NEAR EAST UNIVERSITY
GRADUATE SCHOOL OF SOCIAL SCIENCES
INTERNATIONAL LAW PROGRAM

# THE CONCEPT OF TERRITORIAL SOVEREINGNTY OVER AIR-SPACE AND THE EFFECT OF INTERNATIONAL AVIATION EMISSION

ABANG LEWIS. T

MASTER'S THESIS

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# ACCEPTANCE/APPROVAL

We as the jury members certify the 'The Concept of Territorial Sovereignty over Air-Space and the Effect of International Aviation Emission' prepared by Abang Lewis T defended on 26/12/2018 has been found satisfactory for the award of degree of Master / PhD

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# ABSTRACT

## THE CONCEPT OF TERRITORIAL SOVEREIGNTY OVER AIR-SPACE AND THE EFFECT OF INTERNATIONAL AVIATION EMISSION

If history has it correctly the advent of aviation remains the greatest invention and achievement of the 17th century. This paper seeks to examine how aviation was developed, the evolution of the principle of sovereignty over the air-space, and the degree this sovereignty can be exercised vertically. Additionally, the prevailing competing school of thoughts within aeronautic law. Should a state air-space be invaded by accident or by act of aggression what action plan are available to the offended state. With the rapid societal change what are the limiting elements associated to the outmoding of state sovereignty over air-space if any will be discussed. And as well, delving into the international legally accepted measures of limiting the adverse effect of international aviation (GHG) emission, the abasement mechanism available in the international arena, the roles of the international organisation with the sole purpose to tackling emission of international aviation.

This paper through legal theories and case law addresses what acts can be considered acts that has infringed on the right of a sovereign air-space in modern international law. Additionally, the research also involves a macro-analysis of the impact of international aviation emission pollution and how this issue can be mitigated through the collective efforts of states and cutting edge technologies, a clear and precise understanding of how the principal piece of legislation enacted through the collective efforts of states on how to deal with emission and how the environment is adversely affected i.e. Global warming and Climate change. While seemingly focuses on the difficulties of regulating the emission of the international aviation. Additionally, Other than aircrafts, Radio waves cutting into the national territory of another state air-space have been held to be in breach of that state territorial integrity which then gives states the legal authority to block such interference but however only aircraft penetrating into foreign air-space will be considered.

**Keywords:** Sovereignty, Air-space, Chicago Convention, International Aviation, (GHG) emission pollution.

# ÖZ

## THE CONCEPT OF TERRITORIAL SOVEREIGNTY OVER AIR-SPACE AND THE EFFECT OF INTERNATIONAL AVIATION EMISSION

Eğer tarih doğru bir şekilde varsa, havacılığın gelişmesi 17th. yüzyılın en büyük buluşu ve başarısı olmaya devam ediyor. Bu makale havacılığın nasıl geliştiğini, hava alanı egemenliği ilkesinin evrimini ve bu egemenliğin dikey olarak nasıl uygulanabileceğini incelemeyi amaçlamaktadır. Ek olarak, havacılık hukuku içindeki hâkim rekabetçi düşünce okulu. Bir devlet hava sahasının kaza ya da saldırganlık eylemleri tarafından istila edilmesi durumunda, rahatsız edici devlet için hangi eylem planının mevcut olduğu. Hızlı toplumsal değişimle birlikte, eğer tartışılacaksa, devletin egemenliğinin hava-uzayının dışına çıkmasına bağlı sınırlayıcı unsurlar nelerdir. Ve ayrıca, uluslararası havacılık (GHG) emisyonunun olumsuz etkisini sınırlamak için uluslararası yasal olarak kabul edilmiş önlemleri, uluslararası arenada mevcut olan abasement mekanizmasını, uluslararası havacılığın emisyonu ile mücadeleyi amaçlayan uluslararası organizasyonun rollerini tek başına ele almak.

Hukuki teoriler ve içtihat kanunu ile hazırlanan bu makale, modern uluslararası hukukta egemen bir hava-alanı hakkını ihlal eden davranışların ele alınabileceğini ele almaktadır. Bunlara ek olarak, Araştırma ayrıca, uluslararası havacılık emisyon kirliliğinin etkisinin ve bu konunun devletlerin ortak çabaları ve ileri teknolojilerle nasıl azaltılacağının makro analizini içermektedir. asıl mevzuatın devletlerin emisyonla nasıl başa çıkılacağı konusundaki toplu çabaları ve çevrenin nasıl olumsuz etkilendiği, yani küresel ısınma ve İklim değişikliğinden nasıl etkilendiğine dair net ve kesin bir anlayış. Görünüşe göre uluslararası havacılığın emisyonunu düzenlemenin zorlukları üzerinde duruluyor. Ek olarak, uçaklar dışında, Başka bir devlet hava sahasının ulusal bölgesine yayılan radyo dalgaları, o devletin bu bütünlüğünü ihlal ettiği ve bu müdahaleyi engellemesi için yasal bir otorite veren devletin bütünlüğünü ihlal ettiği, ancak yalnızca yabancı hava alanına giren uçakların ele alınacağı kabul edildi.

**Anahtar Kelimeler:** Egemenlik, Hava Alanı, Chicago Sözleşmesi, Uluslararası Havacılık, (GHG) emisyon kirliliği.

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**LIST OF CONVENTIONS**

ARTICLE (3BIS) PROTOCOL = 1984

CHICAGO CONVENTION = 1944

CHARTER OF THE UNITED NATIONS = 1945

GENEVA CONVENTION = 1949

GERMAN CIVIL CODE = 1896

HAVANA CONVENTION = 1928

NAPOLEON CODE = 1804

PARIS CONVENTION = 1919

POLICE DIRECTIVE = 1784

STOCKHOLM DECLARATION = 1972

SPACE AFFAIRS ACT = 1993

SWISS CIVIL CODE = 1907

TREATY OF WESTPHALIA = 1948

TOKYO CONVENTION = 1963

KYOTO PROTOCOL = 1997

TREATY OF THE EUROPEAN UNION = 1992

TREATY OF ROME = 1957

UNITED NATIONS CONVENTION ON THE LAW OF THE SEA (UNCLOS) = 1982

**LIST OF ABBREVIATIONS**

ATAG = Air Transport Action Group

ART = Article

CAEP = Committee on Aviation and European Protection

$CO_2$ = Carbon Oxide

CO = Carbon Monoxide

CORSIA = Carbon Offsetting and Reduction Scheme of International Aviation

DETR = Department of the Environmental, Transport, and the Regions

EET = European Economic Area

ETC = Et cetera

ETS = Emission Trading System

EU = European Union

E.G = For Example

FAA = Federal Aviation Administration

GHG = Green-House Gases

IATA = International Air Transport Association

ICAO = International Civil Aviation Organisation

I.E = That is

IPEC = Intergovernmental Panel on Climate Change

KAL = KOREAN AIR LINES

MBM = Market-Based Measure

UNCLOS = United Nations Convention on the Law of the Sea

UNFCCC = United Nations Framework Convention on Climate Change

$NO_X$ = Nitrogen dioxide

USSR = United of Soviet Socialist Republics

UN = United Nations

UNEP = United Nations Environmental Programme

VOCs = Volatile Organic Compounds

WMO = World Meteorological Organisation

## CHAPTER 1

## INTRODUCTION

The notion of a *"complete"* and *"absolute"* sovereignty over airspace is in some regards outmoded in present day international law, many components add up to the outmoding of the concept i.e. interconnection among states and a term I call *"collectivism"* of states etc.

Sovereignty over airspace despite being an intrinsic character of public international law no clear and vivid understanding to its concept exist although many attempts have been proposed by scholars to precisely characterize the scope of the concept.[1] As will be seen later on. The word sovereignty originates from the Latin terminology "*Suprenanus*" to mean Supreme authority.

Jurisdiction on the other hand, I will say is the other side of the same coin, one simply cannot exist without the other, Sovereignty gives legal authority to the term jurisdiction. Therefore, sovereignty in that view means supreme power of a state. "*Aristotle"* in his time stipulated about a centralized body to which the powers of a state was confide into in other to exercise sovereign authority within a particular domain.[2] However, the methodical structuring of the term sovereignty was modified by "*Jean Bodin"*.[3]

The historical attempt of air travel begins with the epic narratives of legends rooted deeply within man's own existence, in all era man had always ascribe the power of flight to

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[1] "Freedom and Sovereignty in Air- and Outer Space |https://www.cambridge.org/core/journals/netherlands-international-law-review/article/freedom-and-sovereignty-in-air-and-outer-space/A6693F0FDED735DA73995EC9C9E2BA77 (Accessed September 13, 2018.)

[2] Eduardo German, "Potentiality of Sovereignty" http://www.scielo.org.co/scielo.php?script=sci_arttext&pid=S0120-00622014000300004 (Accessed September 13, 2018.)

[3] Grimm D, Bodin's " the Significance for the Concept of Sovereignty, http://columbia.universitypressscholarship.com/view/10.7312/columbia/9780231164252.001.0001/upso-9780231164252-chapter-002 (Accessed September 13, 2018.)

beings he deemed mystical or beings he deemed superior to himself as a form of a higher authority.

In Christianity for instance, gods and angles possessed the ability to fly. Another instance is in the ancient Greek mythology, the myth of "*Icarus"* and "*Daedalus"* which ended with flight abilities. Contemporary society today sees the mode of air navigation as one of the most secure and fastest means to get from point to point. However, the physical based endeavour of aviation (air travel) commenced when man began to act on his desire to fly, as noticed, it was not before the 17th and early 18th Century that the Wright Brothers (considered as aviation pioneers) for the very first instance engineered powered based flight a self-propelling mechanism.[4]

The advent of aviation is undeniably captivating and indeed one of the greatest of human achievements or inventions dating back to the 17th to 18th Century, man desired and was fascinated by the flight of the birds of the skies and in an attempt to replicate that flight, these early men like *"Leonardo da Vinci"* of the 15th Century in an attempt to fly created a wing instruments which mimicked the flight pattern of the birds, also in 1507, "*John Damian*," made a pair of wings for himself which he launched from the hilltop in an effort to fly. Additionally, "*William Henson"* relying on *"Cayley"* idea he tried replicate that idea to practically design an airplane powered by a steam engine to list but a few.[5]

During this era the issue of a *"complete"* and *"absolute"* sovereignty over the air-space had little significant as a result of the fact that the aeronautical law was still in its infancy, before defining sovereignty in a more specific framework a look at how states perceive of the term "sovereignty",

International law recognises that every state is equal and has an absolute right over its domain to act as deemed necessary without outside interference. This was the approach seen in the *"Peace of Westphalia*" (hereinafter referred to as "*Treaty of Westphalia*") a peace treaty signed which recognises the autonomy of states, the Treaty acknowledges that, states

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[4] John M. Lindley, ''A history of Sea-Air Aviation-Wings over the ocean''. http://www.avia-it.com/act/biblioteca/libri/PDF_Libri_By_Naval_Aviation_Publications/A%20History%20of%20Sea%20-%20Air%20Aviation%20Wings%20Over%20the%20Ocea.pdf
(Accessed September 13, 2018.)

[5] John M. Lindley, ''A history of Sea-Air Aviation-Wings over the ocean''. http://www.avia-it.com/act/biblioteca/libri/PDF_Libri_By_Naval_Aviation_Publications/A%20History%20of%20Sea%20-%20Air%20Aviation%20Wings%20Over%20the%20Ocea.pdf
(Accessed September 13, 2018)

do have absolute and exclusive sovereignty over their domain this power extends to the state rights over its territorial high seas and the air-space over such territory.[6]

The expansion brought by the advent of aircrafts (to coin the phrase aviation) at the time when there began to be used for commercial purposes was indeed fascinating but however, the invention not only impacts in a positive manner but also negatively i.e. environmental impacts such as climate change which then leads to global warming, the (GHG) emission released by the operation of the aviation industry requires states to look for methods which will curb the emission and bring the continuous growing pollutant to a halt.[7]

## 1.1. PURPOSE OF THESIS

The intended objective of the thesis is to analyze the fundamental principles of sovereignty over the air-space and what intensity this vertical sovereignty extends, the level to what degree sovereignty can be upheld against encroachment from other states airplanes. The goal is to deliberate as states began to move towards what I called collectivism how does this affects the notion of the complete and exclusive sovereignty principle, and what regulation prevails over states conducts should the air-space be violated. The attempts and difficulties faced by the international community to curb (GHG) emission of international aviation and to establish a foundation for future policies and management for aviation industry in order to limit C02 emissions.

## 1.2 RESEARCH QUESTION

Because contentions on the sovereign integrity over air-space have been deliberated over a long period by scholars and states this thesis seeks to discuss and attempt to answer the prevailing and difficult questions post in lights of the issue over the air-space in aviation alone with the (GHG) emission produced in international aviation.

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[6] Martin L. Duncan. "Sovereignty'': 'The History of the Concept" https://faustianeurope.wordpress.com/2008/05/07/sovereignty-the-history-of-the-concept/ (Accessed September 17, 2018)

[7] Erwin Von Den Steinen, *"National and International Aviation"* (Kluwer, volume 1, 2006) at pp. 1-9.

1. What is the legal limit to the vertical sovereignty over air-space

2. How has the International Civil Aviation Organisation (ICAO) lived up to expectation with respect to aviation emission

3. How is the principle of sovereignty being outmoded in today international law

4. How does international aviation emission adversely impact the environment
5. What are the primary environmental mitigating tactics at curbing international aviation emissions and have the tactics been effective

## 1.3 METHODOLOGY

Taking the initiation to construct an analytical research approach to find an attainable resolution for the climate change impasse in international aviation (GHG) emission, rather than just a case study based deductive analysis. This thesis administers the following methodology (explorative) as a fundamental apparatus to accomplish the objective of setting a clear vertical limit over air-space and the outmoded concept of the *"complete"* and *"absolute"* sovereignty in today international air law.

## 1.4 IMPORTANCE OF RESEARCH TOPIC

This thesis examines the ineffectiveness of the international community to effectively negotiate and implement an action plan to help curb or limit the emission released by the operation of the international commercial aviation industry through the *"International Civil Aviation Organisation"* (ICAO). The ineffectiveness of the term "complete and absolute" sovereignty in today's international law. With the expeditious progress in the area of aeronautical law what approach does the international community taken to regulate this fast new branch of law. Additionally, another relevance of this thesis is to shade more lights on how a state sovereignty is being limited by several modern concepts.

## 1.5. FORMATION OF THESIS

The thesis consist of a four chapter sections, the starting point of the first chapter 1 (one) begins with the structural composition of the intended research topic its significant, and the relevance of the research question, following up immediately is chapter 2 (two) which begins with an introduction addressing the development of the concept of sovereignty and the issues attributed to the doctrine. While, addressing how the concept of sovereignty is being outmoded by modern day international law.

Chapter 3 (three) addresses the concept of sovereignty over air-space and how this concept has brought several contentions among states and the international responsibility at redressing the contention giving a clear picture on how states precise this new notion.

The fourth and final chapter 4 (four) concerns with a critical discussion, the overview of the international aviation emission and an attempt at an answer of the propose research question and the international community responses in an attempt to mitigate the environmental effect of the emission produced by international aviation along with a conclusion which summons up all augments of all four chapters and giving personal remarks regarding each of the chapters.

# CHAPTER 2

# THE PRINCIPLE OF SOVEREIGNTY

## 2.1 HISTORICAL DEVELOPMENT

The contention of possession over the air-space above a state domain has for many centuries being the subject of deliberation among scholars and civilized nations; this contention however involves the air-space over both privately owned properties and that of the state domain as a whole.[8] The historical progression of the hypothesis of sovereignty over the air-space dates as far back to the ancient Roman law when the issue of controlling of the air-space above their cornfield was first debated.[9] Furthermore, this medieval times (i.e. Roman air law) regulations was subcategories between two distinct principles in that time, on the one hand is the "*Aer*" attribute or referred to as air the Romance considered it to be "*res communis"* this holds the perspective that air as an entity could not be physically possessed and was for the advantage or benefit of all persons. While, on the other hand is the "*coelum"* considered to be a continuation of the rights of possession over land, this ideology was soon integrated into common law and was relied on greatly by English jurists.[10]

The issue of possession over air-space at the time was confined solely on privately owned property but the Romance had also tried to control the air-space above their domain whether privately owned or not. Since the development of the principle of sovereignty over

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[8] Almond R.G, "The Weaponization of Airspace" https://thediplomat.com/2018/10/the-weaponization-of-airspace/ (Accessed September 20, 2018.)

[9] Stuart B. "The Struggle of Controlling the Airspace" https://books.google.com.cy/books?id=nnfUcIItwakC&pg=PA49&lpg=PA49&dq=the struggle on the possession of the airspace&source=bl&ots=WNg4flwDUo&sig=zW9JBMHkeZg6SNk3UtkCdivA6X0&hl=en&sa=X&ved=2ahUKEwit1cDyvvLeAhXMMewKHYLaBDIQ6AEwAHoECAkQAQ#v=onepage&q=the struggle on the possession of the airspace=false (Accessed September 26, 2018)

[10] Albert Moon jr, "*A look at Air-space Sovereignty,"* (Air L. & Com. Vol. 29, 1963) at pp 328-339

the air two distinct competing schools of thoughts continue to dominate the concept. The first school of thought is of the notion that, a state has "sovereignty" over its airspace and this sovereignty proceed upward indefinitely and beneath the depth of the earth core, on the other hand is the school of thought which opposes that view and proposes that, the "Air-space" could not possibly be possessed and was for the enjoyment of all mankind and as such the state sovereignty or power of control over such air-space should be limited.[11] The school of thought which holds the opinion that a state sovereignty above air-space protrudes upward indefinably is however reflected in the Latin aphorism *"Cuius est solum eius est usque ad et usque ad inferos."* The aphorism in translation insinuates that "should one own a piece land he also owns such piece of land vertically to the heavens and lower to the earth core".[12] In contrast to that, the school of thought which proposes for there to be a vertical limit is also reflected in the ancient Roman law aphorism "*communis omnium"* which translate to meaning "common to man and could not be appropriated."[13] "*Hugo Grotius"* regarded as the founder of international law, had the opinion that the rights of air-space above privately owned property he mentioned that, "the land scope and the airspace over it created a non-breakable entity", and that the air-space has such great magnitude that it is sufficient for all to use and appropriation should be somewhat regulated by the state.[14]

## 2.2 RIGHTS OVER PRIVATE PROPERTIES

As previously stated, the early Roman Empire state law saw the air-space above the territory as belonging to the Roman Empire and the citizens had believed that the state had

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[11]Stuart B.' The Struggle to Controlling the Airspace" https://books.google.com.cy/books?id=nnfUcIItwakC&pg=PA49&lpg=PA49&dq=the struggle on the possession of the airspace&source=bl&ots=WNg4flwDUo&sig=zW9JBMHkeZg6SNk3UtkCdivA6X0&hl=en&sa=X&ved=2ahUKEwit1cDyvvLeAhXMMewKHYLaBDIQ6AEwAHoECAkQAQ#v=onepage&q=the struggle on the possession of the airspace=false (Accessed September 26, 2018)

[12] "*Cuius EST Solum Eius EST Usque Ad Coelum ET Ad Inferos*" https://www.irwinlaw.com/cold/cuius_est_solum_eius_est_usque_ad_coelum_et_ad_inferos (Accessed November 27, 2018.)

[13] Stuart B. "The Struggle to Controlling the Airspace" https://books.google.com.cy/books?id=nnfUcIItwakC&pg=PA49&lpg=PA49&dq=the struggle on the possession of the airspace&source=bl&ots=WNg4flwDUo&sig=zW9JBMHkeZg6SNk3UtkCdivA6X0&hl=en&sa=X&ved=2ahUKEwit1cDyvvLeAhXMMewKHYLaBDIQ6AEwAHoECAkQAQ#v=onepage&q=the struggle on the possession of the airspace=false (Accessed September 26, 2018)

[14] Malcom S. Shaw, "*International Law*" (6th edition 2008) at pp 490

the legitimate and exclusive right over such air-space; this however was the case until fairly modern era.[15] However claims brought in exercise of control over air-space on disputed territories at the said time involved claims of low distance stirring things as trees, and infrastructures. At that time cases involve in dispute of the air-space where merely cases concerning rights over private properties ownership other than the contention among states over the possession of the air-space. "*Lord Ellenborough"* in an early English case of Pickering vs. Rudd,[16] remains an example private of claims brought under the right over private property in contention over air-space where one party the (defendant) nailed on his property a board which protruded inches from his property to protrude on the garden of the other party (plaintiff) in deciding upon such claims he stated that;

"*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 fregit, at the suilt of the occupier of every field over which his balloon passes in the course of his voyage. Whether the action may be maintained cannot depend upon the length of time for which the superincumbant air is invaded. If any damage arises from the object which overhangs the close, the remedy is by an action on the case. Here the verdict depends upon the new assignment of excess in cutting down the tree"*[17]

Although *"Lord Ellenborough"* view in the above case seem to favour the school of thought which proposes to put a limit on the right of states above the airspace but subsequently stated that a person owns the right to enjoy the airspace of his property although no limit was imposed another case which was brought with respect to control over air-space and to the enjoyment of such and the approach taken by the judge which favours that view point was seen in the case of Clifton vs. Bury when the court stated that, the telephone wire running through the air-space of the plaintiff property interfered with the enjoyment of his property therefore in so facto, amounted to trespass.[18]

When it comes to the rights over the air-space of property owned privately by individuals there is a clear distinction in views between the English and American courts, while the English courts system (also regarded as the common law system) relied on the school of thought which proposes that, the odd not be a limit upward on land owned by individuals or the state but the (civil law system) the American courts system is of the

[15] Albert Moon jr, "*A look at Air-space Sovereignty,"* (Air L. & Com. Vol. 29, 1963) at pp 329-339
[16] Pickering vs. Rudd, 4 Camp. 219 (Eng.) 1815
[17] Ibid.
[18] Clifton vs. Bury, 4 T.L.R. 8 (1887).

opinion that although every state do has the legitimate right to self-govern which also involves power of control of properties within the domain and the air-space over such domain but for an individual who physically is in possession of land to claim ownership of the air-space over such property he or she has to or can only claim as much of the air-space as he or she the land owner can preoccupy. This was the position of the court when deciding of the case of Hinman vs. Pacific Air Transport in this case it was held that, passing through the air-space over land belonging to another was not itself a trespass but legal however only to the extent that such act do not in any circumstance cause injury to the land owner's proprietary right.[19] Additionally, Justice "Douglas" in his descending opinion said in the famous case of United States vs. Causby.

"*It is ancient doctrine that at common law ownership of the land extended to the periphery of the universe—Cuius est solum eius est usque ad inferos. But that doctrine has no place in the modern world. The air is a public highway, as Congress has declared. Were that not true, every transcontinental flight would subject the operator to countless trespass suits. Common sense revolts at the idea. To recognize such private claims to the airspace would clog these highways, seriously interfere with their control and development in the public interest, and transfer into private ownership that to which only the public has a just claim"*[20]

Though the fundamental precept of sovereignty above the air-space in international air law is echoed in the above mentioned maxim, the recognition of the aphorism for a long time represented some dilemma among states although, the "*Napoleon Code*" of (1804) took up almost identical of the aphorism word to word. Following the maxim but not in its entirety is the "*Swiss Civil Code"* of (1907), and the "*German Civil Code"* of (1896) which although recognising the principle but try to deviate from it by stipulating that ownership of a private property right can only claim the sovereign air-space over such property upward and depth beneath only to the necessary extent to which he can enjoy such property and the court in doing so put a limit on the height over private property and for claims to be established on the basis of control over air-space the claimant has to show that his or her reasonable enjoyment of the property has been breached even though not clear limit was set.[21]

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[19] Hinman vs. Pacific Air Transport, 84 F.2d 755 (9th Cir. 1936).
[20] UNITED STATES VS. CAUSBY, 328 U.S. 256 (1946).
[21] Cheng B, "Air Law" https://www.britannica.com/topic/air-law (Accessed October 11, 2018.)

## 2.3 THE FIRST FLIGHT

For the very first time after several failed attempts to fly with machines constructed by man success came when Montgolfier brothers of French nationals invented and flew the hot-air-balloon (triggered the beginning of the lighter-than-air era) this became one of the biggest human achievements in that century and then soon came the need to regulate this aeronautical breakthrough, and as such, a year after this profound breakthrough was achieved a police directive was enacted which prevented for hot-air-balloons to fly across the city of Paris without first obtaining approval from the authorities or state. This 1784 piece of legislation has since then become the earliest form of legislation in the field of aeronautical law, having said I will say this, the objective of the directive was anticipated at safeguarding the people of the state and control of the air-space over the state. [22]

## 2.4 NATIONAL SOVEREIGNTY

Public international law enactments stipulates that the air-space over state's owned land and territorial seas is indeed belonging to that state, for many years the subject of state sovereignty over air-space had always fascinated scholars and has continued to be discussed since the issue of statehood first came into play. But although, sovereignty over the air-space of a state had for a long time been given little to no attention until the early twentieth century.[23]

Sovereignty above airspace, the 'term' in the international law context relatively means "complete" and "absolute" power and the scope to which a state or ruling organ can decree within itself with the absence of outside obstruction of its affairs. Giving that it is an intrinsic principle identified at the international level, sovereignty in an ample sensation measures to "absolute", "supreme", unquestionable power within a define territory. The absolute power to govern.'' Several differences in opinions with respect to sovereignty over air-space continue

[22] Deakin L. Mark. "History of the First Airplane" http://www.firstflightcentennial.org/history-of-the-first-airplane/
(Accessed October 24, 2018.)
[23] Deakin L. Mark. "History of the First Airplane" http://www.firstflightcentennial.org/history-of-the-first-airplane/
(Accessed October 24, 2018.)

to dominate the field. In the 17th Century "Freiherr Von *Pufendorf"* was of the opinion that, in other to have an adequate or efficient regulation of the air-space over a state there has to be some kind of limit imposed.[24]

As control over the air-space began to be discussed and to take roots. The 12th century saw a swift advancements of the area of aeronautical law, as man began to fly soon after the invention of the hot-air-balloon (the era of lighter-than-air) which began to be employed for the specific purposes of commercial activities only then did jurists began to suggest the idea of an air navigation, one of those jurist was "*Paul Fauchille"* a renowned scholar of French national urged the *"institut de Droit international"* to come up with an international air navigation in 1900.[25] And in 1902 he propounded the known principle of the 'freedom of the air' as one of the known school of thought, this school of thought has for many years relied on the notion which stipulate that, just as the open seas should be free so as the air-space.[26]

The first Convention to tackle the issue of sovereignty over air-space properly was the Convention Relating to the Regulation of Aerial Navigation (hereinafter known as Paris Convention) which came about as a result of the "Versaille Peace Conference" 1919.[27] Soon after came the Convention on international Civil Aviation (hereinafter known as) Chicago Convention however, the 1944 Convention was greatly influenced by the Paris Convention ,which was an attempt by the interested states to conclude a Convention on Air Navigation the 1919 conference failed simply because the states involve could not reach a consensus on how mount air-space a state can control, the 1910 conference on Air Navigation failure was attributed to the impossibility of state on reaching an agreement on the legal statute of the air-space, but however, a renowned professor "*John C. Cooper*" in his opinion affirmed that, the failure of the conference was not as a result of the concerned states not being able to define the legal statute of the air-space but such failure was attributed to political reasons of the states involved.

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[24] P.P.C. Haanappel, "*The Law and Policy of Air Space and Outer Space: A Comparative Approach*." (Kluwer, 2003) at PP 15-21

[25] P.P.C. Haanappel, "*The Law and Policy of Air Space and Outer Space: A Comparative Approach*." (Kluwer, 2003) at PP 15-21

[26] Kent J. Brown "Air and Space Law" https://www.peacepalacelibrary.nl/100years/airandspacelaw/ (Accessed October 24, 2018.)

[27] Richards R. 'Historical Development of the Paris Peace' http://www.international.gc.ca/odskelton/macmillan.aspx?lang=eng (Accessed October 28, 2018.)

The "*Paris Convention"* was successful in reaching an agreement on the perception of the airspace as sovereign, the Convention in its Art (1). Stated,

*"The high contracting parties recognize that every state has complete and exclusive sovereignty over the air-space above its territory."*[28]

Because the Convention used the term *'air-space'* it now begs the question what does air-space mean. At this point it is inherent that one can no longer rely on the classical approach of sovereignty over the air-space laid down by common law. The 1919 Convention in my opinion failed partly because of the interest of the states involved and partly simply as a result that certain factors were not properly scrutinized and taken into consideration before drafting the 1919 Convention, the idea that a state has limitless sovereignty over the air-space above it domain is in today's world absurd, as Professor "*John C. Cooper"* stated, it is time for the nations of the international community to draft a new Convention befitting of today's standard, one which clearly define the exact limit a sovereign state has control over within her domain vertically, a clear and distinct definition of air-space should be given and where the outer-space begins. The practical reliance on the 'complete and exclusive' sovereignty or the common law approach over the air-space was already doomed to fail soon as society began to evolved and the concept of sovereignty over air-space also need to evolved to meet the modern technological advancements of today.[29]

The "Havana Convention" of 1928 alongside with the 1919 "Paris Convention" where both superseded by the 1944 Chicago Convention, as its predecessor the 1944 Convention almost verbatim captured the words as there were from these Conventions as previously mentioned, the principle was accepted nationally and in the international level by states as being part of international customary law accepted by all, while the Convention addresses only member states it principles also binds non-member states of the Convention, in the first Article the issue of sovereignty is addressed, Article 2 specifies what amounts to territory as stated.

*"For the purposes of this Convention the territory of a State shall be deemed to be the land areas and territorial waters adjacent thereto under the sovereignty, suzerainty, protection or mandate of such State."*[30]'

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[28] Paris Convention, 1919. Article (1).
[29] Albert Moon jr, "*A look at Air-space Sovereignty,"* (Air L. & Com. Vol. 29, 1963) at pp 329-339
[30] Chicago Convention 1944, Art 2.

The Article goes beyond to state where and only where sovereignty over the air-space can be claimed and in that leaving the high seas free (such as in maritime law) and lands which belongs to no man as free for all persons (Terra nullius) i.e. Sovereignty over the air-space can be claimed by no states although such territories would be difficult to find since all territories today belongs and are in some sort of control of states. The concept of state sovereignty is a defined notion in international law, the modern term of sovereignty can be traced back to early German, in Westphalia, (the Treaty of Westphalia which simply means a series of peace treaties), signed in 1948. This Treaty established the basic principles of the recognition of a state as being a sovereign nation: territorial integrity, border inviolability and self-determination the supremacy of the State and a supreme law making body within the territories.

The notion of sovereignty can be found in a number of conventions but for purpose of this paper only the Chicago convention will be considered: sovereignty of the airspace within the meaning of the Chicago Convention on the international civil aviation 1944 it states that,

"*The contracting States recognize that every State has complete and exclusive sovereignty over the air-space above its territory*."[31]

Territory within the context of the above Convention simply means the total domain of the state inclusive of its territorial waters and over the air-space although the Convention states that control over the air-space above such domain remains to the exclusive control of that state what it did not include is the limit to which the control extends to leaving states struggling to determine the exact limit.[32]

## 2.5 AIR-SPACE

In the modern concept of international law the swift advancements brought on in international aviation has conveniently made the historical concept of sovereignty obsolete. One of these advancements is the development and dispatch of the satellites into space. these satellites in their maximum altitudes mask a very large section of the earth surface in that respect fly directly over many states, the question which then arises is that to what extent

[31] Chicago Convention, 1944. Article (1).
[32] Ferreira-Snyman, MP. "*The evolution of state sovereignty: a historical overview*" (Vol. 12, no, 2. 2006) at pp 1-26

vertically does each state have control over its air-space. The air-space should be regarded as the altitude beneath out-space as least in my opinion.[33]

### 2.5.1 VERTICAL PEREMETERS

Although with regard to the Chicago Convention Art (1) the air-space part of the atmosphere is allocated to the exclusive control of states, however the contention of where the air-space ends and the outer-space begins is still an issue of deliberation among states today nevertheless, several attempts have been put forward by scholars to try to approach the issue in a more logical manner and to fit today narrative of how far a state can exact control vertically and still be within the framework of the Convention. But it should be understood that no clearly define definition of the vertical limit exist. Additionally, what is understood is that no state has jurisdiction over the outer-space in the international community.[34]

States have always exact control over the air-space of their territory as far back as the Roman Empire. The Roman law recognises, regulate, and protect the private rights of air-space over land. Although states often agree with the Roman law perspective regarding the air-space, what is in contention among these states is the limit to which this right can be exercised. The 20th century saw international aviation solely under-regulated in light of the vertical perimeters, "*Fauchille"* propose that states should have control over air-space to a maximum limit of 1,500 meters, but later reverted his view to just 500 meters Fauchille opinion was reaffirmed by John C. Cooper when he stated that:

*"The air is free- states having only rights necessary for their self-preservation, such rights relating to the prevention of spying, to the customs, to the sanitary police, and to the necessities of defense, and subject to certain exceptions, air navigation is prohibited in a 'security' zone extending 1,500 meters up from the surface territory of a state."*[35]

In contradictory view of the above mentioned is that of John Westlake who stated that:

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[33] Ferreira-Snyman, MP. "*The evolution of state sovereignty: a historical overview*" (Vol. 12, no, 2. 2006) at pp 1-26

[34] Erotokritou and Chrystel, "Sovereignty Over Airspace: International Law, Current Challenges, and Future Developments for Global Aviation" http://www.inquiriesjournal.com/articles/645/sovereignty-over-airspace-international-law-current-challenges-and-future-developments-for-global-aviation (Accessed October 28, 2018)

[35]John Cobb Cooper; Ivan A Vlasic, "*exploration in aerospace law*", (1952) at pp 104-106

*"In the air the higher one ascends, the more damage the fall of objects will cause on the earth, if there exists a limit as to the sovereignty of the state over the oceanic space, none exists for the sovereignty of the state over the air-space. The right of the subjacent state remains the same whatever may be the distance."*[36]

"Westlake" opinion on the matter was that there odd not to be a limit vertically and it will be absurd to put such limit as it will lead to a series of legal issues but however he was of the notion that although no such limit should exist but states should have a right of 'innocent passage' available for other state or foreign aircrafts as it exist for international vessels over territorial waters of other states. Another opinion came from Dr. "J. F. Lycklama" in his work maintained that there exist no vertical limit over air-space, in his publication he declared that:

*"We therefore conclude that states sovereignty reaches quite as high as the state's interest can reach, the possibility of which but ends at the uttermost limit of the atmosphere."*[37]

Since the invention of the aircraft the question on the minds of scholars, policy-makers and the state generally is that of the vertical limit sovereignty, in the light of this issue the 1st General Counsel of the U.S. National Aeronautics and Space Administration (Hon.) "John A. Johnson" stated that.

*"1 see no good reason for postponing a systematic effort to explore and reach agreement on this question of delimiting the upward reach of territorial sovereignty, that is, the exclusive power and authority of the underlying state. It is not the kind of question, in my opinion, that will be answered by the accumulation of scientific knowledge or by further experience in space technology"*[38]

The controversies surrounding the vertical sovereignty has outlived the space age (the era at which man started to explore the outer space) and still is till date. Since no concession has been reached with respect to the upward limit of sovereignty is, states on the other hand are left to determine what the limit is although clearly no state is willing to do so.[39]

In today's digital world the need for a clearly define limit as it pertains to vertical sovereignty is of great necessity, because states are moving away from the traditional known means of air transport and toward an ultra-modern means and as such the need for

[36] ibid
[37] "*John A. Johnson, First General Counsel of the U.S. National Aeronautics and Space Administration", 1961*.
[38] ibid
[39] ibid

demarcation prevails. The newly invented term known as "*Near Space*" an area of the atmosphere above the airspace normally an aircraft travel and underneath the lowest the orbit of satellites is indeed another factor why certainty is required. Additionally, Another fact to why certainty of the vertical sovereignty is of the essence is that because this fact has remain quit uncertain states cannot claim an equal amount or access to space since no state knows the legal limit vertically and has resulted to more powerful states taking advantage of this uncertainty leaving the weaker ones with no clear sense of how to explore the Outer-Space even though the outer-space remains free for all (out of the jurisdiction of any state).[40]

Traditional, states have exerted control over the air-space above their territory this has dated back to the Roman empire as previously stated, this enable states to safeguard private property rights etc. this was however, adopted by all states at the time, scholars tend to agree with the view of the then Roman law but the extent to which this state's claim to exert control limitless vertically has not been properly digested by these scholars.

The Chicago convention like its predecessors did not state or define the vertical limit sovereignty and in that face Professor Cooper had this to say

"*The Chicago Convention contains no definition of "airspace" but it may weIl be argued that, as it was adapted from the Paris Convention, it deals with no areas of space other than those parts of the atmosphere where the gaseous air is sufficiently dense to support balloons and airplanes."*[41]

This however implies that, the interpretation of Art. 1 of the Chicago convention prolongs only to the limit airplanes and hot-air-balloons can fly. To argue around the prevailing issues facing the vertical sovereignty states have agreed to let international flights of other states to penetrate their sovereign air-space through a number of signed agreements (bilateral and multilateral).

The prospect of acknowledging greater freedom of movement has been made definitive in two annexed to the 1944 Convention. These freedoms of movement are sub-categories into five. The first two of these freedoms are regarded as Transit rights provided for in the Transit Agreement they involves the rights to fly over a foreign state air-space of the contracting states and only making stops as emergency landing. The third right allows for

[40] Mark Karpel, "*Air & space magazine*" (2014)
[41] John Cobb Cooper; Ivan A Vlasic, "*exploration in aerospace law*", (1952) at pp 104-106

aircrafts of a contracting state to operate in another contracting state in the sense that such aircraft is allowed to carry cargo and commuters from the originating state to the destine state but do allow to carry new commuters, the fourth right allows aircraft of state of an originating state to carry commuters and cargos from the destine state back to the originating state, the fifth freedom allows an aircraft of a contracting state to commute passengers and cargos between the territory of two contracting states the European Union (EU) serves as an example for the freedom. Although regarded as the five freedoms of aviation but in total there are nine freedoms five however are universally accepted and recognized in the ICAO while six to nine are widely accepted there however not universal, the six freedom is the right to commute passengers from a foreign state to another foreign state making a technical stop via the origination state, the seven freedom allows an aircraft to commute over two foreign nations without stopping in the originating state, the eight freedom allows for an aircraft to operate within two cities in a foreign state before diverting to it originating state , while the nine and least freedom allows for an aircraft to commute within two cities without terminating the flight in the originating state.[42]

### 2.5.2 STATE RESPONSES OVER THE NOTION OF A VERTICAL SOVEREIGNTY

Since the enactment of the 1944 Chicago Convention several states have resulted in deviating a little from the vertical limit of sovereignty over the air-space and had enacted in their domestic capacity legislations which somehow supplement the Chicago Convention but not in its entirety in my opinion or have taken to themselves to decide on cases which set a limit over their national air-space.[43]

### 2.5.3 UNITED KINGDOM

In the gathering of a meeting in the “House of Lords” held in 1999, Lord “*Macdonald”* a state personnel in the capacity of the Department of the Environment,

[42] Erwin Von Den Steinen, *“National and International Aviation”* (Kluwer law international law, volume 1, 2006) pp. 39-47.
[43] “Chicago Convention” 1944. Article 3

Transport, and the Regions (DETR) mentioned that, "the United Kingdom does not have a working definition of a vertical limit over the United Kingdom air-space, but for practical purposes the limit is considered to be at least as high as any aircraft can fly." [44]

The above statement stipulate that or can be construe at to mean the United Kingdom has fixed a limit vertically within its vertical air-space subject to change at any time.

### 2.5.4 SOUTH AFRICA

In her Space Affair Act of 1993 provides a definition of "Outer-Space" and as such deviation from the parent Convention and stating what amount to a vertical limit upward of the air-space within the Act "Outer-Space" is seen as.

*"Outer space" means the space above the surface of the earth from a height at which it is in practice possible to operate an object in an orbit around the earth"*[45]

### 2.5.5 UNITED STATES

The United States a strong advocate to the complete and exclusive sovereignty vertically because of her vast industrial economic activities with respect to the aviation sector. Signed the Paris convention of 1919 but never ratified it. In her Air of Commerce Act 1926 laid claims to the exclusive and complete sovereignty vertically of the air-space, although, signed and ratified the 1944 Convention two years after its commencement. Her stand with respect to the vertical limit of the air-space remains that of the complete and exclusive an approach of common law.

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[44] "Report on the United Kingdom vertical airspace sovereignty" https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/250882/5105.pdf "
(Accessed October 30 2018.)

[45] "Space Affairs Act 84 of 1993 - Slink-Sansa.co.za" http://slink-sansa.co.za/wp-content/uploads/2018/05/Space-Affairs-Act-1993.pdf
(Accessed October 30, 2018.)

The dialogue in the Union of Soviet Socialist Republics (U.S.S.R) in response to the negligence of United States aerial altitude balloons in 1956. "*John Dulles*" the then secretary of state declared that.

*"The question of the ownership of upper air is a disputable question. What the legal position is, l wouldn't feel in a position to answer because l do not believe that the legal position has even been codified."* He also went further to say

*"I just can't answer that question. I am very sorry. But it is the same problem that we get on a minor scale when you deal with a question as to whether a man who has a house near an airfield has a right to prevent planes flying over his piece of land and his home. Although certainly everybody admits that if you own a piece of land, you do control the air a certain distance up. But precisely what the distance is has never been decided, even in domestic law. When you get into international law, the problem is also obscure. 1 don't know how high a balloon has to go before you get out of the bounds of sovereignty, so to speak"*

"John M. Reynolds" a Major General of the United States Department of Defence asserted the department position on the issue of the vertical limit of air-space when he said.

*"Neither necessary nor desirable at this time. Should a finite boundary be forced upon us, 20 miles or less would be least disadvantageous."* [46]

The United States has in countless times being of the opinion that the upward limit of sovereignty is not define and will go to such great lent to exploit this gray area in international law.

## 2.6 HORIZONTAL PEREMETERS

The development of the rules of the Air-space is somewhat close to that of the maritime law. The perimeters of sovereignty in the air-space correspond with the perimeters of the sovereignty of the sea. In the international framework the horizontal sovereignty is pretty much curtained this has raised no issues within the international community and generally accepted by states that the horizontal sovereignty of a particular state begins from one end of that state's boundaries and cease to exist soon as that state runs out of land mass

[46] Madeline C. Dinu, "state sovereignty in the navigable airspace" (1950) 17 J. Air L & Com. 43

which means that the extend of jurisdiction of such state sovereignty is limited by the horizontal limits of the national domain. The 1944 Convention in its declaration of the notion sovereignty stated:

*"For the purpose of this Convention the territory of a state shall be deemed to be the land areas and territorial waters adjacent thereto under the sovereignty, suzerainty, protection or mandate of such state."*[47]

This declaration can be construed to be applicable to the horizontal sovereignty of a state and as such gives the state the legitimate authority to effect change within such boundaries the same rights applies to the surrounding territorial waters as seen in the wordings of the Convention, so it safe a say that, territory within the meaning of aviation simply is the air-space existing over the defined limit of a nations boundary at ground level. Furthermore in aviation, sovereignty means the freedom of a contracting state to dictate its domestic law upon users of its territorial airspace.[48]

[47] Chicago Convention 1944. Article 2.
[48] Erwin Von Den Steinen, *"National and International Aviation"* (Kluwer law international law, volume 1, 2006) pp. 39-47.

## CHAPTER 3

## TO WHAT DEGREE CAN SOVEREIGNTY OVER AIRSPACE BE EXERCISED

The conception of sovereignty over the air-space is swiftly changing in today's modern international air law relatively to newly developing ideologies. Fascination of man to take to the skies and the actual real based approach to achieving this volitation led to a whole new set of areas the medieval times only could imagine. The rapid spread of development brought by the advent of the aeronautics was more than the society had bargained for. As scholars began to propose ideologies that should dominate the aeronautical law, soon states began to be face with the question of how this newly developed phenomenon should be regulated and to the extent at which it should.[49]

With respect to all the advancements brought by the international aviation industry and all the regulations enacted with regards to aviation from the Police Directive of 1784 to the Chicago Convention of 1944. The question which is still prevailing among states is to what degree a state can claim sovereignty over air-space sadly this question still is in day's international community dominant. Within the competing schools of thought states are faced with how to reconcile these competing schools of thought with their power to exercise limitless control.[50] The current regulatory enactment applicable to the international aviation today is the 1944 Chicago Convention. Because the Convention focuses on international civil aviation only a characteristic of both civil and state aircraft will be made.

Art (3) of the Convention provides;

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[49] Gbenga Oduntan "*sovereignty and jurisdiction in the air-space and out-space: Legal criteria for spatial Delimitation*" (1st edition 2012) at pp 298-300

[50] ibid

*a. "This Convention shall be applicable only to civil aircraft, and shall not be applicable to State aircraft."*

*b. "Aircraft used in military, customs and police services shall be deemed to be State aircraft."*

*c. "No State aircraft of a contracting State shall fly over the territory of another State or land thereon without authorisation by special agreement or otherwise, and in accordance with the terms thereof."*

*d. "The contracting States undertake, when issuing regulations for their State aircraft, that they will have due regard for the safety of navigation of civil aircraft."*[51]

This piece of legislation as provided made a clear discrepancy between civil and state aircrafts, with that states have difference of obligations toward these two classes of aircrafts and are obligated to act differently in approach with respect to these aircrafts when exercising their statutory power within their territory should each class of aircrafts should have penetrated its sovereign air-space.[52]

## 3.1 CIVIL AIRCRAFTS

States are obligated to take extra precaution when it come s to civil aircraft this have resulted in number of conferences to safeguard aircrafts of civil character in the air-space of another state. This view was reflected in the Chicago Convention Art (3*bis*) Protocol of 1984. The protocol states that:

*(a) "The contracting States recognize that every State must (a) refrain from resorting to the use of weapons against civil aircraft in flight and that, in case of interception, the lives of persons on board and the safety of aircraft must not be endangered. This provision shall not be interpreted as modifying in any way the rights and obligations of States set forth in the Charter of the United Nations."*

[51] Chicago Convention 1944. Article 3.
[52] Gbenga Oduntan "*sovereignty and jurisdiction in the air-space and out-space: Legal criteria for spatial Delimitation*" (1st edition 2012) at pp 298-300

*(b) "The contracting States recognize that every State, in the exercise of its sovereignty, is entitled to require the landing at some designated airport of a civil aircraft flying above its territory without authority or if there are reasonable grounds to conclude that it is being used for any purpose inconsistent with the aims of this Convention; it may also give such aircraft any other instructions to put an end to such violations. For this purpose, the contracting States may resort to any appropriate means consistent with relevant rules of international law, including the relevant provisions of this Convention, specifically paragraph (a) of this*

*Article. Each contracting State agrees to publish its regulations in force regarding the interception of civil aircraft."*

*(c) "Every civil aircraft shall comply with an order given inconformity with paragraph (b) of this Article. To this end each contracting State shall establish all necessary provisions in its national laws or regulations to make such compliance mandatory for any civil aircraft registered in that State or operated by an operator who has his principal place of business or permanent residence in that State. Each contracting State shall make any violation of such applicable laws or regulations punishable by severe penalties and shall submit the case to its competent authorities in accordance with its laws or regulations."*

*(d) "Each contracting State shall take appropriate measures to prohibit the deliberate use of any civil aircraft registered in that State or operated by an operator who has his principal place of business or permanent residence in that State for any purpose inconsistent with the aims of this Convention. This provision shall not affect paragraph (a) or derogate from paragraph (b) and (c) of this Article."*[53]

### 3.1.1 KOREAN CIVIL AIRCRAFT 007

The Korean civil aircraft 007 hereinafter known as KAL007. A Korean civil aircraft employed for the specific purpose of commercial activity with a slide miscalculation flew into the protected air-space of the Soviet Union in 1983. Mistaken to be a spy craft the KAL007 was brought down by missiles, it then begged the question was all necessary steps

[53] Article 3bis, Protocol relating to an amendment to the convention on international civil aviation (Article 3 bis) signed in 1984

taken that would have avoided the use of force by the soviet that would have resulted in the safety of the aircraft. Additionally, in 1978 flight (KAL 707) a civil aircraft of a Korean nationality was short down by the same Soviet Union the fly had drifted to their air-space although there had been survivals casualties had been when two persons had been killed injuring three this however contradict the principles laid down by the 1944 Convention.[54]

### 3.1.2 LIBYA CIVIL AIRCRAFT 727

A civil airliner on board civilians was fired off the sky by forces of the Israeli government over the fact that the civil aircraft had flown over the air-space controlled by the Israeli government, this incident resulted in the loss of all the lives on-board the airliner and the obliteration of the airliner itself. The Israeli authority in justifying its action for gunning down this aircraft was that, the airliner had breached international law when it's penetrated their sovereign air-space and had followed all due processes before resulting to the use of force. In the opinion of the Egyptian authorities regarding the downing of the 727 airliner stated that, the Israeli authority did not give prior warning to the 727 flight that act constituted a violation of international norms. This act was strongly condemned by ICAO.[55]

States in the international community are obliged to adhere to the international norms of protecting and guaranteeing the safety of the civil aircraft of other nationals when in the sovereign air-space of their state, because civil aircrafts are regarded in the international community as not posting no eminent danger to the violated state the international law encourages states to act in a friendly manner toward civil aircrafts. If the violated state is encouraged to seek other friendly means other than the use of force if their sovereign air-space be violated, the principle of friendliness should always supersede in overseeing an act of violated should their sovereignty be infringed.[56]

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[54] "Korean Airlines Flight Shot down by Soviet Union" https://www.history.com/this-day-in-history/korean-airlines-flight-shot-down-by-soviet-union (Accessed November 6, 2018)

[55] "*Libyan Jet Crashes, Killing 158, Apparently after Mid-Air Collision*" https://www.upi.com/Archives/1992/12/22/Libyan-jet-crashes-killing-158-apparently-after-mid-air-collision/7156725000400/
(Accessed November 6, 2018)

[56] "*Libyan Jet Crashes, Killing 158, Apparently after Mid-Air Collision*" https://www.upi.com/Archives/1992/12/22/Libyan-jet-crashes-killing-158-apparently-after-mid-air-collision/7156725000400/
(Accessed November 6, 2018)

This was the view the International Civil Aviation Organisation (ICAO) took in its Resolution (262/1969) which damned the ill act of the Israeli government which amounted to the destruction of the Beirut International Airport and the obliteration of the economic and civil airplanes. The organisation went further to state that such an act threatened the peace and safety of the international civil aviation and in no instance was using force justified and breached the laid down principles in the Chicago Convention.[57]

## 3.2 THE IMPACT OF THE USE OF FORCE AGAINST CIVIL AIRLINERS

International law has in some degree failed to totally protect against commercial aviation in the past. The United Nations through the International Civil Aviation Organisation (ICAO) tried to remedy this problem in 1981 suggested that member states in "*intercepting*" civil airliners should *"refrain"* from the use of "*weaponry"* in situation where they have to intercept an intruding airliner. Sates have consistently failed to leave up to this principle as they continue to use force in the event of interception.[58]

### 3.2.1 FLIGHT NO 007 (KAL 007)

Only a couple of years after the (ICAO) committee had suggested that states should "*refrain"* from using "*weapons"* in intercepting intruding aircrafts the (KAL 007) was short by the Soviet inceptor fighter jets the 007 airliner had drifted and infringed in to the protected air-space controlled by the Soviet authorities the on board passengers paid with their lives for this act. The soviets claimed that several attempts were made to notify the intruding aircraft that it was off course and when all attempts had failed only then was force used. The survey carried out by (ICAO) declared that. Although, the (KAL 007) airliner had no prior knowledge through the failure of a faulty mapping error that it was in a protected zone additionally, even though the soviets had mistaken the aircraft to be a U.S. spy aircraft the use of force was unwarranted since the identity of the aircraft was not totally ascertained by the authority as claimed it added that the soviets acts did not adhere to the principles laid

[57] ICAO Resolution 262/1969
[58] ibid

downed in the (ICAO) Standards and recommended practices. Regardless of the report of the (ICAO) the Soviets still claimed to have acted in self-defence and to the protection of the sovereign air-space of the Soviet Union but frowned on the incident.[59]

The hurling down of civil aviation forced the international community to seek for a Resolution aimed at tackling the issue of why states seem to always result in a first instance of use of force and to encourage them to seek alternative and diplomatic measure approaches than force.[60] The 1944 Convention explicitly distinguished civil and state crafts but states seemed not to be able to differentiate between this two classes of crafts.[61] In 1983 an emergency of session the (ICAO) through the Air Navigation Commission discussed the amendment of the 1944 Convention the aimed was to avoid the re-occurrence of incidents leading to hurling down of civil aviation and ending of innocent lives. The Resolution was approved by the (ICAO) assembly 24th session.[62]

The ICAO Assembly through this sessions in an effort to amend the 1944 Convention with a special rule to impede the use of weaponry toward civil aviation, another objective of this Resolution was to harmonized civil aviation (civil aircrafts) and states sovereignty over air-space. The rule did not create a new rule but re-established an already entrenched principle which barred states from resulting in acts of aggression with respect to civil aviation. The decided Article was titled Article 3(bis) subject to ratification of states.

The Late DR. Assad Kotaite formal President of (ICAO) once referred to the Art (3bis) as:

*"although already an existing principle and by many considered to be a firm part of general international law without any need for codification, the purpose of the adoption of article 3bis must be seen as an enshrinement of the principles of humanity, safety and protection of human life. In time of peace and of war, international law aims to protect civilians exposed to*

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[59] "Korean Airlines Flight Shot down by Soviet Union" https://www.history.com/this-day-in-history/korean-airlines-flight-shot-down-by-soviet-union
(Accessed November 6, 2018.)
[60] "Korean Airlines Flight Shot down by Soviet Union" https://www.history.com/this-day-in-history/korean-airlines-flight-shot-down-by-soviet-union
(Accessed November 6, 2018.)
[61] Chicago Convention 1944, Article (3).
[62] "Korean Airlines Flight Shot down by Soviet Union" https://www.history.com/this-day-in-history/korean-airlines-flight-shot-down-by-soviet-union
(Accessed November 6 2018.)

*danger. The difference between written law and customary law is that the latter fills the gaps that exist in written law and also gives precision to unsettled abstract general principles."*[63]

Article 3(bis) came at the precise time where lives were being lost as a result of frequent targeting of commercial aviation the Article redressed such acts as intended by the international community when it adopt the protocol to have a fix stand to rebuff the use of weaponry on commercial aviation. Annex 2 to the 1944 Convention aligns with the objectives of Article 3(bis). Annex 2 states that:

*"Intercepting aircraft should refrain from the use of weapons in all cases of interception of civil aircraft."* while the Annex states that intercepting crafts *"should"* refrain from the use of weapons Article 3bis employs the word *"must"*. [64]

The wording employed in the Art (3bis) appears to be equivocal the protocol preclude the usage of weaponry and it is silence about what is considered "*force"* the (ICAO) General Assembly supports that any "*force"* used in intercepting of civil aviation and this *"force"* should however be comparable and sufficient to the degree of intruding of such. The intruding civil crafts should have some kind of option to deviate its course without imperilling the civil craft and the lives of the passengers on-board.[65]

### 3.3 APPLICABILITY OF ARTICLE 3(bis)

The relevance of the Protocol simply applies to only civil crafts *"in flight"* hereinafter known as *"flight time"* the Tokyo Convention 1963 on Offences and Certain Other Acts Committed on Board Aircraft was crucial in its statement when it's stated what is meant as *"in flight"* in its Art. 1(3) states:

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[63] Scot L. jones 'International Civil Aviation' https://www.icao.int/about-icao/Pages/biography-president-kotaite-address-interview.aspx
Accessed November 11, 2018.)
[64] Chicago Convention 1944, Annex 2.
[65] "Convention on International Civil Aviation (ICAO Convention) https://www.jus.uio.no/english/services/library/treaties/07/7-01/international-civil-aviation.xml
(Accessed November 12, 2018.)

*"For the purposes of this Convention, an aircraft is considered to be in flight from the moment when power is applied for the purpose of take-off until the moment when the landing run ends."*[66]

Although, no explicit wording is contained in the Article 3(bis) to clarify what is meant as *"in flight"* it is without doubt that the Article 3(bis) applies to crafts in motion and the wordings provided in the 1963 Tokyo Convention is however an applicable guarding tool to the inside of what is meant as the term *"in flight"* states have continue to accept that the Article 3(bis) applies to flight in the air and for the safety of such crafts.[67]

### 3.3.1 ISSUES WITH ARTICLE 3(bis)

One of the obstacles faced by Article 3(bis) can be seen in that years after the propose amendment was decided upon the said Article has still not being entered into force. The problem seem to be a number of reasons, one seems to be in its wordings. The Article 3(bis) stipulates to say usage of weaponry was prohibited but do not seem to be practically applicable. When a craft of civilian character should be used other than for the intended purpose e.g. accumulation of data for combatant without the understanding of the civil aviation crew but such act is to the understanding of the violated state authority this begs the question does the intruding aircraft assume the statute of a state character or remains civilian character. The conceive notion of Article 3(bis) deals solely on civil aviation characteristics and not to be used by combatants, in light of this scenario the parent Convention of 1944 in answering this question was of the opinion that the craft in this situation maintains its civilian characteristics and the Protocol 3(bis) has prohibited the usage of weaponry considering the above instance leaving the violated state lawfully without an action plan and able to safeguard their sovereign air-space should they be faced with such instances. However the Article 3(bis) seemed to favour the lives on board the civil aviation and the craft itself and not the interests of the offended state.[68]

## 3.4 TO WHAT DEPTH CAN THE INTRUDED STATE GO

[66] Tokyo Convention on Offences and Certain Other Acts Committed on Board Aircraft 1963, Art.1 (3).
[67] ibid
[68] Chicago Convention 1944. Article 3

In recognition of the rights of the violated state to intercept an aircraft of a civilian character which have drifted and intruded and as such violated the sovereign integrity of their air-pace either accidentally or not. Art. (4) Of the 1944 Convention prohibit crafts of civilian statute to be used other than intended. The offended state may require the craft to take to landing as required by Article 3(bis) Art. 3(b). Customary international law frowns on the usage of force on civil aviation and Article 3(bis) seem to hammer on the same already laid down principle recognised at the international level, it encourages states to bear in mind that the loss of civilian lives on board these crafts should supersede the interest of protecting national air-space the rules of the 1944 Convention states that at all times when it comes to crafts of civilian character except is the instance of an highjack which will threaten the security of that state the downing of the aforementioned airliners using force was at no point justifiable.[69]

## 3.5 STATE OWNED AIRCRAFTS

The 1944 Convention explicitly shades lights on what constitutes to an aircraft of a state character or possess the legal statute of a state owned. And in no circumstances except with prior authorisation are aircrafts which have the legal characteristics of being state owned by other sovereign state are not allowed to fly over the air-space of other states Art. (32) Of the 1919 Convention as that act could lead to severe consequences.[70]

### 3.5.1 DEFINITION OF A STATE AIRCRAFT

In international law aircrafts are qualified to having the legal statute of a state owned if such aircraft was designed and for the specific purpose to be deployed for services of a state character. This rule is consistent among all states in the international community.

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[69] William N. Harben "Attitudes and Practices concerning maritime water: A recent historical survey" (1961) Pl 149

[70] Paris Convention of 1919, Art. 32. *'No military aircraft of a contracting state shall fly over the territory of another contracting state nor land thereon without special authorization.''*

The United States Federal Aviation Administration (FAA) in its 2016 report gave the following definition of aircraft of state characteristics:

*"Aircraft used in military, customs and police service, in the exclusive service of any government, or of any political subdivision, thereof including the government of any state, territory, or possession of the United States or the District of Columbia, but not including any government-owned aircraft engaged in carrying persons or property for commercial purposes."*[71]

Within the international legal framework the issue of '*state aircraft'* dates back to the Air Navigation Conference of 1910. The *'Convention for the Regulation of Aerial Navigation''* 1919 enjoys the legal statute of being the 1st codification in aeronautical law. The convention deals with the division of what constitutes as "*state"* and "*civilian"* aircraft.

"*State aircraft"* as provided by Art. Xxx (30) "*the following shall be deemed to be state aircraft*":

a. *"Military aircraft"*:
b. *"Aircraft exclusively employed in a state service, such as post, customs, police. Every other aircraft shall be deemed to be private aircraft*."

"*All state aircraft other than military, customs and police aircraft shall be treated as private aircraft and as such shall be subject to all the provisions of the present convention.*"[72]

The 1944 International Convention of the International Civil Aviation (Chicago Convention) has "*prima facie"* provided what the international community should regard as aircrafts deemed to have the character of a state i.e. Art. 3.[73] State in other fly such aircrafts over the air-space belonging to another state "*Special Authorization"* need be granted prior before such act can take place.[74]

## 3.6 THE NOTION OF INNOCENT PASSAGE IN AVIATION

[71] FAA: 'State Aircraft" https://definedterm.com/state_aircraft
(Accessed November 22, 2018.)
[72] Paris Convention 1919, Article 30.
[73] Chicago Convention 1944, Article 3.
[74] Paris Convention 1919, Article 30.

Scholars have argued that the rules which govern the air are seamlessly similar to those which govern the high seas and as such the rights of innocent passage should also be applicable to international aviation with certain pre-conditions of course. The right of innocent passage is embodied in the United Nations Convention on the Law of the Sea (UNCLOS). The Convention provides when this right should be granted or denied. The question here is that should international aviation be accord the same right or not. Although when it comes to the matter of air regulations the still is need for enactments to deal with all the gray areas present although customary international law precisely frown on the endangering of civilian lives on board international aviation. In response to the prevailing question the Convention relating to the Regulation Aerial Navigation (hereinafter known as the Paris Convention) 1919 Declares:

*"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. Regulations made by a contracting State as to the admission over its territory of the aircraft of the other contracting States shall be applied without distinction of nationality".*[75]

A practical example of an exercise of the *"freedom of innocent passage"* can be seen in the "*Oresund Strait"* where permission to fly over the air-space of the territorial sea of Sweden is not required for long as the aircraft stay on course this right is without discrimination all other instances is required of prior authorisation.[76]

## 3.7 CONFLICT OF LAWS

### 3.7.1 (LEGAL STATUTE OF HUMANITARIAN AIRCRAFTS)

Aircrafts used for humanitarian purposes during peace times and during times of civil unrest have for long struggled with the legal applicability of statute accord to them. This categories of aircrafts have remain to be an issue in the international community as states struggle to assert or accord a legal statute to these aircrafts the issue is to what class do they

[75] Ibid. Article 2.
[76] "The Innocent Passage in the UN Convention International Law'' https://www.lawteacher.net/free-law-essays/international-law/the-innocent-passage-in-the-un-convention-international-law-essay.php (Accessed November 23, 2018.)

fall into civil or state owned. Since such aircrafts may be employed for the purpose of civil humanitarian activities and as well for the specific purpose of transporting wounded combatants. In the description of military aircraft provided in the Geneva Convention 1949. *"Aircrafts registered in a military aviation register and designated to be part of the arm force."*[77] Because "International Organisations such as the Red Cross" uses their aircrafts for both activities civil (characteristic) and military by nature (removing injured combatant from the field or transporting medicine to them) such aircrafts should be accorded the legal statute as state owned aircraft since in registering this class of aircrafts they are registered as state owned.[78]

Although the legal statute of these aircrafts may be shaky it is generally accepted by the international community that these aircrafts enjoy immunity in times of civil unrest (war times) and can fly over air-space of contracting states without the fear of being hurl down. Additionally, grounds at which the legal statute of these aircrafts can be withdrawn is only in the scenario where they are been used outside of their registered and intended purposes this and their immunity statute was reaffirmed by the 1949 Geneva Convention. Although in the Convention the term medical aircraft was used.[79]

### 3.8 ACTS OF AGGRESSION AND STATE RESPONSE

When it comes to the sovereign integrity of the air-space states seem to take literal stand against not letting outside encroachment and sometimes have considered intruding aircrafts over their territory as an act constituting of aggression, this often sparks a response by the violated state and in many instances the penetrated state have resulted in downing of such aircrafts which then sparked the need in the international community for a demarcation between civilian and military aircrafts, executed Conventions which also dealt with the demarcation of this aircrafts were paramount, while the civil aircrafts and their protection was taken care of by the 1944 Convention on Civil International Aviation, the 1919 Convention

[77] Geneva Convention 1949. Article 36
[78] Pat, "Humanitarian Air Services" https://ec.europa.eu/echo/what/humanitarian-aid/humanitarian-air-services_en
(Accessed November 27, 2018.)
[79] The Geneva Convention 1949, Article 36.

required states to have *"Special Authorisation"* prior before aircrafts of military character fly over the sovereign air-space of other state.[80]

Now, in the event at which an aircraft having breached the sovereign integrity of another states without having prior authorisation should this act be considered as an act of aggression. In description of what an act of aggression is the United Nations (UN) authorized a description of the phrase *"Act of Aggression"* in 1974. The committee acknowledged that:

*"Aggression is the use of armed forces by a State against the sovereignty, territorial integrity or political independence of another State or in any other manner inconsistent with the Charter of the United Nations."*[81]

Art. 2(4).

"*All members shall refrain in their international relations from the threat or use of force against the territorial integrity or political independence of any State, or in any other manner inconsistent with the Purposes of the United Nations."*[82]

With the exception Art.51 which deals with self-defence.

*"Nothing in the present Charter shall impair the inherent right of individual or collective self-defence if an armed attack occurs against a member of the United Nations"*[83]

The right granted to states (self-defence) can however not be relied on the basis of an assumed attack e.g. (a state cannot hurl down an aircraft which has mistakenly drifted and intrude to their air-space and rely on self-defence as a justification) this rule is generally recognized by the international community and affirmed by the United Nations Charter. States in an instance where an aircraft have encroach and violated the territorial sovereign integrity are encouraged to use force consistent to the act of intrusion and such act should

[80] Dutton PA, "Caelum Labarum: Air Defence Identification Zones Outside Sovereign Airspace | American Journal of International Law" https://www.cambridge.org/core/journals/american-journal-of-international-law/article/caelum-liberum-air-defense-identification-zones-outside-sovereign-airspace/EF9884EB16D10931444F09A5EB9E31DA (Accessed November 27, 2018.)
[81] "United Nations Charter" 1945. Article 2(4)
[82] ibid. Article. 2(4).
[83] Ibid. Art. 51.

commensurate the act of intrusion and not risk the lives on board the vessel as was decided upon in the catalane event of 1952 between Sweden and the Soviets.[84]

### 3.8.1 U-2 SPY INCIDENT 1960

Soviets authorities hurl downed an American U-2 spy aircraft which had intruded into their air-space without prior or any authorisation at all. In justification the soviets claimed that because this was a state aircraft the incident amounted to an act of aggression by the United States. In refusal of the laid down claims by the Soviet Union the United States proceeded to state that although the aircraft had unlawfully intruded to the air-space of the Soviet Union such act did not constitute an act of aggression as it is believed to be and again the Soviets were not in any immediate treat therefore should not be regarded as such. The U. N Security Council agreed with the United States and urge states to refrain from violating the sovereign integrity of other states.[85]

## 3.9 THE NOTION OF A COMPLETE AND ABSOLUTE SOVEREIGNTY AND THE EUROPEAN UNION

Sovereignty traditionally by description means that a state should act freely without outside interference this view is recognised both in civil and common law but in today's world the concept continue to loss it impact as state gradually continue to move towards what is regarded as collectivism. The establishment of a single market system introduced by the Treaty Rome in 1957. This saw states surrendering to a certain degree their territorial sovereignty to a higher governing body whom then oversees and execute regulations that greatly affects each member states. This can be seen in the European Union (EU) framework where member states agree for the union to have exclusive competence in certain specified

[84] Dutton PA, "Caelum Labarum: Air Defence Identification Zones Outside Sovereign Airspace | American Journal of International Law" https://www.cambridge.org/core/journals/american-journal-of-international-law/article/caelum-liberum-air-defense-identification-zones-outside-sovereign-airspace/EF9884EB16D10931444F09A5EB9E31DA
(Accessed November 27, 2018.)

[85] States Territorial Integrity. https://www.history.com/topics/cold-war/u2-spy-incident
(Accessed November 29, 2018.)

areas and within the national authority (sovereignty) of each state do not have any right whatsoever to act in such specified areas since these states have conferred such authority to the union[86]

This process stands in contradiction to the traditional view of sovereignty, I can only at this point wonder if the complete and exclusive sovereignty principle still is relevant today as it loses grounds day by day.[87]

Today, states no longer want to act independently but as a single entity for their state interest in this regards sovereignty can longer be complete or exclusive of outside interference but have been subjected to limitations as the concept can no longer be relied on in today's international law. As already mentioned the notion of a complete and absolute sovereignty is being outmoded simply because of the new developing face states are going through. Sovereignty is still very essential today but with a great number of limitations.[88]

As repugnant as it may seem the traditional view of the "complete" and "absolute" sovereignty over air-space do not fit today narratives in the international community and states can no longer act on that basic if it should effectively compete in the global framework it is in my opinion that states should let go of that primitive mind-set and embrace the modern concept of statehood which encourages states to come together and to work together in other to better themselves and to tackle the global environmental difficulties. The European Union remains a perfect example of collectivism and all other nations in the universe should imitate this kind of unification among states in other to strive. I will add to say that much can be achieved by working as a single entity than relying on traditional basis of sovereignty and attacking global measure individually by states.[89]

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[86] Treaty of the European Union 1992. Article 1.

[87] Erotokritou and Chrystel, "Sovereignty over Airspace: International Law, Current Challenges, and Future Developments for Global Aviation" http://www.inquiriesjournal.com/articles/645/sovereignty-over-airspace-international-law-current-challenges-and-future-developments-for-global-aviation (Accessed November 29, 2018.)

[88] Erotokritou and Chrystel, "Sovereignty over Airspace: International Law, Current Challenges, and Future Developments for Global Aviation" http://www.inquiriesjournal.com/articles/645/sovereignty-over-airspace-international-law-current-challenges-and-future-developments-for-global-aviation (Accessed November 29, 2018.)

[89] ibid

## CHAPTER 4

## GREEEN-HOUSE GAS EMISSIONS IN INTERNATIONAL COMMENCIAL AVIATION

As stated in the previous chapter, the International Commercial Aviation industry is one of the largest contributor to the global economy commuting more than 2.2 billion commuters and cargo annually.[90] The convenient means at which international aviation connect people from pleasure travel to business trips have made people seeking air travel as the preferable means to get to those points this however has put a strain on the international aviation sector to meets the demand of these commuters and their cargos, and because of that the activity has let not only to the economical profitability of states but additional also to having negative effect to the environment and the atmosphere.[91]

Emissions of Green-House Gases (GHG) by the international commercial aviation released to the atmosphere is one of the effects the industry has on the environment and the atmosphere which in turn has an adverse effect on bio-diversities and individual persons, this can no longer be ignored the issue is now requiring of an internationally accepted mitigating mechanism, more so, should if this industry be an existing nation of its own it would rank 7th in the production of toxic gases in the globe reports suggest that if left unrestrained by the year 2050 the pollution produced and released to the atmosphere by the international aviation

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[90] Aviation Emission''. https://www.faa.gov/about/office_org/headquarters_offices/apl/environ_policy_guidance/policy/media/Aviation_Greenhouse_Gas_Emissions_Reduction_Plan.pdf (Accessed November 29 2018.)

[91] David W. fahey and David s. lee " *aviation and climate change: a scientific perspective*" ( vol. 23, issue 3. 2013)

or if left unchecked will quadruple but sadly the global reaction to the issue of international aviation emission still remains today without a strong mitigating measure.[92]

Reports from the Intergovernmental Panel on Climate Change (IPEC) a body saddled with the responsibility of monitoring and preventing such act that will lead to global climate change, the organisation was established by the United Nations Environmental Programme (UNEP) along with the World Meteorological Organisation (WMO) suggested that international commercial aviation contributes a staggering 4.9 % amount of (GHG), and carbon dioxide and these gases are being released to the atmosphere which in turn leads to an increasing global climate change issue. [93]

The need to curb the (GHG) emissions emitted by international commercial aviation is of such great importance now more than ever that it has to be the main subject of dialogue at the international level. Since the measures propose or negotiated by (ICAO) has done little to nothing to curb the pollutant produced by international aviation this issue isn't at this point a regional one but universally since such effects are being felt regardless of geographical location the urgency for a multi-national response is of the essence, the individual approaches taken by states (EU) to tackle aviation emission has proven to be ineffective to curb a global emission issue and as such it is time for all states to produced and commit to an effective universal mitigating mechanism that will subsequently curb (GHG) emitted by international aviation .[94]

## 4.1 **EFFECTS OF INTERNATIONAL AVIATION GAS EMISSIONS**

As an intrinsic part of the world economy the advent of the aviation industry is undeniably captivating and has shown to be one of the greatest of human achievements as already stated. Indeed since it development it has sustained an abrupt advancement. This advancement has a close and casual link to the societal and monetary sustainability of states.

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[92] Veronica Korber G. "*Climate Change and International Civil Aviation Negotiations"* (contexto internacional, vol. 39. 2017 ) at pp 444-447
[93] Veronica Korber G. "*Climate Change and International Civil Aviation Negotiations"* (contexto internacional, vol. 39. 2017 ) at pp 449-451
[94] Veronica Korber G. "*Climate Change and International Civil Aviation Negotiations"* (contexto internacional, vol. 39. 2017 ) at pp 449-451

However, as any other human inventions the aviation industry adversely impacts the environments negatively.[95]

Aviation either domesticized or international prevails to be one of the predominant factor that discharge green-house gases (GHG) this gases emitted by international aviation amounts to an average 2.5 per cent of the total global emissions produced and continues to grow exponentially.[96] Recent times has witness an increase in such greenhouse gas emissions (GHG) pollution in form of rails, vehicles, airplanes etc. As always these pollutions seem to have a casual direct link to adversely affecting the environment i.e. Climate change which only do not affect humans but also bio-diversities and the environment at large. But for the purpose of this study only (GHG) emissions produced by the operation of international aviation will be considered as a case study. [97]

The international civil aviation organisation (ICAO) in 2016 endorsed a Resolution directed at impeding the carbon emission of international aircrafts. The objective of the resolution was to establish a global market-based measure to put in another word it was in this Resolution that (ICAO) agreed to adopt and include the Market-Based mechanism (introduced by the European Community) to its action plan aimed at tackling aviation emissions, the action plan consist of the Carbon Offsetting and Reduction Scheme of International Aviation (CORSIA) to reduce the (CO2) gases of international aviation among member states, the offsetting scheme requires airliners to offset their carbon emission through investing in other form of carbon free enterprises while the (MBM) system attempts to cap and auction limited percentage of carbon licence with a future base line.[98]

## 4.2 DIFFICULTIES AT CONTROLLING AVIATION EMISSIONS

[95] International Aviation Emission, "*What Effect Is Global Aviation Having on the Environment*" https://phys.org/news/2018-08-effect-global-aviation-environment.html (Accessed November 30, 2018.)

[96] Veronica Korber G. "*Climate Change and International Civil Aviation Negotiations"* (contexto internacional, vol. 39. 2017 ) at pp 444-447

[97] Air Transport Action Group (ATAG). 2013. "Reducing Emissions from Aviation through Carbon-neutral Growth from 2020." At: https://www.iata.org/policy/environment/Documents/atag-paper-oncng2020-july2013.pdf (Accessed November 30, 2018)

[98] "Emission Reduction" https://www.icao.int/Meetings/a39/Documents/Resolutions/a39_res_prov_en.pdf (Accessed December 1, 2018)

The surge in aviation is often associated with international voyage. Controlling of the greenhouse gases (GHG) produced by this worldwide voyage has often prove to be challenging for a number of factors. Such as, how the burden to rebates should be shared among the biggest emitting Nations of (GHG) emission and the ineffective method of grand of carbon price in the aviation industry. The adversity in determining the volume of emission associated to any one International voyage and the effect it has on the environment. [99]

An instance would be that because not all aircrafts have the same intensity every aircraft in the international aviation is then required of a different degree of lift to take to the atmosphere or the travel distances involves, most of these aircrafts uses a great amount of power for their lift off an as such releases (GHG) gases to the environment than the next aircraft with the same travel distance would release to the atmosphere. E.g. the emission of a MD-80 Boeing airplane differs greatly than that of Boeing-777 airplane for the same voyage distance.

The manner at which the emissions in international aviation is released make it challenging for any individual state to effectively manage the act since most of the time these (GHG) happen in the external territory of any particular state. Another challenging factor at controlling aviation emission is in the fact that the international aviation emit a limited volume of the emission on land when lifting-off and the rest of the emissions occurs at mid-air making it hard to effectively calculate the exact volume of CO2 released to the environment which then adds to the difficulty at controlling it. The emissions produced by international aviation isn't an issue that can be defeated by states individually but the collective effort of states since the problem adversely affects all and the environment which in turn greatly affect all other aspect of events happening in the world another difficulty at curbing the CO2 by international aviation is the fact that these member states have not being able to reach a consensus on any mitigating mechanism and as such no action has been taken collectively to fight these emissions. [100]

Because states seem to refer to themselves as independent and the international community recognises such autonomy of states. One of the difficulties at controlling aviation emission is in the fact that a state cannot individually effect change in its territory that would

[99] Edwards H. L. "*Limiting Aviation Carbon Pollution*" https://www.edf.org/climate/aviation (Accessed December 2, 2018.)
[100] Emission. "Limiting Aviation Carbon Pollution" https://www.edf.org/climate/aviation (Accessed December 2, 2018.)

affect another state.[101] a classical example will be that of the European Union (EU) when in an attempt to regulate aviation emission produced adopted the "market-base measure" or the "*emission trading system"* (ETS) in 2012 to cap international aviation emissions and set a baseline for which also was intended to affect the "*Non-European Economic Area"* states, a strong opposition was then lied down by the *"Non-European Economic Area"* states which then led to the review of the Trading System to limiting it to the exclusive terrestrial extent of the (EEA) states only.[102]

Aviation emissions concerns only began to surface in the early 1970s and measure to tackle it dates as far back. The International Treaty as part of the 1992 United Nations framework Convention on Climate Change (UNFCCC) along with the "*Kyoto Protocol"* 1997, presented (ICAO) with the obligation and responsibility of controlling the emission emitted from international civil aviation that adds up to climate change and global warming.

The 1944 "*Chicago Convention"* does not deal with problems involving the environment but however the Convention gives such authority to the International Civil Aviation Organisation (ICAO), to look into the emission of the international civil aviation and airplane engines.

Art (44) of the 1944 Convention stated:

*'The aims and objectives of the Organization are to develop the principles and. techniques of international air navigation tins- to foster the planning and development of international air transport so as to:'*

*(i) "Promote generally the development of all aspects of international civil aeronautics"*[103]

Within the wording of the above mentioned Article the (ICAO) is responsible for the maintenance and limiting of the emissions of (GHG) by international civil aviation but in that

[101] Stockholm Declaration 1972 at Principle 21. ("*Declaration of the United Nations Conference on the Human Environment"*)
[102] Air Transport Action Group (ATAG). 2013. Reducing Emissions from Aviation through Carbon-neutral Growth from 2020. At: https://www.iata.org/policy/environment/Documents/atag-paper-oncng2020-july2013.pdf (Accessed December 3, 2018)
[103] Chicago Convention 1944 at Article 44

regards the emission produced by the industry still affect the environment and still continues to stay largely ungoverned.[104]

## 4.3 MITIGATING FACTORS IN NTERNATIONAL AVIATION EMISSIONS

After so many years past since the Kyoto Protocol 1997 required the advanced nations of the world to participate through International Civil Aviation Organisation (ICAO) to curb emissions released from international commercial aviation with years of a fruitless efforts and in 2016 the (ICAO) finally agreed on a mitigating factor known as the global Market-Based Measure to cap the increasing C02 emissions from international aviation. The Carbon Offsetting and Reduction Scheme (CORSIA) in the sector to sustain C02 emissions in the year 2020, it involves airliners to offset their emissions beyond 2020. This process is estimated to curb 21.6% of emissions from the industry by the year 2027.[105]

The International Civil Aviation Organisation (ICAO) under the United Nations agency. In implementation of the aims and objectives of the Chicago Convention the (ICAO) established five action plans within itself, one of such action plan is the environmental protection from the activity of international civil aviation, within the protection of the environment capacity two subject matters are dealt with (i) airplane noise (ii) aviation (GHG) emissions, since the establishment of the organisation the central core deliberation within the organisation has to do with the curbing of (GHG) relying on the reports provided by the Committee on Aviation and Environment Protection (CAEP) to clearly and effectively reach a mitigating measure of (GHG) emission of international civil aviation without adversely affecting directly or directly other forms of businesses dependent on the aviation sector.[106]

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[104] Air Transport Action Group (ATAG). 2013. Reducing Emissions from Aviation through Carbon-neutral Growth from 2020. At: https://www.iata.org/policy/environment/Documents/atag-paper-oncng2020-july2013.pdf (Accessed December 3, 2018)

[105] "Aviation" (website) https://www.transportenvironment.org/what-we-do/aviation (Accessed December 4, 2018.)

[106] "ICAO Environment Committee'' (*Carbon Offsetting and Reduction Scheme for International Aviation* https://www.icao.int/Newsroom/Pages/ICAO-Environment-Committee-Wraps-up-Landmark-10th-Meeting.aspx (Accessed December 4, 2018.)

The ICAO task with the obligation of a protective role in international aviation expressed it desire to continue to as the principal organisation with such obligation[107] in this light the (CAEP) progressively continue to function in the capacity of improve action plans in the area of high-tech modernization along with alternative energy source to help curb aviation emissions, sad to say but progress has been in what I call a snail speed as consensus is had to reach on curbing emission one of the difficulties faced by the organisation is that of the (IATA) and (ATAG) which has continue to impede progress.[108]

## 4.4 REGIONAL MITAGATION TACTICS

The reliance on commercial aviation by states to bust their financial profile can be seen all around the globe however the activity has to be balance with the environmental sustainability the need for the improvement of the sector is vital to the amount of revenue drawn by the industry but at the same time intention should also be at protecting the environment as well. The emission emitted by commercial aviation can so no longer be over looked the Federal Aviation Administration (FAA) saddled with the statutory authority in the United States to regulate every form of commercial aviation also known as civil aviation.

In an attempt to rectify the emission of (GHG) by civil aviation embark on an action plan which will help curb the amount of aviation emission the strategies embark is of a five face steps:

1. *"Enhance Scientific Knowledge on Integrated modelling"*
2. *"Air Traffic Management Modernization"*
3. *"New Aircraft and Airport Technologies"*
4. *"Sustainable Alternative Aviation Fuels"*
5. *"Policies, Environmental Standard and Market-Based Measures."*

The (FAA) in its commitment to tackle aviation emission to safeguard the environment and its citizens have partnership with other international organisations whose

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[107] 2016. 39th Assembly Resolution A39-2. Para, 2a. '*The council ensure that ICAO exercise continuous leadership on environmental civil aviation, including GHG emissions:*' https://www.icao.int/environmental-protection/Documents/Resolution_A39_2.pdf
(Accessed December 4, 2018.)

[108] "Aviation" (website) https://www.transportenvironment.org/what-we-do/aviation (Accessed December 5, 2018.)

focus is also that of reducing aviation emission to fight this treat not only in the U S but globally.[109]

The mitigating measure in the European Union (EU) takes the form of (EU-ETS) after managing to pass a Resolution in ICAO in 2004 the European Union (EU) included international civil aviation industry into its EU Emission Trading System (EU-ETS) for several reasons one which happen to be of a slow negotiation in reaching a consensus in ICAO the EU (ETS) which happen to promote the "Market-Based Mechanism" (MBM) a marketable base emission approach voluntary by nature established to help restraint aviation emission.[110]

Outside of the scope of the (EU-ETS) the (EU) have also showed its resilience in the pursue to limit the environmental pollution (GHG) released to the atmosphere in its practical measures have engaged in the modernization, and enhancing it air traffic management machineries in the attempt to combat the emission produced by commercial aviation. [111]

## 4.5 GLOBAL EMISSION SCHEME

The International Civil Aviation Organisation (ICAO) reached a Resolution in 2016 for a global mitigation course of action. The global "*Market-Based Measure"* the objective of the (MBM) is solely to target C02 emissions released by international aviation from the year 2020. The Resolution not only lays down the aims and pattern for the accomplishment of the objectives but as well as the structure member states should apply.[112]

The Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA) a mandatory global scheme that urge states and airliners (IATA) to commence work suddenly

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[109] Simone L. D. "Aviation Greenhouse Gas Emission Reduction in the Unites States". http://www.faa.gov/airports/environmental/zero_emissions_vehicles
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[110] Simone L. D. 'Aviation Greenhouse Gas Emission Reduction in the Unites States'. http://www.faa.gov/airports/environmental/zero_emissions_vehicles
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[111] Morris b. b. "Reducing Emissions from Aviation" https://ec.europa.eu/clima/policies/transport/aviation_en
(Accessed December 7, 2018.)

[112] Lee, Jae woon, "*Greenhouse Gas Emission from International Aviation: Legal and Policy Challenges"* (Asian journal, inter. L. vol. 6. Issue 2. 2016) at pp 376 - 381

and not to be relentless in their efforts to tackle (GHG) emissions in international aviation several states such as the United States, Canada and China a bunch of other states have already expressed their commitment to participate in less than no time, "*Alexandre De Juniac*" CEO of (IATA) stated that:

*"Now is the time for other states to match their political leadership, by coming to the assembly already committed to participate, even if the scheme is voluntary at the initial stage."*

The (CORSIA) by 2020 is set to curb GHG by the collective efforts by member states. The requirements laid down by the (CORSIA) requires the states to *Monitor* (GHG) emission on all international route, the (CORSIA) although a global measure in place by the international community aimed at curbing international aviation the operationalization will however be implemented at regional level for effective turnover.

Today, climate change is seen as one of the great global challenges ever to face humanity requiring of an un-precedended level of cooperation among all the governments of the universe, for many years the ICAO has reliably foster cooperation among its members states which now amount to 1901 member states, the 21$^{th}$ century through its original visionary desire for environmental protection through the years, states have acted to turning that shared vision into a global reality through ICAO, today all the hundreds of thousands of flights in the sky are in near safety and security commuting families and friends together, promoting a sustainable business relations and nourishing the universal suburb the safe, secure and sustainable air transport has been made feasible by states having concede upon multilateral concessions which includes those of the environmental protection, states and industries are actively functioning together through (ICAO) to secure a sustainability of international aviation agreeing on stringent engine emission standards effective operational measures and comprehensive environmental policies to combat (GHG) emission in international aviation. New jet aircrafts today are at least 70% more fuel efficient than their predecessor of the 1970 and also 75% more quitter cutting edge technologies is producing even more quitter more fuel efficient emission is expected to reduced drastically. (ICAO) has been active in the field of international aviation emission to reduced its impact to the environment in the fight against global climate change, at the high level meeting on international aviation in climate change in 2009 states that represent 93% of the global commercial of air traffic affirmed their commitment to continue to improve efficiency and to

address aviation emission that contribute to climate change by working through (ICAO) and in same year hosted by Brazil the first ever ICAO conference on aviation in alternative fuel produce the global framework for aviation alternative fuels and in the 37th season of 2010 all member states reach an agreement on the reduction of emission produced by international aviation this however means that international commercial aviation is the first in order with a joint commitment in the global responsibility to environmental aim of developing fuel efficiency and balancing global C02 emissions of international aviation. clearly international aviation is on the path to comprehensively addressing its carbon emission and the commitments by the member states remains as strong, the 39th conference shows the organisation reflect the determination to continue to act in a leading role in the global efforts to address climate change by working through ICAO the issues tackled by the Resolution includes:

- *"2% annual fuel efficiency improvement up to 2050"*
- *"Medium-term goal of stabilizing global C02 emissions from 2020"*
- *"Exploring feasibility of long-term aspirational goal"*
- *"Global C02 standard for aircraft"*
- *"Sustainable alternative fuels for aviation"*
- *"Framework for market-based measures"*
- *"Minimizing burden on states with low emissions"*
- *"Assisting states to contribute to the global efforts"*
- *"State's voluntary action plans covering information on C02 emission reduction and assistance needed"*

ICAO is the global fascinator providing a forum where states working with industries come together to find solutions to the challenges that face the international air sector to ensure a sustainable aviation sector and a healthy environment or planet for the next generation.[113]

[113] Lee, Jae woon, "*Greenhouse Gas Emission from International Aviation: Legal and Policy Challenges"* (Asian journal, inter. L. vol. 6. Issue 2. 2016) at pp 376 - 381

## CONCLUSION

The traditional notion of sovereignty being absolute cannot subsist in today's international society for a number of different reasons although sovereignty is recognised by international law as the autonomy of every state to act within its territory as deemed fit without outside interference, this state sovereignty also includes the territorial waters as well as the air-space above such territory, this right has been so for hundreds of years, the common law understanding or doctrine of sovereignty which stipulate that such state powers proceeds vertically up to the heavens seems to be totally absurd not only does private land owners could not occupy the air-space over their property indefinitely but it also offends the notion of modern international law and threatens its existence.

One of the factors which has contributed greatly to the outmoding of the principle of sovereignty being absolute is indeed international law itself which have subjected states to limitations in terms of acts which traditionally these states would act upon within its domain, such limitations as the international law prohibition against torture, this prohibition was reaffirmed by the Charter of the United Nations, the classical understanding of state sovereignty allowed for states to carry out such acts which today is deem prohibited, because sovereign states are not allowed to engage in these kind of actions it then serve as a limitation of their sovereignty within their territory. Additionally

The aphorism *"cujus est solum ejus est usque ad coelom"* which private land owners had relied on ancient times it could not stand today as the phrase was propounded at a time where scholars where not able to apprehend how society would developed into as done today and my take on the aphorism lines up with that of "*Lord Ellenborough"* in the case of Pickering vs Rudd. This case shows the contention that would be should this principle be relied on today.

The school of thought proposed by "*Fauchille*" and reaffirmed by "*Freiherr Von Pufendorf"* which propose that a limit be imposed vertically over air-space in order to have an effective control however best fit modern international narratives and in my opinion this school of thought should prevail over all others simply because one cannot claim ownership of the air-space above a certain limit that area should be for the enjoyment of all mankind. And at the same time,

The concept of a complete and absolute sovereignty in modern international law today simply means that each state has the absolute authority to act without outside interference but these state also have the duty to act in a way that such act will not affect another state and are obligated to take all precautionary measure to avoid that, e.g. so in that scenario, state A sovereignty is itself a limitation to state B powers to act , the concept is being limited by factors such as "globalisation" where state have agree to come together to effect change that will affect each individual state like the concept of "Europeanism" where states in Europe surrender a certain percentage of their sovereignty to a supranational body whom then effect change that affect each individual state and its citizens, with the current development in the international community individual states cannot longer afford to exercise an absolute sovereignty within its domain since these state should always effect change within its domain having consideration of other states in regards to international aviation these states have to compromise to a whole lot of factors in other to reach a consensus and as such limiting their powers to have exclusive control over its domain and air-space. Additionally,

The development of the aviation industry is indeed unique and undeniably intriguing and said to contribute immensely to the global economy, however magnificent this discovery is, it is without a side track and by that I mean negatively impacting the environment as well, as all manmade inventions it has a way of negatively affecting the environment and the lives of the people, the invention of aviation by man did not escaped that law and has showed to emit gases that has adverse effect on the environment and add up to the growing impact of global warming.

The emissions released by the operation of international aviation have called to the international community to effect measures which will curb the level of green-house gases produced by this industry. The response of the international community with regards to the emissions emitted by international commercial aviation is to establish an organisation which will record the level of emissions and draw up action plans which will help curb these

emissions thereof, the introduction of the international civil aviation organisation (ICAO) by the Chicago Convention under the United Nations to oversee the smooth operation of the international civil aviation activities, Convention imposes on the organisation (ICAO) the responsibility to address the environmental impact of (GHG) emissions by international aviation.

In other to act one most first acknowledge the existence of a problem, because aviation is the only form of transportation with the record of the highest emitter of (GHG) pollutant and since the issue of aviation emission can no longer be ignored and has since been deemed to be a universal problem for all mankind the Kyoto Protocol in that regards stipulated for its member states to limit the amount of (GHG) emission released to the environment by the operation of international aviation through the organisation of (ICAO).

The International Civil Aviation Organisation (ICAO) is saddled with the responsibility for the reduction of Green-House Gases from the industry for the past 20 years since this responsibility was accorded to it all that can be said to have been accomplished is the disagreements among the so called civilized and third world nations on what action plan should or shouldn't be considered regarding mitigating the effect of (GHG) emission and to totally curb these emissions produced by international aviation.

Over the years the ICAO has failed to cut down or deliver a sustainable reduction tactics which will curb international aviation emission and the fixation of a policy which will curb emission in the future (2020) without a reliable evidence that such policy will curb emission is absurd, when such measure fails by (2050) the level of GHG in the atmosphere would have quadruple.

While any sort of obligations enforce on member states are being objected by more powerful nations while the so called uncivilized nation or third world nations (terms I strongly object on) continue to fight to be seen as equal or scrambling for equal treatments in the international scene. The obligations imposed on ICAO by the "Kyoto Protocol", the ICAO has proven to be incapable of fulfilling the said responsibility, and has shown on several action plans to have no improbable mitigating measures.

Again the (ICAO) has failed to tackle the international aviation emissions for the fact that the (ICAO) was establish to oversee the systematic growth of the civil aviation industry and given all the needed equipment accordingly to fulfil such measures but is ill equipped to

tackle the environmental effects caused by the industry (GHG emission) since the greenhouse gas (GHG) emission was moved from the field of climate change to the field of (ICAO) and has showed to be unable to combat climate change through the reduction of emission produced by international aviation and all efforts has proven to be difficult and for the past 20 years or so only talks on how to curb aviation emission has been achieved.

The ICAO has taken to itself only to address the CO2 emissions emitted by international aviation while on the other hand ignoring all other form of gases emitted by the same industry emissions such as "Volatile Organic Compounds" (VOCs), "Carbon Monoxide" (CO), "Nitrogen Dioxide" ($NO^x$) etc. Additionally, the negotiation process in the ICAO framework requires a ridiculous amount of time and it what I will refer to as a snail speed it was as a result of this slow speed that force the European community to search for a mitigating measure outside the ICAO process.

The (MBM) incorporated into ICAO is a measure which doesn't curb international aviation emission but have states pay for the emissions which they produced this can be ague that this measure isn't an effective curbing tactics it only delays the emission effects on the environment and not totally limit it.

Although no effective measure have been produced by ICAO to effectively curb the emissions leased by international aviation nevertheless the international organisation has acknowledged the existence of the environmental pollutant produced by international aviation this is one step closer to achieving a universal instrument to effective tackle this environmental problem, but the approach taken to mitigate the issue I must say isn't a recommended one as the purchasing and auctioning isn't in fact in line with the spirit of the Paris Convention.

In my opinion the best way to curb the emission from international aviation is through the development of cutting edge technologies to meet and replace the current flits of aircrafts used for all international commercial aviation with those of clean energy or alternative power based source such as solar this procedure is however very expensive and not states is ready to invest in such an expensive inventions, we have gotten to a point where we can no longer rely on carbon based fuel but to move toward green energy because this form of energy is environmental friendly we cannot continue to kill the environment and bio-diversities for our selfish desires, Switzerland has showed that it is possible to more away from carbon based

technologies to green energy with its clean energy trains which runs on renewable energy this kind of technology should also be applied to the aviation sector since this factor is the biggest GHG emitter in transportation.

Since all attempts to reduce the emission from the industry has proven to be fruitless another approach to be taken is to more away from carbon based energy source as a whole to green energy source and stop these fruitless negotiations to limit emissions for which power states continue to hinder the process and exploit the semi-unregulated transport mode.

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