the circumstances of the case and his conclusions as to the cause of the accident, adding any observations and recommendations which he thinks fit to make with a view to the preservation of life and the avoidance of similar accidents in future and to what extent effect has been given to the provision of paragraph (6) of regulation 8 of this regulation. The Minister may cause the whole or any part of such report to be made public in such manner as he thinks fit[13].

4.5 PUBLIC INQUIRY

Where it appears to the Minister that it is expedient to hold a public inquiry into the causes and circumstances of an accident, he may direct that a public inquiry be held by a Commissioner referred to as 'the court', who shall be a barrister of not less than 10 years standing appointed by the Chief Justice of Nigeria and in any such case any Inspector's investigation relating to the accident shall discontinued. The court shall be assisted by not 1ess than two assessors possessing aeronautical, engineering or other special skill or knowledge one of whom may be the Chief Inspector of Accidents, or one of the Inspectors of Accident[14].

4.2. RECENT ACCIDENTS INVESTIGATED AND REPORTED BY FEDERAL MINISTRY OF AVIATION AND ICAO

The accidents reported by Accident Investigation and Prevention Bureau of the Federal Ministry of Aviation Abuja in 2001[15] an accident involving 5N ATE which departed from runway 19L of Murtala Mohammed Airport, Ikeja at about 1000hrs UTC with 2 souls on board, the pilot and the photo navigator. Destination was Calabar, for an aerial survey project. Only 22 minutes after being airborne, the pilot radioed Lagos tower for return clearance to station owing to an undeclared "technical problem". Few minutes after the clearance was granted, the pilot announced problem on engine number one and then declared emergency. The Accident Investigation and Prevention Bureau (AIPB) was immediately alerted when initial contact was lost with the aircraft, which enabled the Bureau to be at the site soon after crash. Football field within a school premises was selected for the landing but the left wing of the aircraft made an impact with a fir tree at the edge of the field, which produced the turning moment force. That diverted the landing roll towards the school perimeter fence. The second impact resulted in instant fatality to the pilot and serious injury to the camera navigator who was sitting behind the camera assembly in the cabin. The aircraft was completely destroyed by the second impact with the perimeter fence. The school perimeter fence about 10m long, into which the aircraft crashed, crumbled like a pack of cards. The previous flight performed by 5N-ATE before the eventful mishap, was dated 20th May 2001 in the technical logbook sheet, showing the aircrafts total time of 528 hours as of that date. This number was then, carried over to the next page in anticipation of any ensuing flight. Incidentally, the next flight happened to be this unfortunate one. Apart from the brought forward total time, no further entry was made in the Technical Logbook sheet for this flight. So, other necessary information,

such as the crew name, date, mission, total fuel and oil on board and other contingencies were conspicuously missing from the current page for this eventful flight. In the morning of the day of the accident 16th June 2001, the pilot and his passenger were brought and dropped at the Murtala Mohammed Airport General Aviation Terminal, where the aircraft was moored. As usual, the captain prepared the aircraft by himself for the departure, without any assistance from the ground crew. The uncompleted technical logbook was of no help, in that nobody knew what was done on the aircraft and the amount of fuel uplift before departure from Lagos was not logged. The pilot requested for start-up clearance and the request was granted at 0837hrs UTC. One hour after the start-up clearance, the aircraft taxied out of its mooring apron at 0938hrs and was eventually airborne at 0951 with 2 souls on board and the pilot reported 4 hrs endurance to the tower. It was not known if the engines were actually started immediately after the clearance, which would have left the engines running for more than 1hour before taxing out of its mooring apron at 0938hrs and was eventually airborne at 0951 with 2 souls on board and the pilot reported 4hrs endurance to the tower. At 1005hrs, the aircraft made a position report as being established on course, passing 4000ft and that it was about 29nm distance measuring equipment (DME) from Lagos. Procedurally, the aircraft was then granted the request to set course after the terminal control area (TMA) boundary and was assigned to flight level 70. At DME 36nm and time 1012 (21 minutes after departure) the pilot announced an intentional request to return to Lagos owing to some technical problem.

When the controller demanded for the nature of the problem, the pilot responded that he had high temperature on number one engine. The request was granted and the aircraft was cleared to FL 50 with assurance not to expect any delay for an ILS approach

to runway 19L. At 1014hrs the pilot requested for priority descent and landing again the approach quickly consented and descended him further to 2200ft. When the controller enquired whether the pilot was declaring emergency, the pilot then answered in the affirmative and gave his ETA as 1027, 2 souls on board and 3hrs endurance. When the controller called the aircraft at 1026 hours for position report, the pilot gave a "standby" response and this was the last conversation between the pilot and the controller. After many trials to re-establish communication had failed, the controller's supervisor was then immediately summoned to the control room and the search for the aeroplane commenced in earnest. AIPB was instantly notified at this juncture. The commander of the aircraft was a 40 year old Nigerian with a Nigerian Issued Airline Transport Pilot License Number 2582 valid till 3rd November 2001. He accumulated total flying experience of 10,172 hours and his flying experience on the type was unscrupulously recorded as being 2,724hrs. Held Part I ratings on PA-23, C-172, Baron – 55 and Partenavia P68C. He also held Part II rating in B-737. The aircraft's maintenance engineer is a 67 year old Nigerian with a Nigerian issued Aircraft Engineer's License (AMEL) No. 259, renewed on 3rd November 2000. Aircraft type endorsements on the license and F-27 (Airframe), PARTENAVIA P68C airframe and a "Category C" on AVCO lycoming 10-360- AIB6 engine, the type that was installed on this aircraft. He had the P68C airframe and the engine (A&C) rating in 1992. The controller on duty is a 40-year-old Nigerian holding ATC license No. 240, which expires in April 2002. He has ratings on Aerodrome and Approach Control. The controller was in contact with the aircraft at 0952hrs TUC on 124.7 MHZ soon after the aircraft was airborne. There were good communications (transmissions and receptions) between the controller and the aircraft up to the last moments, of the crash. At 1027hrs UTC, when the controller lost communications with

5N-ATE, he engaged the over-flying aircraft to watch out for the ATE, on radial 130. The report of the over flying aircraft was negative he therefore declared emergency. The 'Certificate of Airworthiness" was properly issued. The aircraft was being used for 'hire and reward' in aerial services and on survey mission to Calabar for the Cross River State Government when it crashed at Igbogbo village. The weight and balance had no relationship with the accident. The weather conditions had no bearing on the accident. There were good communications between the aircraft and the approach control on 124.7 MHZ until about 2 minutes to the crash when the approach controller could no longer establish contact with the aircraft. The last communication from the pilot was 'standby' at 10.26hrs UTC when the approach controller was asking for the aircraft position.

The accident was caused by human factor as the findings of the AIPB were that the commander was greatly in default of Civil Aviation Regulations, which stipulate that information about 'fuel, oil and other contingencies be entered into the technical logbook. The personal flying records of the pilot were fictitious and full of falsified entries. The total airframe time on the aircraft was 528hrs, while the pilot claimed to have flown 2,724hrs flying experience on the same airplane, which is impossible. The aircraft's engines lacked proper maintenance and equally lacked proper monitoring by the airworthiness authority and so on. The probable cause of the accident was the aircraft was stalled, then it prematurely hit the ground, owing to the extension of full flap when in ground proximity without, engine power. The first contributory cause was the contact with the first fir- tree, which changed the direction of the airplane's heading towards the perimeter fence. Another contributory factor was the engine's problem of high temperature in flight, which disabled the continuation of flight and demanded for the emergency landing. So both the probable and contributory factors could have been

avoided if the pilot was diligent enough also if the airworthiness authority had done their job on the engine, the engine problem of high temperature in flight might not have occurred.

The safety recommendations include that young pilots' logging should be seriously monitored as they are prone to inflating flying time to achieve some covert ambition. Licensing officials should device means of checking the veracity of the younger pilots, when they are submitting their flying documents for renewal, type rating or other endorsements in their licenses. Critical attention should be paid to aircraft maintenance programmes. Aviation Fuel (LL-100) for general and reciprocation engine aircraft should be used. Use of automobile fuel in such aircraft should be discouraged. Technical logbook should be used not piece of paper or verbal communication, fuel starvation should be prohibited.

In line with this the Minister of Aviation suspended 2 erring pilots in 2005 from EAS and Chanchangi Airlines[16]. Besides, Abuja regional office of Nigerian Civil Aviation Authority (NCAA) inaugurated an aviation stakeholders' forum in a bid to address problems confronting airline operators and other industry stakeholders to enable NCAA carry out its oversight functions more efficiently. The forum comprises Federal Aviation Authority of Nigeria (FAAN), NCAA, National Airspace Management Agency (NAMA), Nigerian aviation handling Company (NAHCO), taskforce and car hire operators[17]. Pilots now select alternate airport for landing in case of emergency and carry adequate fuel uplift for destination and alternate aerodrome at all times and NIMET is to provide appropriate forms to all pilots flying within Nigeria and into Nigeria to provide aircraft meteorological data.[18].

In the accident reported in 2002, the aircraft was engaged in a passenger flight[19]

enroute Abuja-Port Harcourt-Calabar. The Abuja – Port Harcourt segment of the flight was uneventful while the Port Harcourt – Calabar sector was normal until about 35nm to Calabar when the pilot commenced descent to FL25 to position for a straight-in-approach on runway 03. About this time, the crew reported to the control tower that they were having electrical problem and therefore declared emergency. The weather report during the aircraft's approach to Calabar was reported to be predominantly 'slight thunderstorm' with turbulence and cloudy conditions. The pilots experienced visibility problem and consistently requested for the increase in the intensity of the approach lights. The flying pilot continued his descent in a desperate attempt to sight the field coupled with distractions from the electrical problem he had on board and the bad weather, the pilot descended beyond the Minimum Safe Altitude (MSA) of 2,500ft. The crew continued the descent until the aircraft impacted with a tree of about 60ft and several other trees. The aircraft crashed into the thick swampy forest, killing all the 5-crew members on board. Language incomprehension was a part of these problems as the commander, first officer and chief engineer were all Congolese while the ATC – Duty Controller is a Nigeria. The aircraft was totally destroyed. Flight recorders are mandatory for this aircraft in Nigeria because it was used for public transport and it was approved for 2-man crew, but neither the Cockpit Voice Recorder (CVR) nor the FDR was fitted in disagreement with the Civil Aviation Regulations.

This accident was caused by the combination of human, mechanical and natural phenomenon as the pilot departed from MSA, the aircraft developed electrical problem and poor visibility due to bad weather as the findings of AIPB include that the aircraft was not properly maintained as the airframe had exceeded the prescribed annual inspection time by 28hrs as at the crash time. The No.2 propeller also exceeded the

overhaul time by 62hrs at crash time. The daily flight schedule of SEAS is Calabar – Abuja - Port Harcourt-Calabar contrary to its air operator permit to carry out a non-scheduled operations. There were conversational problem between the controller and the pilots who could not speak much English. The aircraft on approach encountered slight thunderstorm and cloudy condition and so on. The probable cause of the accident was the premature departure of the aeroplane from the normal minimal safety altitude (MSA) of 25,000ft without ATC clearance until it flew into the terrain. The contributory factor was the emergence of electrical problem on the aircraft on the commencement of its approach. The problem might have distracted the attention of the pilots from having undistorted focus on the instruments. Another contributory factor was the unfavourable weather conditions of low cloud base and thunderstorm, which impaired the visibility at the critical time of the descent.

The safety recommendations were that pilots should endeavour to equip themselves with en-route and destination weather before embarking on their flight. Pilots should adhere strictly to the standard operating procedure by avoiding indiscriminate departure from the MSA. Pilots should also ensure that the laid down procedures are strictly adhered to in case of emergency. French language should be included in training curriculum of students' pilots, air traffic controllers and aircraft maintenance students. Those to inspect aircraft for airworthiness purposes and conducting audits of approved organisations are those who know what an aircraft is and what "Aviation Regulations" are. The best gamekeeper is a converted poacher".

In implementing this, Aviation Minister stressed the need for pilots to exercise caution during flight during the rainy season such as strict adherence to state weather minimal. In responding to this the pilots of Chanchangi Airlines and presidential jet made

air return to their points of takeoff on discovering mechanical fault while the pilot of Fugo Canada landed on the highway along Abeokuta - Lagos expressway on seeing it was impossible to continue due to bad weather[20]. Besides, weather minimal for every airport in Nigeria is set by NCAA and NAMA and attached to the operational manual of each aircraft. Nigerian Meteorological Agency (NIMET) was directed to provide accurate real time weather information for departure, enroute and destination as well as alternate airports to pilots. Pilots are to carefully select alternate airport for landing in case of emergency and should collect weather information from NIMET in line with standard professional practices before embarking on any flight. NIMET opened pilot weather briefing center at airports. NAMA and NIMET have one-on-one briefing with pilots at airports for professional interpretation of synoptic features of their areas of operation before takeoff and landing data and enroute forecast in flight[21]. Moreover, NAMA introduced slot allocation system (SAS) for both foreign and domestic airlines. SAS provides for and ensures that airlines stick to approved time frame for departures and arrivals. It improves air traffic control capacity and decreases congestion within the airspace[22]. It also upgraded Lagos instrument landing system (ILS) to category (CAT.111). ILS is used by pilots for precision approach and landing on the runway. It facilitates landing at weather minimal or visibility below 400m above sea level[23]. Furthermore, taskforce headed by experts namely Air Marshal Paul Dike and Engineer Folashade were set up to audit airlines and aircraft in 2005 which led to the grounding of some airlines and aircraft she adopted International Air Transport Association Operation Safety Audit (IOSA) checklist in the audit. And French Language in now included in Nigerian College of Aviation Technology (NCAT) training curriculum[24].

Another accident reported in 2002 was on Saturday 4th May 2002 the BACI–11

525F aircraft operated by a Nigerian registered operator, in the Transport Passenger Category under the registration Mark 5N-ESF.[25] The aircraft was constructed in November 1980 and had accumulated a total operating flying time of 24,644hrs and 34mins and was operated Out of Lagos at 0901hrs UTC to Jos duration of 1hr and 18mins. It departed Jos at 1107hrs for Kano, a flight of 33 minutes duration. The aircraft taxied out of Kano ramp at 1222hrs and lined up at the threshold of runway 05/23 wait for the controller's takeoff clearance, which was given at 1229hrs. Apparently, runway 05/23 is 2,600m long, but shorter than any other runway around and was the runway currently in use, because of the notice to airmen (NOTAM), which closed the normal runway 06/24 to traffic for resurfacing. The takeoff roll was commenced at 1230hrs and the aircraft over-run the end of the runway by several metres before airborne, but could not climb faster enough until it made impacts with several buildings on the takeoff path. 73 souls out of the 77 on board suffered mortal injuries, while 30 people on ground died and several suffered serious injuries. AIPB discovered that the accident was totally avoidable, if the crew had made proper planning and astute judgment. The aircraft totally disintegrated and completely burnt by the fire that ensued. Many private homes and building were either damaged or destroyed. Houses and properties on the streets were burnt. 30 people on ground suffered fatalities, while 24 suffered serious injuries. The ICAO Expert on operations, in conjunction with AIPB officials conducted the personnel information data in this accident. The commander and first officer were Nigerians. The aids to navigation were not a factor to the accident though serviceable. There was good communication between the aircraft and Kano Control Tower on the day of the accident. The last communication was when the controller gave the aircraft a take-off clearance. The aircraft never reported any problem before the crash it had flight Data Recorder and

CVR. UK and USA assisted in the investigation.

The accident was caused by both human and mechanical factors as the findings of ICAO and NCAA were that for unknown reasons, the pilots did not put corrective actions in place to stop the aircraft from over running the end blast pad onto the dusty grass among the runway 05 approach lights of Mallam Aminu Kano International Airport Kano. The aircraft take-off roll into the dusty grassy path, which it was not intended for, generated a lot of cloudy dust, which the two engines ingested, thereby losing power immediately after getting airborne. The ICAO experts' audit of the NCAA reveals that the airworthiness component of NCAA was not effective, in that, out of 26 Field Airworthiness Inspectors, 10 have no aviation background and that no airworthiness surveillance plan was in force. Additionally, the maintenance practice of Messrs EAS needed considerable improvement in many areas. The probable cause of the accident was the crew's inability to get the airplane airborne within the safe parameter of the available runway length. The contributive factor was the breakdown of the crew's cockpit co-ordination procedure in executing a coercive reaction of initially getting the aircraft airborne; improving its climb performance by raising up the gear; and flying the airplane to safe height before thinking of the next line of action.

Their safety recommendations were that for aviation fuel quality control purposes, an inspectorate department should be established, which will always supervise aviation fuel standards in general. Stiffer penalties should be imposed on pilot or operator who is found in default of the established procedures in the use of Flight Recorder. Personnel knowledgeable in aircraft maintenance to performance airworthiness surveillance should be employed. NCAA should regularly audit the activities of aircraft operators, and also put the appropriate machinery in place to enable the authority to perform this task.

In tackling these, the Federal Government intensified efforts to reform the aviation sector. The EAS Airlines was grounded, Director General of NAMA and the Director General of NCAA were sacked for inefficiency[26]. The 1964 Civil Aviation Act which empowered the Minister of Aviation to take action he deems necessary even if he is not a professional was revised soon to be passed into law making NCAA autonomous of the Ministry[27]. The management of Murtala Mohammed Airport Lagos engaged the services of an ICAO safety consultant Mr Dietar Schmidt, to inspect fire and safety facilities at the airport and another ICAO expert, Trevor Jones to carry out security assessment of the airport and other airports in Nigeria[28]. Aviation fuel standard is being supervised by the airworthiness department of NCAA[29]. Representatives of Boeing are also in Nigeria monitoring all Boeing aircraft type in Nigeria[30]. Besides, on 24 July 2006 ICAO commenced a 2 day security follow-up audit of Nigerian aviation industry as a prelude to the expanded Universal Safety Oversight Audit Programme of International Civil Aviation Authority slated for November 2006. The audit examines the workability of aviation infrastructure to determine its adherence to global aviation standards. A successful assessment of the aviation industry will guarantee continuing international flight operations in Nigeria. As part of preparations for the November audit 12 ICAO rated experts will arrive Nigeria to train the personnel of NCAA. Nigeria applied for the International Air Transport Association Operation Safety Audit (IOSA) and 5 Nigerian airlines such as Bellview and Virgin Nigeria signed the IOSA programme. IOSA programme is an internationally recognised and accepted evaluation system designed to assess the operational right and control system of an airline. It uses internationally recognised quality audit principles and is designed so that audits are conducted in a standardized and consistent manner. ICAO standards are the minimum standards aviation

industry of member countries must attain while IOSA standard is higher than ICAO standards. If Nigeria passes the exercise it will make her enjoy open skies agreement she signed with USA and UK. The latest trend by airlines is apparently in recognition of the need for improving air safety by discarding aged aircraft whose maintenance are very costly. The new Nigerian airline Arik in June 2006 took delivery of 2 brand new CRJ900 aircraft from the leading manufacturer of the regional commercial aircraft Bombardiar Incorporated. It acquired two Boeing 737-300 and three CRJ200 aircraft. Recently 3 Nigerian domestic carriers signed the Cape Town Treaty of which aircraft can be sourced at lower rates. Countries that ratified Cape Town Convention agreed to abide by an international legal framework for the enforcement of financial rights in mobile assets such as aircraft. Some airlines are taking advantage of leasing options to procure new generation aircraft. NCAA promised to complement the replacement of over aged aviation personnel with younger professionals so that the country could get modern efficient and safe operations with increased productivity and profit for the airlines. So European airplane maker, Airbus has also agreed to assist NCAT Zaria in training aviation personnel in the school. Additionally, NCAA will be sending 10 people every year for 10 years to NCAT for training[31]. And recently NICON Group of Companies PLC acquired EAS Airline to ensure efficiency of operation[32]. Domestic airlines are now considering the issue of merger because it is better to have fewer airlines that will be stronger, more financially buoyant with higher frequencies than many airlines that are cash strapped and weak to successfully operate the few frequencies they have[33]. Finally, NAMA was charged with ensuring continuous serviceability of all the communication equipment including the existing satellite communication (SATCOM) to guarantee uninterrupted dissemination of air traffic services data and en-route weather to pilots[34]

Moreover, on 24 October 2005 a Boeing 737-200 flight 210 with Reg. No. 5N-BFN en route from Lagos to Abuja with 117 occupants plowed a deep crater into the ground near Lissa shortly after take off killing all the occupants. The plane was operated by Bellview Airlines, which has had no other crash in its 10 years of existence. Controllers lost contact with the aircraft 5 minutes after it took off at 8:45 p.m. into stormy weather. The pilot of Flight 210 Captain Lambert Imasuen issued a distress call just before the control tower lost sight of the plane, about 3 minutes after takeoff. The Federal Airports Authority of Nigeria scrambled two helicopters to search for the jet. The plane was missing for hours before the wreckage was found shortly after dawn. Military helicopters first spotted the smoldering wreckage of the Nigerian-run Bellview jet. Search teams and rescuers that arrived at the scene of the crash afterward found no survivors. The wreckage of the plane was found near the village of Lissa, about 30 kilometers north of Lagos, the aircraft was shattered into pieces. Dismembered and burned body parts, fuselage fragments and engine parts were strewn over an area the size of a football field near the village of Lissa. Investigation was aided by officials from Boeing and experts from the United States National Transport Safety Board (NSTB) arrived the country to unravel the causes of the plane crash. Investigators were attempting to recover the plane's flight-data recorders in an effort to determine the cause of the crash. The black box which is a device that keeps record of the last communication between the pilot and the controllers was initially missing. Small bits of fuselage, human flesh and clothing were strewn in a nearby copse of trees. A hand and leg lay on the ground. No identifiable body could be seen[35]. The accident was caused by natural phenomenon as it was reported that there was poor weather as storm was passing through Lagos about the time the flight left. There were widespread rains and thunderstorms around the southwestern corner of

Nigeria, particularly from Lagos to Ibadan. It was as well caused by mechanical fault as it was reported that the aircraft was 24 years old and there was an explosion before the crash, the last communication between the pilot and the controllers was 3 minutes after take off he was suppose to have called back about 10 minutes but did not. Also human error as the pilot saw the bad weather and still took off. The safety recommendations were that aircraft should be equipped with detector beacon that sends distress signals in emergencies. It is activated in the event of disaster, when activated it generates signals which will be picked by search and rescue satellite which will be processed and the beacon will be identified[36]. If that aircraft was equipped with emergency beacon, there would have been no delay in finding the crash site. A workshop to sensitize airlines on the use of beacons should be organised. There should be improvement in the search and rescue system in Nigeria. There should be a comprehensive upgrading of the Nigerian aviation facilities including airports, air traffic control system, safety system as well as increased emphasis on aircraft maintenance and training. There should be fundamental reform of the Nigerian Aviation policy to ensure that a level playing field is created for all Nigerian registered airlines to enable them compete fairly with each other and with foreign carriers operating in Nigeria. The finance and capital requirement for start-up and procedures should be stringently improved, focus on air safety and security should be intensified. Federal Government (F.G.) should take critical look at the problems of maintenance, personnel certification and financing as they relate to individual operator. FG through the supervisory ministry should be willing to assist the airlines were there is need particularly on the issue of wet leasing of aircraft and route allocation to be able to source for foreign exchange. Pilots should subscribe to aeronautic information services and meteorological services[37].

In reacting to this task force were set up to look into the activities of airlines in Nigeria. The Federal Government ordered all Bellview flights grounded and revoked Bellview's license. An aviation task force changed the revocation to a suspension on 22 December 2005, giving Bellview the opportunity of operating again once their equipment and procedures pass task force inspection[38].

The dust of the Bellview crash had scarcely settled before on 16th December 2005 Sosoliso Airlines DC-9 Flight 1145 with registration number 5N-BFD piloted by Captain B. Adebayo crashed at Port Harcourt Airport at 2:08pm killing 107 people out of which over 50 were students of Loyola Jesuit College Abuja returning home on Christmas holidays. The aircraft which took off form Abuja for PortHarcourt. hit the ground while trying to land and broke into two thereafter a fire developed. When it hit the runway, the impact broke it into two. The aircraft is more than 32 years old. The victims were burnt to death while the survivors escaped with serious injuries. The tarmac where the crash occurred was a gory scene with corpses everywhere. Relevant aviation agencies, including: Federal Airport Authority of Nigeria (FAAN), National Airspace Management Agency (NAMA) and people of the airport community at Omagwa responded promptly for rescue operation. A helicopter, which was about to land at the time of the crash perched down immediately to trigger rescue efforts. The airport was closed to traffic to make way for full rescue operation while preliminary investigation by the Accident Investigation and Prevention Bureau (AIPB) began. Investigation revealed that the plane was old and had experienced difficulty in landing at the Abuja Airport on its immediate previous flight it hovered round the entire city of Abuja at low altitude for a very long time before it was able to land. The fire fighters at the airport who arrived the scene almost immediately after the crash had no water. The distance from the airport to the

main town is far hence the inability of the fire fighters of such multinationals as Royal dutch shell, Mobil and others to respond immediately to the distress call of the airport. By the time they got to the scene the damage had been done[39]. The accident was caused by mechanical, human error and natural phenomenon as the aircraft was old and difficult to operate, the pilot was aware of the state of the aircraft and still decided to fly it. NCAA records show that 54% of the passenger aircraft in the fleet of local airlines exceeded the 22-year age limit stipulated by the Ministry of Aviation. This whole thing could have been avoided by using a good plane, grounding that plane in Abuja on realization that it was no longer fit for use or by having water in the fire fighters. The safety recommendations were that the entire NCAA be overhauled and that there should be drastic reform of the aviation industry.

This so much exposed the rot in the nation's aviation sector with the preceding series of incidents and Bellview crash the disaster seemed to have reached a climax. There was grief and out cry from every quarter calling for drastic measures against the officials of NCAA and FAAN for failing in their oversight duties and that the airlines' chairmen and directors should be prosecuted for manslaughter and crime against humanity for carrying people in coffins in the name of aircraft[40]. Meetings were held with officials of the ministry to address the decay in the industry in one of those meetings President Obasanjo told the Aviation Permanent Secretary to sit down if he had no explanation regarding the recurring disaster in the sector[41]. Many staff and top management staff of the ministry and its parastatals were sacked[42]. NCAA grounded many aircraft and airlines[43]. Meanwhile, the Ministry of Aviation on 18 and 20 February 2006 held a national aviation workshop on safety, quality assurance and reforms with a view to addressing technical and commercial issues affecting the nation's aviation

industry. It was attended by delegates from different sectors of the aviation industry, Aviation Minister, members of parliament, directors and Senior Officials of aviation ministry and Chief Executives of parastatals under aviation industry. The workshop exposed participants to global best aviation practices and ideas that would bring about sustained partnership for the growth of the industry in Nigeria. Wing Commander Andy Mensa ICAO Regional Director for West/Central Africa, Mr. Chidambaram IATA Vice President for Africa, Mr. Daniel Calibert IATA Safety Operations Director and Engineer Elijah Chingosho Technical Director African Airlines Association (AFRAA) presented papers[44]. Besides, NCAA budgeted N5.1 billion for 2006 to effect reform[45]. Federal Government set new capitalization requirement for airlines in Nigeria[46]: N500 million for domestic operations, N1 billion for regional operations and N2 billion for international operations and pegged minimum aircraft insurance at $100 million[47]. The taskforce on Verification of Airworthiness Status of Operational Competence of Commercial Aircraft Operators in Nigeria was drafted into FAAN to complete the re-certification proccess[48]. More rescue helicopters and other rescue equipment were acquired for National Emergency Management Agency to beef up its preparedness towards emergency situations[49]. NIMET embarked on putting in place total droppler weather radar coverage of the nation's airspace. It gives accurate direction and content of what the weather really is. Radar system is the equipment used to either identify aircraft in-flight or to determine its position and accuracy while in-flight[50].

Additionally, as part of effort to replace ageing airlines fleet in the country with new aircraft and boost safety, NCAA launched an international initiative that will allow Nigerian airline operators to acquire new aircraft with little stress on their cash flow and also forged a partnership with aircraft manufacturers like Boeing to take aviation safety

to the next level hence the new aircraft the airlines are acquiring of late. The safety partnership between NCAA and manufacturers will see the aircraft manufacturers organizing programmes that will expand the knowledge base of the airline operators and the regulatory body's airworthiness inspectors. This is because aircraft manufacturers know the aircraft inside out, the maintenance programme, maintenance schedule, spare parts and others come from them and NCAA rejects aircraft without latest radar system[51]. Moreover, World Bank has undertaken to finance the perimeter fencing of Nnamdi Azikiwe International Airport Abuja and PortHarcourt International Airport to ensure security and safety[52]. However, the ongoing reform in aviation sector is yielding dividend as Murtala Mohammed Airport scaled the hurdles of ICAO mock audit held on 24 and 25 July 2006 and the entire report of the audit favoured Nigeria[53]. The Federal Government also released the N19.5 billion aviation intervention fund package to give a new lease of life to the aviation industry especially for the November ICAO audit[54]. The issue of facilitation of flight is being taken seriously airlines holding air operators certificates can now embark on non-scheduled international flight without seeking clearance from NCAA but must file their flight plans and comply with standard airport facilitation process with NCAA. This is aimed at removing certain hurdles faced by airlines in operating international flight[55]. Investors are attracted to pump in huge money so that new aeroplanes and other operational facilities can be acquired for example NICON Group of Companies PLC acquired EAS Airlines to become NICON Airways for N5 billion and capitalized with over N130 billion. Arik Air acquired Nigerian Airways hangar for N950 million[52].

Airlines are improving their investments for example Arik Air has over N45 billion investment. It has acquired 2 new executive Hawker aircraft and invested N17

billion in acquisition of aircraft and other operational infrastructure for domestic and international operations from October 2006. Stabilini Visioni which is into construction business is rebuilding the terminal of Murtala Mohammed Airport Lagos which was razed in 2002. The company has spent about N32 billion on the build, operate and transfer project. It has over N40 billion investments. Virgin Nigeria increased its fleet with the delivery of a new B737-300 aircraft so as to enhance its operations on domestic and international routes[56]. Airlines are improving their services thus restoring travelers' confidence so air travelers are increasing as passengers now battle for seats on Virgin Nigeria Airlines. It had to commence Abuja shuttle service and early morning flight from Abuja to Lagos to meet the challenges passengers' demand of its services. Its chief Executive Officer, Mr. Comrad Clifford said that this development means that at an interval of 2 hours throughout the day an aircraft will take off either from Lagos or Abuja and land in either terminal. Recently it introduced online payment in partnership with United Bank For Africa PLC which allows the convenience of payment with an inter-switch debit card, once a passenger makes his booking from the comfort of his home. Also fast track immigration service for business travelers on London route, pay-at-bank option, e-ticketing, drive-thru-check-in for passengers traveling in business class in both London and Johannesburg[57]. Afrijet is making traveling easier as its offering easy reservation system to its passengers with its internet based operations. Intending travelers can book online at its head office in Lagos, any branch of Platinum-Habib Bank and with their accredited agents and Aero Contractors took delivery of its 9th aircraft to operate on Lagos – Enugu route thus expanding its operation. The B737-300 aircraft was wet leased. It also increased its frequencies on Lagos – Abuja from 2 to 4[58]. Pilots are now careful enough to abort their flights on discovering difficulty in flight due to mechanical or

natural phenomenon. Recently Bellview Airlines B737-200 which departed Murtala Mohammed Airport for Abuja around 7a.m, returned about 7.17a.m later when the pilot discovered malfunction of the heat indicator[59]. Airlines are enlarging their routes for example Aero Contractors Airline now flies Lagos to Bamako, Mali and Foreign airlines are extending their routes to Nigeria. Recently Turkish Airlines introduced direct flight from Lagos to Turkey. The Airline will use Airbus A310 to service the route[60]. Nigeria is now utilizing her Open Skies Agreement with UK and USA, the Federal Government recently designated Bellview and Arik Airlines to the USA and USA designated Delta and Continental Airways to Nigeria based on the bilateral air services agreement between them. North American Airlines started flight into Lagos on 17 July 2006 with 3 flights per week from NewYork airport to Lagos. Federal Government also approved Arik and Virgin Nigeria Airlines to operate UK routes.

Nigeria and USA in 2001 signed an Open Skies Agreement which allows unlimited number of carriers from each others airspace. The agreement stated that each party should designate only airlines controlled and managed by her nationals even as each reserves the right to refuse an airline designated by the other party. It required that the designated airlines meet the conditions prescribed under the laws and regulations of international air transportation by each party in considering the applications of the airlines. Nigeria about the same time signed a dual designation Air Services Pack with UK which allows 2 airlines each from both countries to fly into each others territories on direct services this policy was entrenched in an agreement signed between the government and Richard Branson's Virgin Group in setting up Virgin Nigeria in which Virgin holds 49% equity while Nigerian investors have 51%. Virgin as the core investor controls and manages the airline therefore Virgin Nigeria was disqualified as being

controlled by a British airline. By this restrictive policy, the government short changed the country the result is that Nigeria could not position enough capacity to reciprocate the onslaught of the carrier from these countries. British Airways and Virgin Atlantic were operating without reciprocity from Nigeria and even added Nigerian frequencies to theirs. U.S.A. suspended direct flight between it and Nigeria during political crisis in 1993 citing security lapses at Murtala Mohammed Airport Lagos. In 1999 the suspension was lifted and Nigerian Airways commenced operation in a joint venture arrangement with South African Airways which later collapsed. Efforts by Nigerian Airways to operate the route solo led to more crisis before its final liquidation[61]. Furthermore FAAN is still repositioning itself for efficiency by embarking on rehabilitation and updating of facilities at the nation's airports, tackling labour-related matters in the agency as well as training and retraining of its personnel for global aviation challenges. In view of the nerve-racking warnings from various terrorist groups threatening to destroy mainly UK and USA, FAAN organised training programme for staff of aviation security department. The programme had international look participants can detect bomb, genades and other lethal and prohibited materials[62]. There is now 100% body search in the nation's international airports[63]. Finally, on 18 August 2006 as safety precaution NCAA shut PortHarcourt International Airport to air traffic for four months during which it will undergo rehabilitation[64].

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CHAPTER FIVE

SUMMARY, RECOMMENDATIONS AND CONCLUSION

5.1 SUMMARY

The foregoing discussions in this research work entitled 'The Role Of Law In Promoting General Safety On Flight Under International Law' have revealed that whether an aircraft is being flown around a small grass field or on an international journey, flights will only be conducted safely if certain basic rules are observed. The greatest impetus for conformity and regulation of aviation came as an outcome of the two world wars of 1914 -1918 and 1939 – 1945. After the First World War the League of Nations came into being as an international authority and the specialized agency The International Commission for Air Navigation (ICAN) was established to provide for the safe and efficient navigation of aircraft. Apart from bringing together the various national aviation authorities and their operating practices, ICAN also postulated a standard atmosphere by which aircraft performance could be measured and against which aircraft instruments could be calibrated.

The changes in Second World War, with the advent of jet engine and advances in aircraft design and equipment, enormously increased ranges and reliability and brought renewed international cooperation for civil aviation even before second world war ended. In December 1944, at a convention in Chicago United States of America (USA) the pattern was set for the regulation of post-war civil aviation. Initially 52 nations attended and laid down the foundations for the standardization of operating procedures and navigation practices of international air transport. Such international agreements then have to be ratified by the various individual national legislatures, so until sufficient countries had carried out this process, Chicago established a Provisional Civil Aviation

Organization (PICAO). In due course International Civil Aviation Organisation (ICAO) came into being to coordinate advancement, particularly of the technicalities of international air navigation and of air safety. The Convention on International Civil Aviation has a number of Annexes, ranging from Personnel Licensing to the Safe Transport of Dangerous goods by air. ICAO has its headquarters permanently based in Montreal, Canada as was pointed out in chapter two. However, the terrain over which aircraft operate varies from desolate polar regions to equatorial jungle and from highly populated industrial areas to wide expanses of open ocean or desert. The consequential need for provision of navigational facilities and air traffic procedures also varies with locality around the globe. To handle this, ICAO has a number of regional offices and in addition to the worldwide standard Procedures for Air Navigation Services (PANS) there are regional supplementary procedures together with regional air navigation planning. In framing the wording of the text of the Annexes, ICAO deliberately resolved to draw contracting states' attention to the desirability of using in their own national regulations, as far as practicable the precise language of those ICAO standards that are of 'regulatory character' by emphasizing that wherever possible the provisions of Annex have been written in such a way as to facilitate incorporation, without major textual changes, into national legislation. In fact, ICAO set out both 'standards and recommended practices'. A standard is any specification for physical characteristics, configuration, material, performance, personnel or procedures, the uniform application of which is recognised as necessary for the safety or regularity of international air navigation and to which contracting states will conform in accordance with the Convention, in the event of impossibility of compliance, notification to the Council is compulsory under Article 18 while a recommended practice is any specification for physical characteristics,

configuration, material, performance, personnel or procedures, the uniform application of which is recognised as desirable in the interest of safety, regularity or efficiency of international air navigation and to which contracting states will endeavour to conform in accordance with the Convention[1]. So flights are conducted according to rules, flight rules refer to the conduct of flight in such general matters as the safeguarding of persons and property on the ground, avoidance of collision, right of way rules and aircraft navigation lights as also pointed out in chapter two. Besides observing the basic rules of the air, each flight has to be conducted according to either visual flight rule (VFR) or instrument flight rule (IFR). In the case of VFR, the flight is conducted on a see and be seen basis in relation to terrain and other aircraft. It is therefore necessary for a pilot to have certain minimum weather conditions known as visual meteorological conditions (VMC). In U.S. it is 'VFR conditions' and 'IFR conditions'. The weather criteria for visual flight are intended to provide pilots with adequate opportunity to see other aircraft or obstructions in time to avoid collisions.

Naturally since 11 September 2001 when terrorist hijacked U.S plane and caused serious havoc, aviation safety has been the major concern of most people but this is not new in aviation industry. Aviation safety has been a concern of aviation regulatory agencies for a long time. The International Convention on Air Navigation meeting at Versailles, in 1919, laid down definite rules and regulations for aerial navigation because safety is of equal importance to service provision, quality and environmental control[2]. So safety training includes information about actions to take in emergency situations[3]. With the coming into effect of Annex 2 'Rules of the Air' in 1990 dealing with the issues of unlawful interference and interception of civil aircraft as well as Annex 17 'Security' in 1997, the incidents of hijacking reduced drastically also violent situations were saved

because nations knew how to handle such cases without hazard thus promoting flight safety. However, as a form of check to reckless operation of aircraft as well as promotion of safety under the law one is afforded basic rights when one becomes a victim of someone's negligence. Accident is an unplanned event that may result in injury, death or property damage. Aircraft accidents are unlikely occurrences. Safety involves positive action to prevent it and the reduction of personal harm and property damage if it occurs[4]. Accident may occur as a result of pilot error, manufacture and maintenance, or unsafe flying weather conditions. The leading causes of commercial or 'common carrier' airline accidents as pointed out in chapters three and four include engine failures controlled flight into terrain approach and landing, loss of control, runway incursions and weather (including turbulence). Private or general aviation accidents find their causes in weather, pilot decision-making, loss of control and runway incursions.

5.2. RECOMMENDATIONS

In view of the analysis and critique in this thesis entitled 'The Role Of Law In Promoting General Safety On Flight Under International Law', it is imperative for the researcher to proffer some workable solutions that will further enhance flight safety.

Observations in the course of this research revealed that the issue of flight safety is the concern of everybody not just airlines and air travelers but ordinary people on earth. Anyone could be affected by air accident directly or indirectly. A person can be a victim of plane crash while relaxing in his house[5], in office or place of business[6], in school[7], in forest, on tree or mountain[8], while walking or driving on the street or highway[9], in the farm and in the river[10]. So travelers and non-travelers alike are in danger in the event of accident because detached parts of aircraft can constitute deadly weapons on whosoever they descend. Since non-air travelers are also exposed to harm in the event of accident,

governments, authorities, airlines and other stakeholders should embark on public enlightenment campaigns on how to detect endangered aircraft and how to escape danger. That is, there should be a way of protecting those below from the effect of the happenings in the air.

5.2.1 MORDERNIZATION OF INFRASTRUCTURE AND PROVISION OF SPARE PARTS

There is need for modernization of infrastructure as well as provision of adequate spare parts as provided by Annex 6. So airlines should acquire aircraft with modern airborne equipment and flight management system with the right people to manage them, crewmembers should strictly adhere to duty rest period so as to be alert while on duty rather than be fatigued due to overwork, which is a source of accident and the issue of aging pilots in developing countries should be addressed.

Navigational and infrastructural facilities, landing and navigational aids, instrument landing system, which facilitates landing at weather minimal or visibility below 400m above sea level, should be provided for airports of nations that lack it.

Improved and effective device for consistent monitoring of every aircraft during flight should be provided. It can be seen from U.S. experience that there was no proper monitoring that even when the aircraft was diverted to a different route, there was no speedy follow-up until the deed was done.

There should be adequate provision of communication network available to all passengers on board an aircraft to enable them communicate promptly to the people or authorities outside of the state of their voyage especially in the event of danger (hijack) without interruption. So there should be adequate alarm or device installed at each seat used without the notice of a neighbour. And there should be timely response to distress

call from aircraft in flight. For example on 11 September 2001, when terrorists used U.S. planes as missiles, if there was proper communication to the right authority and prompt response, perhaps the situation would have been saved. Besides, to ensure effective and efficient usage of functional information/communication facilities to guarantee safety flight operation in aviation industry as provided by Annexes 6 and 10, there should be development of efficient and reliable telephone network in all airports, provision of constant supply of electricity/power, computerization of operations of all airports to facilitate internet connectivity, data storage and retrieval, training and re-training of personnel to meet the constant progression of technological innovation in the industry particularly in developing nations.

Aircraft must be equipped with beacons that will send distress signals when activated in the event of disaster. Search and rescue equipment emergency locator transmitter should be made available for easy location of crash site as provided in Annexes 6 and 12. There should be provision of Recovery Analysis and Presentation System (RAPS) equipment.

5.2.2 MANDATORY PILOT PRE-FLIGHT BRIEFING

Aviation regulatory authority should make it mandatory for pilots to go for pre-flight briefing before take-off where they are made to subscribe to aeronautic information services (AIS) and meteorological services because pilots' disregard for AIS and weather reports constitute threat to air safety. So pilots should be given en route weather information before and during flight as provided by Annexes 3, 6 and 15. Most often pilots take off without accurate weather information only to met adverse weather during flight this is why majority of accidents are weather related. The objective of AIS is to ensure the flow of necessary information for the safety, regularity and efficiency of

international air navigation.

5.2.3 STATES SHOULD PERFORM THEIR OVERSIGHT FUNCTION

States should perform their oversight responsibility through their Civil Aviation Authority (CAA) as provided by the annexes and safety oversight manual. This will make the industry viable as airlines will be conscious of the fact that they are being monitored and would not risk being sanctioned. CAA should be autonomous of Aviation Ministry especially on issues bordering on air safety because it's too technical and sensitive to be subjected to ministerial bureaucracy. The ability of CAA to perform its oversight functions can be largely eroded by the ministry.

5.2.4 PROVISION OF ADEQUATE SECURITY AT AIRPORTS

There should be adequate security, screening as well as other facilities to enhance expeditious process of passengers especially at busy airports as provided by Annexes 9 and 17. Security lapse caused the US problem. The provision of Annex14 concerning runway surface should be adhered to. The issue of potholes, flood and snow on runway should be addressed as they have caused hazards in recent times.

All airports should have perimeter fence to avoid vagaries of extraneous interference as in Port Harcourt Airport. Airports should as well be kept clean to avoid bird strike for birds are attracted to airport by indiscriminate disposal of refuse. One of the most important concerns of airport management is operational safety. To ensure this, airport management should always carry out a comprehensive safety inspection program.

5.2.5 AMENDMENT OF SOME PROVISIONS OF THE ANNEXES

Chapter 6.3.4.1.1 of Annex 1 which provides that an applicant with hearing loss greater than 35dB (decibel) to frequencies of 500, 1000 or 2000Hz (hertz) or more than 50dB at 3000Hz may be declared fit provided the applicant has normal hearing

performance against the background noise that reproduces or simulates the working properties of flight deck noise upon speech and beacon signals, should be amended to require perfect hearing because aircraft operation generally is noisy so for a pilot to have the slightest hearing problem may spell doom in time of emergency when communication is very crucial. For example the Brazillian passenger plane B737 flying from Manaus to Brazilla the capital that had midair collision with a private executive jet at Amazon rain forest none survived in the passenger plane while the executive jet made emergency landing near the crash site with only a damaged wing. The pilot admitted only hearing a noise and seeing an image but could not tell further. So for two aircraft to collide with such grave consequence without the pilot knowing it can only be attributed to hearing and visual problems. Besides, the provision that permits a license holder engaged in problematic use of substance to return to his safety-critical functions after successful treatment or cessation of problematic use of substance should be amended to permanent prohibition on discovery of engagement in problematic use of substance as permanent prevention will be more effective than temporary denial. Moreover, the provision of Annex 18 permitting the carriage of some dangerous goods in the same plane with passengers should be amended. Dangerous goods should be carried in entirely different aircraft where special attention is given to them to avoid gambling with human lives.

5.2.6 IMPLEMENTATION OF UNIVERSAL AUDIT REPORT

The expanded Universal Safety Oversight Audit Programme of International Civil Aviation Authority going on should be thorough and the report implemented strictly to ginger up nations that are yet to be inspected. ICAO should disqualify member states whose safety and security standards are below international standard from operating both domestic and international flight. This will make them to buckle up and improve their

aviation industry but as far as they keep running substandard industry they will not take the issue of developing the sector as seriously as they should irrespective of the number of crashes they record.

All ICAO nations should cooperate to implement Annexes 2 and 17 which they are signatories to by punishing their national who violates these rules and any other rule aimed at promoting flight safety. ICAO should sanction any country that fails to punish her national who violates these rules. It is disturbing to realize that the master minders of September 9/11 U.S. plane hijack have not been brought to book yet.

The level of plane crash around the world calls for strict enforcement of ICAO standards which are mandatory for signatory states to comply with unlike recommended practices which states can elect not to comply with. The organization should enforce its standards by sanctioning erring members and making them accountable for the air accidents in their nations because ICAO having so many standards without enforcement is like a toothless bulldog and a sleeping giant because the member states that are suppose to enforce these standards through their national civil aviation authorities are violating them.

5.3 CONCLUSION

The attempt made in this thesis is to highlight the contribution of law in promoting flight safety. It also exposed the causes of air accident all in a bid to recommend pragmatic solutions to the problems x-rayed thereby further enhance flight safety.

Nowadays flying is a fast and common way of traveling. It is also considered one of the safest because there is consistent legal effort to improve flight safety. This safety is the result of determined and combined efforts by authorities and airlines to eliminate potential risks. Safety depends on various factors airlines contribute by keeping their

planes in good condition through checking and servicing at regular intervals, operating modern range of aircraft in compliance with Annexes 6 and 8 of the Convention on International Civil Aviation. In its year 2005 report ICAO narrowed crashes in the year as involving mostly old generation aircraft. That low cost carriers from nations with poor economies were found to be mostly involved in the fatal crashes recorded in the year. So in tackling the issue of age limit, on 26 July 2006 Southwest Airlines took delivery of 2,000th Next-Generation B737-700 and Emirates Airline introduced the state-of-the-art Boeing 777-300er on Lagos –Dubai route and added Tunis the capital of Tunisia to its destinations in Africa. To ensure good health during flight airlines' medical department ensures first aid kit is easy to open and medical amenities easy to locate as provided by Annex 6. Crewmembers are made aware that airlines' duty doctor is always available to give advice to crew in flight. Moreover, passengers contribute by submitting themselves for screening as provided by Annex 9 and due to the terrorist threat foiled by British Airport Authority in Heathrow Airport London on 10 August 2006 there was thorough screening of passengers in the airport, officials searching for explosives barred nearly every form of liquid outside baby formula and in Nigeria there is now 100% body search in the nation's international airports. Furthermore, manufacturers keep improving the quality versatility, reliability, fuel efficiency and economical performance of their aircraft recently Boeing delivered 2000th Next-Generation B737-600, B737-700, B737-800, B737-900 B737-700ER and B737-900ER[27]. However, pilots are careful enough to abort their flights on discovering difficulty in flight due to mechanical or natural phenomenon and maintain separation standard to avoid midair collision, in accordance with Annex 2. Besides, throughout ICAO community there has been a growing consensus on the need to incorporate human factors requirements into the certification, processes of equipment,

procedures and personnel as part of a systems approach to aviation safety and prevention of accident and investigation. Additionally, ATC perform their duties of prevention of collision between aircraft in flight and between aircraft and any obstructions either moving or stationary on the airport, obstructions which infringe runway or clearance limits are lighted by one or more steady red lights fixed at the top of the obstruction so that considerable care is taken when manoeuvring in their vicinity, and promoting efficient flow of air traffic as provided in Annex 2. For flight safety starts on the ground. Notwithstanding, states perform their oversight duty as provided in Annex 6 and safety oversight manual. Regulatory agencies not only address technical, mechanical, weather and pilot problems but anticipate and prepare for the unthinkable by increasing security to protect passengers from other people. As a result of U.S 11 September 2001 experience the Federal Government of Nigeria set up a Directorate of Security and Safety in the FAAN. There is timely international exchange of security information as provided in Annex 17 for example on discovering terrorist attempt at Heathrow Airport British Airport Authority quickly informed other nations to beef up security. ICAO and IATA wage relentless war against unsafe air travel and regulatory inefficiency. The keys to success in aviation industry centre on relentless focus on efficiency to achieve needed profitability as well as improving on airlines' safety performance. Regional organizations and corporate bodies as well contribute to ensure safety by sponsoring projects that enhance safety.

Since 17 December 1903 near Kitty Hawk, North Carolina when a bicycle repairer Orville Wright propelled himself through the air a distance of 120ft the first powered flight in a heavier-than-air aircraft known to human, the equivalent of 0.23 passenger-mile, the first such statistics recorded in the history of aviation, air

transportation has been beneficial to man. Air transportation globally constitutes significant proportion of the nations socio-economic system. It facilitates movement of people, goods and services thereby assists in generating contact and revenue on which economic, social and political progress of nations radiate. So air transport has done more than provide a carrier service, it has affected economic way of life, made changes in social and cultural viewpoints and had a hand in shaping the course of political history. Air transport industry contributes directly to the economy through its employment and revenue generation and indirectly by its purchase of goods and services from suppliers of the industry. There is urgent need for governments to develop the industry to meet international standard and requirement. Development of this industry will enhance economic development of countries especially developing ones as the gain of the industry far outweighs its pains.

However, the three major problems of civil air transport are economic, engineering and navigation. The success of the airline operation depends upon the accuracy with which the aircraft is taken from points A to B. Much of the great effort of the ground organisation and workers is nullified if the navigation is in any way faulty. A pilot must have a keen ability to observe his surrounding with careful attention to detail while resisting unnecessary distractions. The navigator cannot permit himself to relax or drift into unawareness of the elements of air navigation altitude, position and direction for one minute during a flight and the flight is not successfully completed until the aircraft is safely at its destination and all records of the voyage completed. In essence, pilots must not shrink from their duties as imposed by Annex 6 if their flights must be safe.

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