INDIAN JOURNAL OF LEGAL REVIEW

VOLUME 4 AND ISSUE 1 OF 2024

INSTITUTE OF LEGAL EDUCATION

INDIAN JOURNAL OF LEGAL REVIEW

APIS – 3920 – 0001 | ISSN - 2583-2344

(Free and Open Access Journal)

Journal's Home Page – https://ijlr.iledu.in/

Journal's Editorial Page - https://ijlr.iledu.in/editorial-board/

Volume 4 and Issue 1 of 2024 (Access Full Issue on - https://ijlr.iledu.in/volume-4-and-issue-1-of-2024/)

Publisher

Prasanna S,

Chairman of Institute of Legal Education (Established by I.L.E. Educational Trust)

No. 08, Arul Nagar, Seera Thoppu,

Maudhanda Kurichi, Srirangam,

Tiruchirappalli – 620102

Phone : +91 94896 71437 - info@iledu.in / Chairman@iledu.in

INDIAN JOURNAL OF LEGAL REVIEW [IJLR – IF SCORE – 7.58]

VOLUME 4 AND ISSUE 1 OF 2024

APIS – 3920 - 0001 *(and)* ISSN - 2583-2344

Published by

Institute of Legal Education

https://iledu.in

SPACE COOPERATION BETWEEN COUNTRIES: RULES AND REGULATIONS IN THE AGE OF SPACE TOURISM

AUTHOR - HRISHIKESH RAO, SCHOOL OF LAW, CHRIST (DEEMED-TO-BE) UNIVERSITY

BEST CITATION – HRISHIKESH RAO, SPACE COOPERATION BETWEEN COUNTRIES: RULES AND REGULATIONS IN THE AGE OF SPACE TOURISM, INDIAN JOURNAL OF LEGAL REVIEW (IJLR), 4 (1) OF 2024, PG. 561-570, APIS – 3920 – 0001 & ISSN - 2583-2344

Abstract:

The rapid ascent of commercial space travel has opened a new chapter in human exploration, one that necessitates in-depth analysis of international cooperation in shaping the regulatory framework for space tourism. As the space tourism industry undergoes rapid expansion, it becomes increasingly important to comprehend the dynamics of how nations collaborate and influence the rules and regulations governing this sector. This research paper seeks to investigate the complex interplay between international cooperation and the regulatory landscape that governs space tourism. The emergence of space tourism is a defining feature of this era, with private companies and space enthusiasts pushing the boundaries of our earthly confines. The paper's primary objective is to examine how countries come together to shape the regulatory environment in response to the burgeoning space tourism industry. This investigation will involve a close look at existing space treaties and international agreements that provide the foundation for regulating this evolving field.

The historical context of space cooperation forms an essential backdrop to this exploration. From the Cold War space race to present-day missions involving multiple nations, the dynamics of international collaboration have continually evolved. International organizations, particularly the United Nations Office for Outer Space Affairs (UNOOSA), play a central role in fostering cooperation and developing regulations. These organizations serve as forums for diplomatic negotiations and agreements, thus exerting a significant influence on space tourism's regulatory landscape. Bilateral and multilateral agreements between countries serve as tangible examples of how nations cooperate to regulate space tourism. These agreements encompass various facets, including safety standards, liability frameworks, and environmental considerations. Understanding the diversity and intricacies of these agreements is key to grasping the nuances of international cooperation in the space tourism sector.

In summary, this research paper aims to provide a comprehensive examination of international cooperation's role in shaping space tourism regulations. It underscores the importance of ongoing and future collaborations among nations to ensure the sustainable and secure growth of the space tourism industry. As humanity embarks on its journey toward becoming an interplanetary species, understanding the dynamics of international cooperation is paramount for a prosperous and safe future in space.

KEYWORDS: 1. United Nations Office for Outer Space Affairs (UNOOSA), 2. Liability frameworks 3. Multilateral agreements 4. Environmental considerations

1.Introduction

The advent of space tourism heralds a new era in human exploration and endeavor. Companies like SpaceX, Blue Origin, and Virgin Galactic are pioneering the path to make space travel a reality for civilians, not just astronauts. This rapid commercialization of space brings with it a host of legal considerations that have

INDIAN JOURNAL OF LEGAL REVIEW [IJLR – IF SCORE – 7.58]

VOLUME 4 AND ISSUE 1 OF 2024

APIS – 3920 - 0001 *(and)* ISSN - 2583-2344

Published by

Institute of Legal Education

https://iledu.in

global implications. This research paper aims to explore the intricate dynamics of international cooperation in the context of space tourism and its profound impact on the regulatory frameworks governing this exciting and emerging industry.[1026]

Space tourism is changing the way we perceive the vast expanse of outer space. What was once the exclusive domain of governments and professional astronauts is now opening up to adventurers and space enthusiasts from around the world. While this is an exciting and transformative development, it raises many questions and concerns, which extend beyond the thrilling prospect of venturing into space. In particular, understanding how nations work together to shape the rules and regulations that govern space tourism is of paramount importance.[1027]

The research objectives of this paper are multi-fold. First, we aim to delve into the intricate web of international cooperation and collaboration and its consequential impact on the legal frameworks that underpin space tourism. Secondly, we seek to comprehend the consequences and intricacies of the rapid commercialization of space travel, with an emphasis on the evolving legal landscape.[1028]

Space tourism is characterized by private companies and space enthusiasts pushing the boundaries of human exploration. However, this journey into space is not devoid of challenges, particularly when it comes to addressing safety, liability, and insurance. These legal considerations form the bedrock upon which the space tourism industry is built, and they are instrumental in ensuring the safety and security of those embarking on this remarkable adventure.

One of the primary concerns within the realm of space tourism is commercial liability. With civilians embarking on journeys to the stars, the potential for accidents, injuries, or equipment failures becomes a pressing issue. In these scenarios, it is crucial to clarify who bears the responsibility. Is it the space tourism company, the passengers themselves, or some other entity? Resolving these matters within a legal framework is essential.[1029]

Another aspect that requires rigorous legal scrutiny is contractual agreements. Passengers embarking on space tourism journeys are expected to enter into contracts with space tourism providers. These contracts outline the terms and conditions of the journey, but they must also comply with existing consumer protection laws. It is imperative that passengers fully understand the inherent risks associated with space travel, and the legal framework must ensure that they are well-informed before embarking on their adventure.[1030]

In addition to these considerations, governments worldwide are tasked with developing regulatory frameworks to oversee the growing space tourism industry. In the United States, the Federal Aviation Administration (FAA) plays a pivotal role in regulating commercial spaceflight. Companies must obtain licenses and permits, and their spacecraft must meet stringent safety standards to carry passengers. Moreover, as space tourism transcends national borders, international coordination and regulation become imperative. International organizations such as the United Nations Office for Outer Space Affairs (UNOOSA) are central to this coordination, fostering cooperation and developing regulations that have a global reach.[1031]

An essential component of space tourism is informed consent. Passengers embarking on space tourism journeys must provide informed consent, acknowledging the risks associated with space travel. Legal requirements for informed consent should ensure that

[1026] http://cce.upes.ac.in/CAS/pdf/Research.pdf

[1027] http://www.spaceref.com/news/viewsr.html?

[1028] http://www.dnaindia.com/report.asp?NewsID=1084939

[1029] http://www.space-travel.com/reports/Space_Tourism_Sector_A_Good_Opportunity_For_ Insurance_Firms_999.html

[1030] AP, "Private Spaceship makes first flight", The Times of India, Kolkata, 12 October 2010

[1031] https://www.unoosa.org/oosa/en/ourwork/spacelaw/index.html

INDIAN JOURNAL OF LEGAL REVIEW [IJLR – IF SCORE – 7.58]

VOLUME 4 AND ISSUE 1 OF 2024

APIS – 3920 - 0001 *(and)* ISSN - 2583-2344

Published by

Institute of Legal Education

https://iledu.in

passengers understand and accept these risks willingly. This involves comprehensive risk disclosure, medical screening to assess passengers' fitness for space travel, and clear communication of emergency procedures. Legal considerations extend to non-discriminatory medical evaluations, ensuring that passengers are treated fairly and without bias.

Diplomatic agreements between nations are another vital aspect of international cooperation in space tourism. These agreements are necessary to address the legal complexities involved, such as liability, emergency response, and environmental protection. As the space tourism industry continues to evolve, it is imperative that international collaboration expands and adapts to meet the unique challenges that space travel presents.

Space Tourism – Basic Concept

The concept of "space tourism" involves the commercial activity of providing customers with direct or indirect experiences related to space travel. This definition reflects the evolving landscape of space exploration, where private companies and space enthusiasts are making it possible for civilians to venture into space. In essence, space tourism offers individuals the opportunity to travel beyond Earth's boundaries for leisure, adventure, and discovery.[1032]

In understanding the concept of space tourism, it is essential to consider the traditional definition of tourism, as put forth by the World Tourism Organization (WTO) and the U.N. Statistical Committee in 1994. According to this definition, tourism comprises the activities of individuals who travel to places outside their usual environment for leisure purposes, for a period not exceeding one consecutive year.

To enable space tourism, three critical elements must be in place:

Discretionary Income: Traveling to space is a costly endeavor. It necessitates a significant level of discretionary income, as space tourism is not a budget-friendly activity. Passengers must have the financial means to afford such a unique experience.

Leisure Time: Preparing for and participating in space tourism journeys require ample leisure time. Space tourists need to dedicate time not only to the journey itself but also to the physical and mental preparations involved in space travel.

Supportive Infrastructure: A robust infrastructure that supports space tourism is vital. This infrastructure encompasses various components, including accommodations for passengers, provisions for sustenance, transportation systems to access launch sites, and attractions or activities in space that fulfill the tourists' desires for unique experiences.

Space tourism is a novel and rapidly evolving industry that offers individuals the opportunity to venture beyond our planet. It requires financial means, leisure time, and a well-established support system to make the journey into space possible. This concept represents a significant shift in the way we perceive and engage with outer space, and it holds the promise of expanding our understanding of the cosmos while providing unique and unforgettable experiences for those willing to embark on the journey.[1033]

The objectives I aim to achieve are:

- To analyze the role of international cooperation in shaping space tourism regulations.
- To assess the impact of collaborative efforts on the development and sustainability of the space tourism industry.
- To understand the challenges and opportunities that arise from space

[1032] Stephan Hobe & Jürgen Cloppenburg, Towards a New Aerospace Convention ? Selected Legal Issues of "Space Tourism", 2004 Proceedings of the Forty-Seventh Colloquium on the Law of Outer Space 377.

[1033] Principles Regarding Processes and Criteria for Selection, Assignment, Training and Certification of ISS (Expedition and Visiting) Crewmembers (2002)

cooperation in a globalized space tourism market.

Some questions I would like to answer are:

q1.How do international collaborations influence space tourism regulations?

q2.What are the consequences of regulatory cooperation for the space tourism industry's growth?

q3.What challenges and opportunities emerge from the collaborative approach to space tourism regulations?

2. Statement of Problem

The rapid expansion of commercial space tourism presents a pressing problem of inadequate regulation and international cooperation. Existing space treaties were designed for state-sponsored activities, lacking provisions for private space tourism. This discrepancy raises liability, safety, and environmental concerns. The absence of a unified regulatory framework exacerbates issues related to equitable access, environmental impact, and social implications. The problem is the need for comprehensive, internationally accepted regulations that address these challenges, ensuring the safety, sustainability, and accessibility of the growing space tourism industry.

3. Literature Review

Article 1: "Cooperation in space: An international comparison for the benefit of emerging space agencies"

Author: Benjamin Adams

Published in Acta Astronautica Volume 162 2019.

This paper focuses on examining and comparing different models of international cooperation among space states. It aims to identify successful and unsuccessful approaches, with the goal of offering recommendations for emerging space agencies, such as the Australian Space Agency. The author explores various aspects of international cooperation, including the reasons behind it, legal frameworks supporting it,[1034] examples of international cooperation in space projects, international committees promoting cooperation, and even the use of international cooperation to address global space challenges.

Key claim statements and arguments in the paper are:

2. Different models of international cooperation: The author might present various models or approaches that countries have taken to collaborate on space projects, potentially including successful examples and highlighting the benefits of collaboration.

3. Legal frameworks: The paper likely delves into the legal agreements and frameworks that facilitate international cooperation in space activities, emphasizing the necessity of a proper legal structure for successful collaboration.

4. Lessons from history: The paper might draw on historical events, such as the space race between the USSR and the USA, to emphasize the importance of international cooperation over competitive approaches.

5. Challenges and benefits: There could be discussions around the challenges and benefits of international cooperation in space, weighing the costs, resources, and long-term sustainability against the potential advantages.

Article 2: "Stepping stones toward global space exploration"

Authors: M. Ansdell, P. Ehrenfreund, C. McKay

Published in Acta Astronautica Volume 68, Issues 11–12, 2011

The article proposes a stepping stone approach for international cooperation termed as "Three Stepping Stones Approach"[1035]. This approach includes three major elements:

* An international Earth-based field research program: This program serves as a global

[1034] Benjamin Adams,Cooperation in space: An international comparison for the benefit of emerging space agencies,Acta Astronautica, Volume 162,2019,
[1035] M. Ansdell, P. Ehrenfreund, C. McKay, Stepping stones toward global space exploration,Acta Astronautica,Volume 68, Issues 11–12, 2011,

INDIAN JOURNAL OF LEGAL REVIEW [IJLR – IF SCORE – 7.58]

VOLUME 4 AND ISSUE 1 OF 2024

APIS – 3920 - 0001 *(and)* ISSN - 2583-2344

Published by

Institute of Legal Education

https://iledu.in

exploration testbed, allowing established and new space actors to collaborate and gain experience for future planetary exploration missions.

* Enhanced exploitation of the International Space Station (ISS): Utilizing the ISS for exploration activities beyond low Earth orbit (LEO) can provide valuable foundations for future exploration endeavors.

* A worldwide CubeSat program: Collaboration on small, low-cost missions through CubeSats can facilitate participation from emerging space nations and developing countries in exploration activities.

Article 3: "The Role of bilateral and multilateral agreements in international space cooperation"

Authors: Yun Zhao

Published in Space Policy,Volume 36,2016

Importance of International Cooperation in Space Activities: The article asserts that international cooperation has always been a fundamental principle in space activities. It highlights the role of the United Nations in coordinating and overseeing the development of space activities through international cooperation.

Role of International Agreements: The article argues that bilateral and multilateral agreements serve as essential mechanisms for achieving international space cooperation. These agreements provide a solid legal framework for collaboration among relevant parties[1036].

Different Levels of Cooperation: The article acknowledges that space cooperation can occur at various scales. It mentions Zelnio's classification of cooperation levels, including coordination and augmentation, which show different degrees of involvement and contribution among states.

4. *Facilitating Future Agreements:* The article suggests that space technologies are becoming increasingly important for daily life, and more states are participating in space activities. It argues that international agreements play a crucial role in facilitating wider use of space technologies and encouraging cooperation among states.

4.Chapterisation

Chapter I: International Cooperation in Space Tourism

The exploration of space has long been a testament to international collaboration, rooted in the historical context of space cooperation. From the earliest days of the space race during the Cold War to today's multinational missions, the momentum for international cooperation in space exploration has continued to grow. The international community recognized the need for rules and regulations to govern space activities. This recognition paved the way for the establishment of international treaties and agreements. One of the key historical milestones in space cooperation was the signing of the Outer Space Treaty in 1967.[1037] This treaty, ratified by over 100 countries, established principles for the peaceful use of outer space and prohibited the placement of nuclear weapons in space. It laid the foundation for future cooperation in space and became a cornerstone of international space law.

Analysis of International Organizations and Their Role in Regulating Space Activities

International organizations play a pivotal role in promoting cooperation and developing regulations for space activities. The United Nations Office for Outer Space Affairs (UNOOSA), a specialized agency of the United Nations, has been at the forefront of these efforts. UNOOSA serves as a forum for diplomatic negotiations, discussions, and agreements related to space exploration. It has facilitated the development of numerous international treaties and agreements that govern space activities, including space tourism. The Committee on the Peaceful Uses of Outer Space (COPUOS) is a

[1036] Yun Zhao,The Role of bilateral and multilateral agreements in international space cooperation,Space Policy,Volume 36,2016,

[1037] Art. V, Outer Space Treaty, 1967.

INDIAN JOURNAL OF LEGAL REVIEW [IJLR – IF SCORE – 7.58]
VOLUME 4 AND ISSUE 1 OF 2024
APIS – 3920 - 0001 *(and)* ISSN - 2583-2344
Published by
Institute of Legal Education
https://iledu.in

subsidiary body of the UN General Assembly responsible for implementing international cooperation in space activities. It has been instrumental in drafting key treaties, including the Outer Space Treaty, the Liability Convention, and the Registration Convention. COPUOS also conducts in-depth discussions on various aspects of space activities, including the peaceful use of outer space and the development of guidelines and principles.

Bilateral and Multilateral Agreements Between Countries

Bilateral and multilateral agreements between countries are crucial mechanisms for fostering international cooperation in space tourism. These agreements cover a wide range of aspects, including safety standards, liability frameworks, and environmental considerations. They provide a framework for countries to collaborate in managing and regulating space activities. Some notable examples of these agreements include the Artemis Accords, an agreement signed by NASA[1038] and several international partners, which outlines principles for lunar exploration. These agreements set a precedent for future space cooperation efforts. One significant aspect of international agreements in space tourism is the coordination of launch and landing sites. As space tourism expands, countries must work together to establish suitable launch facilities and ensure the safety of space tourists. Bilateral agreements between countries help address these concerns and provide a legal framework for space tourism operations.

The Impact of the Private Sector on International Cooperation

The private sector has had a profound impact on international cooperation in space tourism. Commercial space companies, such as SpaceX, Blue Origin, and Virgin Galactic, have pushed the boundaries of space exploration and opened new opportunities for international collaboration. These companies have played a pivotal role in advancing space tourism by developing reusable launch vehicles, suborbital spaceplanes, and other technology that makes space travel more accessible. The partnership between NASA and private companies in the Commercial Crew Program and Commercial Resupply Services program is a prime example of international collaboration driven by the private sector. Private companies have become integral partners in crewed space missions to the International Space Station (ISS), offering transportation services to astronauts from various countries.[1039]

Furthermore, private space tourism companies have signed agreements with international spaceports and regulatory authorities, ensuring compliance with international standards and regulations. These partnerships highlight the importance of collaboration between governments, space agencies, and private enterprises to facilitate safe and sustainable space tourism.

International cooperation in the realm of space tourism is shaped by historical precedent, international organizations, bilateral and multilateral agreements, and the contributions of the private sector. This collaboration is vital to ensure the sustainable and safe development of the space tourism industry. As humanity embarks on its journey to become an interplanetary species, understanding the dynamics of international cooperation remains paramount for a prosperous and secure future in space.

Chapter II: Passenger Liability and Third-Party Liability

In the context of liability in space tourism, there is a pressing need for a fair global agreement on responsibility for damages. This should be

[1038] Agreement Among the Government of the United States of America, Governments of Member States of the European Space Agency, the Government of Japan, and the Government of Canada on Cooperation in the Detailed Design, Development, Operation, and Utilization of the Permanently Manned Civil Space Station, Sept. 29, 1988, in Space Law-- Basic Legal Documents, § D.II.4.2.

[1039] Agreement among the Government of Canada, Governments of Member States of the European Space Agency, the Government of Japan, the Government of the Russian Federation, and the Government of the United States of America concerning Cooperation on the Civil International Space Station, Jan. 29, 1998, in Space Law--Basic Legal Documents, § D.II.4.

INDIAN JOURNAL OF LEGAL REVIEW [IJLR – IF SCORE – 7.58]
VOLUME 4 AND ISSUE 1 OF 2024
APIS – 3920 - 0001 *(and)* ISSN - 2583-2344
Published by
Institute of Legal Education
https://iledu.in

combined with improved domestic protections and incentives to encourage private companies to contribute to the space industry. Currently, under the Liability Convention, the launching nation holds absolute liability for damages resulting from space activities. The Outer Space Treaty states that the country authorizing, licensing, or registering the space object maintains jurisdiction over it and is responsible for its operation.[1040]

It is important to differentiate between liability and responsibility. The launching state is responsible for the act of launching but is not internationally responsible for the conduct of space objects once they are in outer space, unless it relates to a 'national activity' of that launching state. The current liability structure should be reevaluated to assign liability more fairly, especially considering privately contracted companies that may have minimal connection to the launching state or the state of their incorporation but contribute to a space object causing harm. For space tourism activities modeled on spacecraft like Space Transport, liability laws depend on whether the space vehicle is still attached to the aircraft or if the two have separated. Air law provisions may apply when the aircraft is attached to the suborbital vehicle. Once separated, space law, such as the Liability Convention of 1972, may become relevant to the suborbital vehicle when it uses rocket propulsion. If the space capsule is launched by a rocket, the Liability Convention applies to both space objects. Regarding passenger liability for in-flight damages, the Montreal Convention and its two-tier liability system may come into play. It allows for unlimited liability of carriers in cases of passenger injury or death. However, limited liability may apply in cases of damages caused by delay if the carrier can demonstrate that all necessary measures were taken to prevent the damage.[1041]

The Liability Convention and Third-Party Liability

The Liability Convention, while not explicitly specifying the concept, largely deals with third-party liability. This liability arises when multiple states are involved in causing damage, and the allocation of third-party liability between them is addressed explicitly or implicitly by those states. Article VII[1042] of the Liability Convention excludes "foreign nationals participating in the launch" from its scope if they suffer damage caused by the launched space object.[1043] The Convention only covers third-party liability that has an international character. The Convention applies two types of liability. For damages occurring on Earth or to aircraft in flight, absolute liability is in effect. This means that establishing a causal link between the damage and the space object, as well as identifying the launching state, is sufficient to establish liability. Only when victims have significantly contributed to their own damage, for example, by ignoring warnings that a satellite might re-enter a certain airspace and not keeping aircraft out of the area, could the absolute nature of liability be challenged.

Liability in the Context of the International Space Station (ISS)

For the ISS, an international agreement was established in 1988 by the United States, Canada, Japan, and eleven European Space Agency (ESA) member states. This agreement was renegotiated in 1998 to include the Russian Federation, resulting in the Intergovernmental Agreement (IGA).[1044] The liability regime primarily addresses damage sustained during ISS-related activities at the state-to-state level. It also contains provisions to ensure that space agencies, contractors, and sub-contractors adhere to the liability regime. The liability regime includes a cross-waiver of liability among all states, their agencies, contractors,

[1040] *Supra* Note.14.
[1041] *Supra* Note.13.
[1042] Liability Convention, art. VII
[1043] Outer Space Treaty, art. VII reads in full: "Each State Party to the Treaty that launches or procures the launching of an object into outer space, including the Moon and other celestial bodies, and each State Party from whose territory or facility an object is launched, is internationally liable for damage to another State Party to the Treaty or to its natural or juridical persons by such object or its component parts on the Earth, in air space or in outer space, including the Moon and other celestial bodies."
[1044] Liability Convention, art. V (2).

INDIAN JOURNAL OF LEGAL REVIEW [IJLR – IF SCORE – 7.58]
VOLUME 4 AND ISSUE 1 OF 2024
APIS – 3920 - 0001 *(and)* ISSN - 2583-2344
Published by
Institute of Legal Education
https://iledu.in

and sub-contractors involved in the space station's development, construction, launch, and operation.[1045]

Importantly, there are no provisions for personal liability in the context of ISS activities. Astronauts, cosmonauts, or taikonauts who have ventured into outer space are highly-trained employees of governmental space agencies. Their presence in space is primarily for professional reasons, and issues related to their potential liability are managed within the scope of their professional work.[1046]

The Need for Clear International Space Tourism Laws

As discussed earlier in this paper, there are gaps in the global legal framework related to space activities, which require effective and comprehensive laws to address. While there are established rules governing space activities, there is currently no uniform law or set of standards specifically designed for space tourism. Given that space tourism is an emerging commercial activity, it is crucial to establish international regulations.[1047] These regulations should cover essential aspects such as permitting, authorization, and supervision of space objects, training and licensing of prospective tourists, and, most importantly, addressing liability issues.[1048]

Chapter III: Space Tourism in India

India's space activities have been advancing rapidly, even in the absence of specific space legislation. The Indian Space Research Organization (ISRO) has effectively managed space-related activities. The launch of Chandrayan-I marked a significant milestone in India's space endeavors. Space tourism in India has generated considerable excitement and allure at an early stage. A substantial number of prospective space travelers have expressed keen interest in space exploration, evident by the registrations for India's inaugural space flight, "Virgin Galactic."[1049]

With the space tourism industry preparing for launch within the next two years, accredited space travel agents are gearing up to introduce the wonder of space to potential tourists. Richard Branson's Virgin Galactic, a global commercial space tourism company, has entered the Indian market with the aim of attracting Indian space enthusiasts. Virgin Galactic has established its office in New Delhi and will facilitate ticket bookings for Indian space tourists.

The spaceship's launch will occur at an altitude of 50,000 feet above the Earth, and upon release from the mother ship, it will follow a vertical trajectory at three times the speed of sound. Carolyn Wincer, head of astronaut sales at Virgin Galactic, reported that nearly 300 people, including four Indians, have purchased tickets for space travel. Santhosh George Kulangara, based in the United States, became the first Indian to book a space ticket during the inaugural year of this adventurous endeavor. Officials from the Aviation Ministry have extended best wishes to Virgin Galactic, expressing confidence that the growing disposable income among Indians will encourage many to venture into space. The adventurous spirit of Indians is expected to receive a boost by participating in commercial space travel, further promoting space-related commercial activities in India.[1050]

Requirements for Space Tourism Activities in India

Certain fundamental requirements apply to a qualified space system, and these are equally applicable to India's space tourism infrastructure. These requirements include:

1. Meeting the expectations of space tourists, primarily providing opportunities for Earth observation and experiencing weightlessness. The vehicle design

[1045] *Supra* Note.18.
[1046] Liability Convention, art. III.
[1047] *Supra* Note.14.
[1048] *Supra* Note.18.
[1049] *Supra* Note.14.
[1050] *Supra* Note.13.

should include an adequate number of windows and interior space for passengers to move around.

2. Favorable orbits with high inclinations that cover a substantial portion of the Earth's surface.
3. Maintaining acceleration levels below 3G due to medical considerations.
4. Restricting space tours to several hours to minimize the risk of space sickness. Although there is no specific time limit for when space sickness occurs, it is known that during the initial hours of space flight, the incidence of space sickness is relatively low.
5. Incorporating a space camp before each space flight to provide technical information, health monitoring, and professional space training. This enhances the sense of becoming a "real astronaut" and significantly impacts customer satisfaction.
6. Implementing appropriate procedures for assessing the health conditions of space tourists, as some may be disqualified from space flights for medical reasons.
7. Ensuring affordable ticket prices to meet market demand. Market surveys indicate that ticket prices of $50,000 or less will generate sufficient demand.

In addition to infrastructure, licensing and authorization of space objects and individuals are crucial aspects that require attention. The government should take the initiative to provide proper training for prospective space tourists and conduct awareness programs. Countries like the United States already have various national policies governing the authorization and supervision of space objects and individuals. State liability is another significant aspect to consider. For state-level policies related to liability in the International Space Station (ISS)[1051], the Intergovernmental Agreement, adopted by different nations in 1998, has proven to be effective. To promote state activities, especially commercial activities, in a country like India, joining such an agreement would be efficient.[1052]

One of the greatest challenges for India is securing funds to meet the above-mentioned requirements. To address this challenge, it is essential to establish an effective and enforceable national space policy.

Need for Domestic Regulations in India

The administration of space exercises in India falls beneath the in general obligation of the Space Commission (SC), which defines rules and arrangements to advance the improvement and application of space science and innovation. There's an quick require for a codified National Space Policy (NSP) to supply more centered and clever direction. Space has ended up an field utilized by various countries, consortia, businesses, and business visionaries, and it works past the limits of national borders. The NSP ought to concentrate on the commercial abuse of different potential space commerce exercises, counting space fabricating, space assets utilization, space trade parks, obsequious and space exchange administrations, travel and excitement (space tourism), investigate and improvement in space, space transportation, space framework, space utilities, space sun powered control, and more.[1053]

The foundation of a national space arrangement or directions would offer assistance extend the residential advertise for space tourism, upheld by the protections industry in India

5. Conclusion

As private space tourism becomes more of a tangible reality and less of a futuristic dream,

[1051] *Supra* Note.18.
[1052] Roger D. Launius & Dennis R. Jenkins, Is it Finally Time for Space Tourism? 4 Astropolitics 253, 255 (2006).
[1053] Dr. Frans G. Von Der Dunk, "Passing The Buck to Rogers: International Liability Issues In Private Spaceflight", 86 Neb. L. Rev. (2007), p.400.

the need to adapt international and domestic laws to the needs of the space tourism industry becomes increasingly important. clear. An important aspect is the establishment of a coherent legal framework to provide recourse for those who may be injured in space. Space debris, largely resulting from government space activities, poses a real threat to those participating in spaceflight. These individuals must have legal recourse to seek redress and hold responsible parties accountable. Revising this policy is urgent for many reasons. First, the world faces increasing challenges such as unemployment, economic stagnation, climate change, educational and cultural decline, resource conflicts, and threats to freedom. by civil. To achieve the necessary progress, cooperation between civil aviation and civil space stakeholders is essential. In the Indian context, the first step to take is to raise public awareness about the importance of space tourism, not just for entertainment purposes but also for the future benefit of the country.[1054] Given India's current economic situation, direct space tourism activities may not be feasible in the short term. However, creating "space parks" where visitors can experience the feeling of space on Earth could generate interest and support. Over time, as people become more involved in these initiatives, they may gradually express interest in actual spaceflight, taking into account a variety of factors. Such initiatives can bring long-term benefits to the entire country. In conclusion, India should develop a separate policy or regulation to promote and regulate space tourism, recognizing its importance and potential impact on the country's future. This will help India adapt to the changing landscape of space exploration and ensure its active participation in the emerging space tourism industry.

[1054] The major other examples of treaties specifically imposing state liability, also in cases of essentially private activities, concern a handful of international agreements on dealing with nuclear and oil pollution, such as the Convention on Third Party Liability in the Field of Nuclear Energy, July 29, 1960, 956 U.N.T.S. 251; Convention on the Liability of Operators of Nuclear Ships, Brussels, done 25 July 1962, not yet entered into force; 57 A.J.I.L. 268 (1963); Vienna Convention on Civil Liability for Nuclear Damage, May 21, 1963, 1063 U.N.T.S. 265; International Convention on Civil Liability for Oil Pollution Damage, Nov. 29, 1969, 973 U.N.T.S. 3; and International Convention on the Establishment of an International Fund for Compensation for Oil Pollution Damage, Dec. 18, 1971, 1110 U.N.T.S. 5.