

Space tourism: An analysis of its legal aspects

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Abstract

With the launch of Sputnik 1 in 1957, the possibility of commercial space tourism activities was a distant dream. The launch of Sputnik 1 paved the way for a Cold War space era, wherein space activities were linked to political objectives and priorities such as national security or military concerns of the two superpowers of the world, the USA and the USSR. Due to the tremendous technological and Political importance of space, the space powers were reluctant to allow non-governmental factors to explore or exploit outer space. Private investment in outer space was also hindered by high cost and technological risks. It is undeniable that the space Arena has evolved so much that even non state entities are becoming serious actors in Outer space activities especially space tourism. With the advent by the Russian space agency which took private persons to the International Space Station and the rise of private companies such as Virgin Galactic and Space X, space tourism is no more a distant dream. Significant financial investment has also been made to develop reusable launch vehicle technology for the space tourism industry. It is ascertained that in the new future the industry of space tourism will become economical and shall be accessible by all normal people. Space tourism denotes any commercial activity that offers customers direct or indirect experience with space travel. However, there is no legally accepted definition for space tourism so far. Space tourism activities have many different designs ranging from long-term station orbital facilities to short-term orbital or suborbital flights or even parabolic flights in an aircraft exposing the passengers to short-term periods of weightlessness. From the range of activities that happen in the paradigm of space tourism, it shall be understood that space tourism can happen with the use of an aircraft and/or a spacecraft. Depending on where and how such activities actually take place either air law or space law or even both may apply. The two legal regimes have evolved independently from each other and accordingly show vast differences. A variety of legal issues regarding the conduct of space tourism and associated activities arise as a result. This article focuses on understanding what space tourism is and what are the activities that fall in the boundary of space tourism. Having understood that, the next problem is understanding which is the applicable law for the activities of space tourism. This article also focuses on major legal issues such as authorisation to conduct space tourism, registration of the aircraft or spacecraft, liability to passengers and third parties, and the status of passengers. Regarding air law, there are comprehensive regulations for passenger transportation in both international and national legal regime. International space law does not contain detailed regulations for passenger transportation yet. When examining these legal aspects of space tourism and the response by the present legal regime a question naturally arises whether the existing laws are sufficient for space tourism activities or whether the international legal regime shall be updated to deal with such dynamic issues.

Keywords: space tourism, commercialisation, international law, space, travel

Introduction

Space tourism is one of the most novel and advanced activities in the sphere of commercialisation of outer space. Space tourism refers to the set of commercial activities that offer consumers the experience of space travel, either directly or indirectly. It is categorized into three parts – suborbital, orbital, and lunar space tourism. Space tourism is a new-fangled anomaly that allows individuals to travel to space at their discretion, for personal leisure and pleasure. It refers to activities that involve using outer space for recreational and business purposes such as travel and leisure purposes. Space tourism is a niche segment that is exceptionally expensive as it provides for tourists to experience space travel like astronauts. Since space tourism is a relatively new concept, it is inevitable to address the potential legal issues that this industry poses and the response by present international law regime to those legal issues. With commercial and technological advancements, space tourism shall be analysed from a legal perspective with reference to international law. In conclusion, analysing the potential legal issues and present legal response to those

issues by the international law regime, the question whether the present legal regime is sufficient in addressing the issues naturally arises.

Research Problem

One of the most robust and developing topics of discussion in the arena of international space law is the space tourism. With the rise of companies like SpaceX and Virgin Galactic which makes space travel by passengers or tourists possible, there is a need to legally analyse this activity of commercialisation with a view to regulate and govern the activities. It shall be important to define the boundaries of the business of space tourism. Having understood the concept of space tourism, the main question regarding the legal issues pertaining to space tourism arises. It is inevitable to identify all possible and potential legal aspects and issues associated with space tourism and the response by the present international law regime with respect to the same. When examining the legal issues and the response, a question naturally arises whether the present legal regime in international sphere is sufficient to address the key legal

issues in space tourism industry.

Existing legal situation

Lack of legislation

Given that space tourism is a developing and a dynamic activity of commercialisation of outer space, its definition and appropriation of associated activities are not explicitly provided for by international space law instruments. However, certain provisions of international space law instruments shall be interpreted to benefit the aspects of space tourism.

International space law instruments referred to, to interpret the legal aspects of space tourism:

The Outer Space Treaty

Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies entered into force on 10 October 1967

The Rescue Agreement

Agreement on the Rescue of Astronauts, the Return of Astronauts and the Return of Objects Launched into Outer Space entered into force on 3 December 1968.

The Registration Convention

Convention on Registration of Objects Launched into Outer Space entered into force on 15 September 1976.

The Moon Agreement

Agreement Governing the Activities of States on the Moon and Other Celestial Bodies entered into force on 11 July 1984.

International public air law instruments referred to, to interpret the legal aspects of space tourism:

Chicago Convention

Convention on International Civil Aviation convened at Chicago, entered into force on December 7, 1944

Montreal Convention

Convention for the Unification of Certain Rules for International Carriage by Air convened at Montreal, entered into force on May 28, 1999

Scope and Objectives

The scope of this research paper is to profoundly analyse the potential and possible legal aspects and relevant issues pertaining to space tourism in the international law regime. The scope of the paper doesn't extend to analysis of national laws. It is important to understand and address the issue of setting a boundary to the activities pertaining to tourism in space and its appropriateness. The major issues pertaining to the legal status of the space vehicle carrying the passengers and the legal status of the passengers or tourists shall be discussed in detail with respect to the present legal regime.

Having identified the legal issues, the objective of the paper shall be to provide a detailed analysis of the legal response by various legal instruments in the international space law regime with respect to the same. Further, it shall be ascertained that there is a need for a new legal framework that addresses all potential issues in the space tourism, keeping in mind the complexity and growth of the industry.

Research questions

1. How has international space law defined space tourism and its appropriate activities?
2. What are the major legal issues pertaining to space tourism? What is the present legal response to those issues by the existing international space law instruments?
3. Is there a need for a comprehensive legal framework to regulate and govern the activities of space tourism?

Hypothesis

Major issues pertaining to legal aspects of space tourism are the appropriate definition and boundaries of space tourism activities, status of the tourists and their qualification and training requirements, status of the vehicle and its authorisation and registration. There is a need for a comprehensive legal framework to regulate and govern space tourism activities and its related legal aspects since space tourism is a relevantly new aspect of commercialisation of space.

Research methodology

This research will be conducted in a systematic way by analysing the existing legal regime in international space law with respect to space tourism. A detailed analysis of various literature shall be done to identify legal issues with respect to the robust industry of space tourism. A critical analysis shall be done to identify the gap in the international space law regime in dealing with space tourism activities.

Chapter Scheme

1. Introduction
2. What is "space tourism"? IA. Space tourism v. Private Spaceflight
Intercontinental space transportation
Orbital space tourism
Sub-orbital space tourism
3. Applicable law for space tourism activities
4. Legal status of the space vehicles
Authorisation
Registration
5. Legal status of space tourists
Are space tourists, astronauts?
6. Need for a legal framework to regulate the activities of space tourism
7. Conclusion

What is space tourism?

Space tourism and space transport has been considered as one of the most important activities in the commercialisation of outer space. However, the meaning and scope of the term space tourism has not been mentioned by any legal instruments. However, space tourism has been defined as "any commercial activity offering customers/consumers direct or indirect experience with space travel."^[1] From the literature reviewed, it shall be understood that activities of space tourism ranges from short term orbital or sub orbital flights to long-term stays in orbital facilities and even parabolic flights in an aeroplane exposing customers to short terms of weightlessness. A

¹ Stephan Hobe & Juirgen Cloppenburg, Towards a New aerospace Convention? Selected Legal Issues of "Space Tourism," PROCEEDINGS OF THE FORTY-SEVENTH COLLOQUIUM ON THE LAW OF OUTER SPACE, 377, 377 (2004). (unpublished)

space tourist has been defined as “a person who tours or travels into, to or through space or to a celestial body for recreation and or pleasure.”^[2] From this definition, it shall be understood that space tourists necessarily need not be qualified professionals,^[3] but can be private individuals with no prior qualifications as such, this shall be discussed in following chapters. From the growing dynamics of recreational purposes and need for research it shall be ascertained that this activity of commercialisation of outer space will reach incredible developments in near future. Hence, it is quintessential to define and set boundaries to the activities of space tourism in order to regulate and govern the sector. Space tourism agencies’ offerings include zero-gravity atmospheric flights, orbital spaceflights, spacewalks, and other experiences including training and tours. Further ideas include space elevators, private orbital spaceflights, space stations, and spaceports. Once spaceships reach complete orbital capacity and space travel starts booming, Space hotels and residences are the natural destination.

Space tourism v. Private space flight

In spite of the fact that the term ‘space tourism’ is frequently interchanged with ‘private spaceflight’, the two are not really exchangeable terms. It is because of the absence of the public sector from the space travel industry that this supposition is regularly made. Private players are a basic component in the development of space tourism industry, commonly it is the inspiration given by privately owned businesses that pushes development. Various organizations have been working to build up a space travel industry – SpaceX, Virgin Galactic, Blue Origin, and Bigelow Aviation are few of the organizations at the front line of this advancement. ‘Private spaceflight’ is consequently defined as:^[4] “Flights of humans intended to enter outer space

- (a) at their own expense or that of another private person or entity,
- (b) conducted by private entities, or
- (c) both.”^[5]

The government sector must assume a functioning part by playing an active role in providing incentives and initiating collaborative ventures with private players to help space tourism industry^[6]. It can likewise do as such by offering privately owned businesses subsidies, supporting innovative

work in the field of space tourism and unwinding guidelines for adventures and interests in the field. The National Aeronautics and Space Administration (NASA) assumed a job to execute private spaceflight through projects, for example, Commercial Orbital Transportation Services (COTS) and Commercial Crew Development (CCDev). This distinction is important in order to ascertain the liability clause^[7].

Intercontinental Space Transportation

Intercontinental rocket transport infers a travel through space to abbreviate the transportation time starting with one point on Earth then onto the next. It is an idea that has existed for quite a while. This idea is appealing for the military, as well as in the business of transportation of travellers and merchandise. Nonetheless, the specialized difficulties are considerable as far as the necessary speed, the velocity and propellant required, and the requirement for a Thermal Protection System framework (TPS) for safe re-emergence to the Earth's orbit. In spite of the fact that it includes diverse specialized contemplations, the terrible history of the Concorde airplane is illustrative of the specialized complexities and dangers^[8] engaged with point to point travel on/above Earth at quick speeds.

Orbital Space Tourism

In orbital spaceflight, such as has been experienced by all space tourists thus far (on the ISS), orbital velocity must be achieved for the vehicle to keep flying along the curvature of the Earth^[9]. Among other things, it is this extremely high speed that makes orbital space flight so technically complex and therefore so much more expensive than suborbital space tourism^[10].

Sub-Orbital Space Tourism

Suborbital spaceflight, which is offered by organizations like Virgin Galactic and EADS Astrium, is probably the most widely recognized structure of space tourism industry, at least in the short to medium term. This alludes to space trips in which orbital speeds are not accomplished and includes shuttle flights that are pretty much straight all over, accomplishing an elevation of among 100 and 200 kilometres. After engine shutdown, travellers experience microgravity (weightlessness) for around three to six minutes, after which the vehicle re-enters the Earth atmosphere.

It shall be ascertained that these are the three wisely classified space tourism activities taking place in various

² Stephan Hobe & Juergen Cloppenburg, Towards a New aerospace Convention? Selected Legal Issues of “Space Tourism,” PROCEEDINGS OF THE FORTY-SEVENTH COLLOQUIUM ON THE LAW OF OUTER SPACE, 377, 377 (2004). (unpublished)

³ Stephan Hobe, ‘Legal Aspects of Space Tourism’ (2007) Neb. L. Rev. 86 <<https://digitalcommons.unl.edu/nlr/vol86/iss2/6>> accessed on 26 September 2020

⁴ von der Dunk, Frans G., “Space Tourism, Private Spaceflight and the Law: Key Aspects” (2011). Space and Telecommunications Law Program Faculty Publications. Paper 60. <<http://digitalcommons.unl.edu/spacelaw/60>> accessed on 01 October 2020

⁵ It thus hinges on two alternative specific criteria setting it apart from other, more traditional space activities; two criteria which may also apply together: the humans being transported are private individuals and responsibility for the conduct of the flight is private. It is this fundamentally private character, as defined by the two alternative criteria, which sets private spaceflight apart from manned spaceflight paid for and operated by the public sector, whether national or intergovernmental, and which raises an array of new legal issues that the future legal framework should address.

⁶ von der Dunk, Frans G., “Space Tourism, Private Spaceflight and the Law: Key Aspects” (2011). Space and Telecommunications Law Program Faculty Publications. Paper 60. <<http://digitalcommons.unl.edu/spacelaw/60>> accessed on 01 October 2020

⁷ It applies regardless of “whether such activities are carried on by governmental agencies or by non-governmental entities,” in effect ignoring the distinction prevailing in general public international law between state acts for which a state is ‘directly responsible’ and private acts of, e.g., its citizens for which a state can at best be held responsible ‘indirectly,’ vicariously’ or ‘due care;’ Art. VI, Outer Space Treaty. However, liability has been kept out of the scope of this paper.

⁸ Concorde Crash Manslaughter Trial Begins in France (2 February 2010) BBC News <<http://news.bbc.co.uk/2/hi/europe/8492561.stm>> accessed on 11 November 2020

⁹ ‘Orbital velocity’, the velocity required to stay in an orbit, depends on the altitude of the orbit. For a circular orbit at an altitude of around 200 kilometres, the orbital velocity required is approximately 28,000 kilometres per hour.

¹⁰ Steven Freeland, ‘Fly me to the moon: how will international law cope with commercial space tourism? how will international law cope with commercial space tourism?’ (2010) vol.11 MJIL <https://law.unimelb.edu.au/_data/assets/pdf_file/0009/1686276/Freeland.pdf> accessed on 26 September 2020

levels of the distance from Earth's atmosphere.

Applicable Law for Space Tourism Activities

It shall be ascertained from the models of *SpaceShipOne*^[11] and *Delta Clipper Experimental*^[12] that the activity of space tourism shall take place through an aircraft or a spacecraft or both, giving rise to a complicated question regarding the applicable law. The place where the activity of space tourism happens and the vessel which performs the activity shall be important to decide the applicable law for the activity of space tourism. It shall be noted that the legal regimes of a law and space law have evolved independently and show major differences. A variety of legal issues regarding the conduct of the activities of space tourism arise as a result of these differences. This chapter focuses on the problematic issues such as delimitation of airspace and outer space, applicable law for the space tourism activities on the basis of the vessel used and authorisation of space tourism activities.

Delimitation of outer Space

There is no physical or definitive line that sets airspace and outer space apart. It is a generally accepted principle that 80 kms from the sea level is considered as air space and 100 kms and above from the sea level is considered as outer space. However, the area between 80-100 kms is not defined as to whether it is a part of airspace or outer space. The status of this zone is controversial and the issue of delimitation is crucial to address if the parameters of sub-orbital flights are such that the vessel reaches an altitude between 80-100 kms from sea level. In the international for a, there exists two approaches in dealing with this issue:^[13] a. functional approach and b. spatial approach. The functional approach suggests that the fixation of a boundary will be irrelevant and hence a single legal regime shall be followed on the basis of the nature and purpose of the activity. Spatial approach attempts to determine a fixed boundary line between airspace and outer space. However, this concept is very controversial in nature. This concept also incorporates the *von karman* line which is considered as the limit to airspace where the aerodynamic lift is exceeded by centrifugal force, at an altitude of 84 km, Whereas the customary international law practice suggests that the outer space and the lowest perigee orbit of artificial earth satellites commences from approximately 95 to 100 and km above sea level.

It shall be important to note that there shall be a consensus ought to be achieved in this area although few national legislations have dealt with the same issue^[14].

¹¹ SpaceShipOne uses an aircraft to lift a space cabin to a certain altitude. The cabin then separates from the aircraft and continues its suborbital flight to higher altitudes. There are two possibilities for return when this method is used: (a) the space vehicle returns to where it started from, or (b) it returns to a different location on Earth ("space transportation")

¹² Delta Clipper Experimental uses a rocket with a space capsule on top which is launched, and then the capsule separates from the rocket at a certain altitude. As a result, the passengers of the space capsule are exposed to Zero-G gravity and both vehicles return to Earth independent from each other.

¹³ Ferreira-Snyman, 'Legal challenges relating to the commercial use of outer space, with specific reference to space tourism' (2014) vol.17 PER <http://www.scielo.org.za/scielo.php?script=sci_arttext&pid=S1727-37812014000100002> accessed on 26 September 2020

¹⁴ Australia's Space Activities Act, as amended in 2002, requires a license for a launch from Australian territory only if the launch vehicle and/or payload are intended to reach an altitude of at least 100 km above sea level.

Status of the Vehicle

If the airplanes are only used for space travel activities, as provided for by intercontinental space travel principles, air law shall apply- both international and respective national legislations^[15].

It shall be understood from the developing models of space tourism activities that there are two main possibilities: a suborbital flight in a capsule that separates from a rocket launched from the ground or high seas and a suborbital flight launched from an aeroplane. From this it shall be ascertained that both aircraft and space vehicles shall be used in space tourism activities. Air law applies to the aircraft used both before and after separation. The confusion arises when there is a question whether the space vehicle which is a part of the aeroplane shall be considered either an aircraft or a part of the aircraft before and after separation. Although Chicago convention^[16] and various national air laws define an aircraft^[17], the full definition of a space object or space vehicle has not been provided by any legal instrument, however it shall be understood that the term shall be used for any object that is launched or attempted to be launched into outer space^[18]. Until separation, the space vehicle is fully dependent on the aeroplane and hence it shall be considered as a part of the aeroplane and air law governs it. However, after separation the space vehicle does not derive support in the atmosphere from reactions of air and hence shall not be considered an aircraft. The vehicle may use reactions of air in landing process but partial fulfilment of definition is not sufficient to qualify the vehicle as an aircraft. The purpose of the vehicle at that point supports the inference that the vehicle should not be regarded as an "aircraft". Hence, the vehicle clearly has the objective of reaching outer space, as can be seen from those flights being proposed to as "space flights," or "space travel"^[19]. Therefore, the suborbital vehicle after separation can be classified as a space object and space law should apply to the suborbital vehicle after separation from the aircraft.

As provided for by orbital space tourism principles, a rocket and a space object or a capsule shall be used for the transportation purposes and hence, space law shall solely apply^[20].

Although national legislation cannot have a direct influence on international law, it might be regarded as an expression of an *opinio juris*.

¹⁵ Stephan Hobe, 'Legal Aspects of Space Tourism'(2007) Neb. L. Rev. 86 <<https://digitalcommons.unl.edu/nlr/vol86/iss2/6>> accessed on 26 September 2020

¹⁶ Convention on International Civil Aviation ("Chicago Convention"), Dec. 7, 1944, 61 Stat. 1180, U.N.T.S. 295, Ninth Edition ICAO Doc. 7300/9 (Annex) (2006), available at <<http://www.icao.int/icao/arch/doc/7300/7300-9ed.pdf>>

¹⁷ Aircrafts are defined as "all machines which can derive support in the atmosphere from the reactions of the air." Convention on International Civil Aviation ("Chicago Convention"), Dec. 7, 1944, 61 Stat. 1180, U.N.T.S. 295, Ninth Edition ICAO Doc. 7300/9 (Annex) (2006), available at <<http://www.icao.int/icao/arch/doc/7300/7300-9ed.pdf>>

¹⁸ Stephan Hobe, 'Legal Aspects of Space Tourism'(2007) Neb. L. Rev. 86 <<https://digitalcommons.unl.edu/nlr/vol86/iss2/6>> accessed on 26 September 2020

¹⁹ M Wollersheim, "Considerations Towards the Legal Framework of Space Tourism", 2nd International Symposium on Space Tourism, Bremen, April 21-23 1999.

<http://www.spacefuture.com/archive/considerations_towards_the_legal_framework_of_space_tourism.shtml> accessed on 27 September 2020

²⁰ Steven Freeland, 'Up and ... Back: The Emergence of Space Tourism and Its Impact on the International Law of Outer Space' (2005) Vol. 6: No. 1 Article 4 Chicago Journal of International Law

It shall be important to come to a consensus and provide for a clarity as to what is the applicable law for the activities of space tourism given the dynamics and rapid technological and economic developments in this sphere.

Legal status of the space vehicles

Authorisation

The process of authorisation depends on the permissibility and authorisation of space tourism activities by the national governments in accordance with their relevant national air and space law. If the vehicle used for space tourism is an airplane or a space capsule carried by an airplane, authorisation by national and international air law is mandatory. Since air law is a comprehensive and a developed framework, authorisation under that regime doesn't create a lot of havoc.

If the activity of space tourism is suborbital in nature or is carried on by space capsule launched by a space vehicle such as a rocket, authorisation by national and international space law is mandatory. According to article VI of the Outer Space Treaty^[21], the state parties are obligated to authorise and to continuously supervise the national space activities. This obligation shall be fulfilled by enacting national space legislations preferably with licensing regime for private activities and tourism activities in outer space including the certification of the carriers. Although there are few national legislations such as FAA Draft Guidelines For Commercial Suborbital Reusable Launch Vehicle Operations With Spaceflight Participants And Its Notice Of Proposed Rule Making For Human Space Flight Requirements For Crew And Spaceflight Participants,^[22] Commercial Space Launch Amendment Act (CSLAA) Of 2004 in the United States of America, statutes dealing with certification and licensing of space vehicles in Australia, Germany, Europe it shall be noted that international space law does not have any specific regulations regarding the authorisation of space flights including space tourists. Moreover, most national space regulation legislations also fail to provide specific regulations. It is therefore concluded in this chapter that regulations establishing the information obligations, training and security measures, certification and licensing regulations are important and hence shall be required to be included and mandated in the fora of international space law as space tourism is not a distant dream anymore^[23].

Registration

Registration is important for a state as it mandates the ability to exercise jurisdiction and control. The applicability of a national legal regime on board the aircraft or the space object will depend on the Registration of the aircraft or space object.

If the space tourism activity is carried by an aircraft or a space capsule carried by an aircraft, the aircraft and space capsule prior to separation should share its registration under the air law regime. Chicago convention under Article 17 to 21 and Annex 7 provides for the provisions relating to the registration of an aircraft in the international air law regime. According to Article 17 of the Chicago convention,^[24] an aircraft shall have the nationality of the state in which it is registered. As per law provides detailed and comprehensive regulatory framework, registration under air law does not raise any further difficulties^[25].

If the space tourism activities are carried on by a space object solely or by a space vehicle, or the space capsule after separation from the aircraft shall be registered under the space law regime. Registration under space law has been provided by the registration convention. Article II of the Registration Convention^[26] states that if there are more than one "launching states" involved, an agreement between the state parties is required to determine which state shall register the launched space object. However according to Article II(1), an object can only be registered as a space object from the time of the launch. With respect to the *Space Ship One* model, in order to negate the possibility of dual registration resulting in the conflict of jurisdiction, it seems sensible to ascertain the separation of the suborbital vehicle that is the capsule from the aircraft as the launching of the space object. Hence, from that moment of separation, the space capsule shall be considered as being launched, and hence shall come under the purview of Registration Convention.

It shall be summarised that the aircraft used in the air launch as well as the space capsule prior to separation from the aircraft shall be registered according to the relevant national and international air law regime. On contrary, the space vehicle used in an air launch as well as both space objects used when rocket is used to launch a space capsule for the purpose of space tourism activities shall be registered under relevant national and international space law regime. Although the air law regime has been developed and is comprehensive in nature, the space law regime especially the Registration convention and the national space laws do have certain deficiency in the light of a statistical decline in the registration of space objects^[27].

Accordingly, the UN Committee on the Peaceful Uses of Outer Space (UNCOPUOS) Working Group on the Practice of States and International Organizations in Registering Space Objects has considered altering the Registration Convention to make it more effective in registering space objects. The main objective is to "encourage States to adhere to the Registration Convention, improve the

<<https://chicagounbound.uchicago.edu/cjil/vol6/iss1/4>> accessed on 26 September 2020

²¹ "The activities of non-governmental entities in outer space... shall require authorization and continuing supervision by the appropriate State..." Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies art. VI, opened for signature Jan. 27, 1967, 18 U.S.T. 2410, 610 U.N.T.S. 205, available at <<http://www.unoosa.org/pdf/publications/STSPACE11E.pdf>> [hereinafter Outer Space Treaty]

²² Human Space Flight Requirements for Crew and Space Flight Participants, 70 Fed. Reg. 77,261 (Dec. 29, 2005).

²³ Stephan Hobe, 'Legal Aspects of Space Tourism'(2007) Neb. L. Rev. 86 <<https://digitalcommons.unl.edu/nlr/vol86/iss2/6>> accessed on 26 September 2020

²⁴ Convention on International Civil Aviation ("Chicago Convention"), Dec. 7, 1944, 61 Stat. 1180, 15 U.N.T.S. 295, Ninth Edition ICAO Doc. 7300/9 (2006), available at <http://www.icao.int/icaonet/arch/doc/7300/7300_9ed.pdf>

²⁵ Failat, Yanal, Space Tourism: A Synopsis on its Legal Challenges (2012). 1 Irish Law Journal 120, 2012, <<https://ssrn.com/abstract=2173653>> accessed on 27 September 2020

²⁶ Convention on Registration of Objects Launched into Outer Space art. 1(b), opened for signature Jan. 14, 1975, 28 U.S.T. 695, 1023 U.N.T.S. 15 [hereinafter Registration Convention], both available at <<http://www.unoosa.org/pdf/publications/STSPACE11E.pdf>>

²⁷ Forty-Fifth Session, Vienna, Austria, Apr. 3-13, 2006, Report of the Legal Subcommittee on its forty-fifth session, 135, U.N. Doc. A/AC.105/871 (Apr. 24, 2006), available at <<http://www.unoosa.org/pdf/reports/ac105/AC105-871E.pdf>> accessed on 11 November 2020

application and enhance the effectiveness of the Convention and assist in developing and strengthening national legislative norms relating to the registration of objects launched into outer space."^[28] With increased space tourism activities occurring on more of a regular basis, classification of space vehicles used as space objects would certainly necessitate the effectiveness of the Registration Convention^[29].

Legal status of space tourists

The rights and obligations, duties of passengers shall be determined by the states exercising jurisdiction over that passenger. However international law it's complicated in this matter due to the presence of number of specific regulations. As far as *Space Ship One* model is concerned it is important to differentiate between the space capsule and the aircraft until separation. Before separation the space capsule is considered as a part of the aircraft and hence the passengers are considered as aircraft passengers and will be under the command of the aircraft commander. But after separation, in cases where the tourism activities are carried on by space vehicles there is an ambiguity as to whether the tourists are considered as astronauts. There is a question as to whether the passengers are considered as mere astronauts or they are granted a status similar to that of the astronauts. This question gives rise to a lot of confusion regarding the rights and obligations of the tourists. This chapter elaborately deals with these questions.

Are space tourists, astronauts?

Article V of the Outer Space Treaty^[30] confers to the astronauts the status of "envoy of mankind." The first wordings of Article V (1) of the Outer Space Treaty obliges states to render to astronauts "all possible assistance in the event of accident, distress, or emergency landing on the territory of another State party or the High Seas." Whereas Article V of the Outer Space Treaty speaks of "astronauts" and "envoys of mankind," Article VIII uses the term "personnel."^[31] It is clear that Article VIII of the Outer Space Treaty was not intended to exempt passengers from the jurisdiction and control of the state of registry.

The importance shall be seen from the obligations in cases of emergency, the main implications of which are specified in the Rescue Agreement^[32]. According to the Rescue Agreement, such obligations shall apply to personnel of

spacecraft. It shall be noted that the use of the term "personnel of spacecraft" instead of "astronauts" leads to an assumption that Rescue Agreement covers a wide array of persons with a broader scope. The terms astronaut, envoy of mankind, personal of a spacecraft have not been defined clearly in the international space law. It shall be observed that the term "astronaut" has a scientific or an exploration meaning, "envoy of mankind" has a humanity-based meaning, "personnel of spacecraft" has a functional meaning. From a Broad interpretation it shall be understood that these terms not only include persons involved in the operation of the spacecraft but also passengers^[33]. This interpretation shall be based on the Presence of term "personnel" in the Rescue Agreement which clearly includes all the persons on board. This all space tourists shall be considered as a personnel of space object and shall be under the jurisdiction of the state under which the vehicle is registered. However, this is a mere interpretation and has not been accepted by the international space Law forum. Hence, it shall be interpreted and suggested that a clear definition of various terminologies should be provided by international space law in order to avoid confusion and facilitate space tourism activities. This uncertainty in definition leads to various questions whether the duty to rescue applies only to state-sponsored missions or two private space flights as well, whether the states have a duty to rescue space tourists as passengers or astronauts or mere personnel of spacecraft^[34].

In order to qualify space tourist as astronauts a few other elements shall be taken into consideration such as training, selection and various other qualification criteria^[35]. The determination of legal status of the space tourists is important because:

1. the legal status as to whether space tourists qualify as astronauts shall lead to further questions regarding the selection, training and further qualification criteria,
2. the legal status as to whether space tourists qualify as mere personnel of spacecraft shall lead to questions regarding their functional obligations and rights and duties,
3. the legal status as to whether space tourists qualify as envoy of mankind shall lead to the clarification regarding the rights, duties and obligations of the same.

Hence, through this chapter, I emphasise that a clarity regarding the legal status of the space tourists is quintessential in order to govern, regulate and facilitate hassle free space travel.

Need for a legal framework to regulate the activities of space tourism

The corpus of existing international space law denotes a

²⁸ Ferreira-Snyman, 'Legal challenges relating to the commercial use of outer space, with specific reference to space tourism' (2014) vol.17 PER <http://www.scielo.org.za/scielo.php?script=sci_arttext&pid=S1727-37812014000100002> accessed on 26 September 2020

²⁹ Stephan Hobe, 'Legal Aspects of Space Tourism' (2007) Neb. L. Rev. 86 <<https://digitalcommons.unl.edu/nlr/vol86/iss2/6>> accessed on 26 September 2020

³⁰ Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies art. VI, opened for signature Jan. 27, 1967, 18 U.S.T. 2410, 610 U.N.T.S. 205, available at <<http://www.unoosa.org/pdf/publications/STSPACE11E.pdf>>

³¹ Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies art. VI, opened for signature Jan. 27, 1967, 18 U.S.T. 2410, 610 U.N.T.S. 205, available at <<http://www.unoosa.org/pdf/publications/STSPACE11E.pdf>>

³² Agreement on the Rescue of Astronauts, the Return of Astronauts and the Return of Objects Launched into Outer Space, opened for signature Apr. 22, 1968, 19 U.S.T. 7570, 672 U.N.T.S. 119, available at <<http://www.unoosa.org/pdf/publications/STSPACE11E.pdf>> [hereinafter Rescue Agreement].

³³ P. Collins & K Yonemoto, 1998, "Legal and Regulatory Issues for Passenger Space Travel", Proceedings of International Symposium on Space Law, 49th IAF Congress.. <http://www.spacefuture.com/archive/legal_and_regulatory_issues_for_passenger_space_travel.shtml> accessed on 01 October 2020

³⁴ Failat, Yanal, Space Tourism: A Synopsis on its Legal Challenges (2012). 1 Irish Law Journal 120, 2012, <<https://ssrn.com/abstract=2173653>> accessed on 27 September 2020

³⁵ Ferreira-Snyman, 'Legal challenges relating to the commercial use of outer space, with specific reference to space tourism' (2014) vol.17 PER <http://www.scielo.org.za/scielo.php?script=sci_arttext&pid=S1727-37812014000100002> accessed on 26 September 2020

significant base from which it is important to build up the legal instruments to appropriately direct the rapidly growing phase of space activities. However, it isn't adequate in any event, for present purposes, let alone the forth-coming years. The dynamics of space tourism industry raises numerous unanswered legal questions, some of which have been featured in this article. Other lawful issues will likewise emerge. As more space tourism (and other) activities occur, appropriate dispute resolution mechanisms must be settled upon to deal with conflicts that will definitely emerge, both at the public and private international law sphere. Definite traffic management frameworks must be created. Also, an extensive legal system shall be established at an international level to mirror the desires of the more extensive (worldwide) network and to endorse certainty. Simultaneously, the more extensive philosophical, ethical and moral aspects of human activities in space demand that we constantly reconsider the 'why' and 'what' in connection to our continuous exploration and utilization of outer space. Also, just as the exploration and utilization of space is affected by earthbound concerns — including economic matters, legislative issues, social, political and fundamental human liberties — it serves as a model for our future activities on Earth. There are numerous exercises that we can gain from our (over-)abuse of the Earth's regular assets. The current space law system can't hold up under the blossoming of space travel industry as “the foundation of international space law is too inflexible to be a stable reason for space tourism”. This article has laid out the limitations of the current system and has upheld for another international legal framework, one which is devoted exclusively to the guide the business of space tourism, in this manner ruling out limitations and ambiguities. Such a uniform instrument ought to consider the framework of existing air law system and consider the system as a model, especially with respect to issues of rescue and liability^[36]. The formation of a legal framework in such manner is a key component in the overall advancement of the commercialisation of outer space. On this premise, economic activities in space should be accompanied by the concurrent execution of a legal structure through which these activities shall be managed by an international body, with the goal of increasing powerful support as a unilateral framework. These issues pose questions and challenges with respect to how international law, consolidating the international legal regulatory framework of outer space, will be capable of adapting to future activities in space, including the space tourism industry. The manner by which the law is framed, developed and adapted to meet these challenges will be significant for space itself, yet in addition for future generations on Earth.

Conclusion

Outer Space is a common heritage of mankind. Our utilization of it ought to reflect fundamental ideas of collaboration and shared advantage, which must stay as the foundations in this next period of human accomplishment. International law has a vital part to play in such manner. The growing dynamics of the commercialisation of space

will mark a new era for the human race. It shall be ascertained that travel and tourism to space will no longer remain a distant dream for an average person, which creates opportunities for common man to reach the unreachable. The limitations, uncertainty and incapability of the current legal regime will discourage investment in the space tourism technologies. Hence, A comprehensive and an attractive legal regime will help assure the future of responsible and safe commercial space tourism. Hence through this paper I would like to conclude that there is a growing and an immediate need for a comprehensive legal framework to deal with space tourism in all possible aspects so as to facilitate the commercialisation of outer space for the benefit of humankind.

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Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies entered into force on 10 October 1967

The Rescue Agreement

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The Registration Convention

Convention on Registration of Objects Launched into Outer Space entered into force on 15 September 1976.

The Moon Agreement

Agreement Governing the Activities of States on the Moon and Other Celestial Bodies entered into force on 11 July 1984.

Chicago Convention

Convention on International Civil Aviation convened at Chicago, entered into force on December 7, 1944

Montreal Convention

Convention for the Unification of Certain Rules for International Carriage by Air convened at Montreal, entered into force on May 28, 1999

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