

Charting the Cosmos: Navigating Outer Space Property Rights

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Abstract- In the wake of the historic Space Race between the USA and USSR, human aspirations turned towards the cosmos, envisioning colonies, mining ventures, and commercial enterprises beyond Earth. However, legal frameworks, particularly the Outer Space Treaty, pose significant obstacles by prohibiting the appropriation of celestial bodies. Furthermore, the treaty lacks enforceability among signatories. In response, this study proposes an alternative legislation to supplant the Outer Space Treaty, addressing its deficiencies such as the absence of sovereignty and the hindrance to commercialization. This new legal framework aims to provide a comprehensive solution for the governance of outer space activities, facilitating the exploration and utilization of extraterrestrial resources while ensuring equitable and sustainable practices.

Keywords: alternative legislation, commercialization, enforceability, exploration, governance utilization, sustainable development, space race.

INTRODUCTION

The Space Revolution that began in the 1950s, fueled by the competition between the U.S. and USSR, has ignited the imagination of many, leading to dreams of human civilization beyond Earth. From Arthur Clarke's visions of Moon colonies to Elon Musk's ambitions for Mars, space exploration has captured the attention of visionaries worldwide. Despite significant advancements, the legal recognition of rights in outer space remains unresolved.¹

Space is rich in valuable resources², making it an attractive prospect for entrepreneurs and governments alike. Harvesting these resources from space could

offer cost-efficient alternatives to acquiring them on Earth, attracting investments from companies like Google and Moon Express. Technological advancements, exemplified by SpaceX's Falcon launcher, promise to reduce the cost of space transportation significantly. However, realizing these ambitions and utilizing space resources for the betterment of humanity hinges upon establishing a robust legal framework. While the Outer Space Treaty currently governs space laws, it lacks the effectiveness needed to bind signatory nations and fully recognize rights in space. This paper seeks to address two critical questions arising from this issue³

- How does the Outer Space Treaty govern extra-terrestrial property rights?
- What measures can be taken to recognize the extra-terrestrial property rights effectively?

THE OUTER SPACE TREATY AND ITS STAND

The Space Revolution that unfolded in the 1950s, spurred by the intense rivalry between the United States and the Soviet Union, has ignited a profound sense of wonder and ambition among enthusiasts worldwide. This era marked the beginning of humanity's journey beyond the confines of Earth, with visions ranging from Arthur Clarke's speculative Moon colonies to Elon Musk's fervent quest for Martian colonization. These aspirations have set the stage for what many believe will be the next great leap in human civilization.

Despite the remarkable progress made in space exploration and technology, the legal framework

¹ Mathew S. Williams, Space Aeg Prophet: How Much Did Arthur C. Clarke Get Right?, INTERESTING ENGINEERING (Oct. 22, 2022, 04:45 PM), <https://interestingengineering.com/culture/space-age-prophet-how-much-did-arthur-c-clarke-get-right>

² Rand Simberg, Property Rights in Space, THE NEW ATLANTIS, (Oct. 2, 202, 05:01 PM),

<https://www.thenewatlantis.com/publications/property-rights-in-space>

³ Justin Davenport, SpaceX Falcon 9 launches Starlink Group 4-31 from Vandenberg. NASA SPACEFLIGHT (Oct. 27, 2022) <https://www.nasaspaceflight.com/2022/10/starlink-4-31/>

governing outer space remains fragmented and incomplete. The absence of clear legal rights and regulations poses a significant obstacle to the realization of ambitious ventures beyond our planet's atmosphere.

One of the primary driving forces behind the interest in space exploration is the abundant availability of valuable resources. From rare minerals to precious metals, the vast expanse of space presents an enticing opportunity for both private companies and governmental agencies to pursue economic gain. The prospect of extracting these resources from celestial bodies, where they may be more plentiful and accessible, holds the promise of revolutionizing various industries on Earth.

Companies such as Google and Moon Express have already expressed keen interest in investing in space mining ventures, recognizing the potential for substantial returns on investment. However, the legal ambiguity surrounding property rights and resource ownership in outer space presents a significant barrier to the full-scale development of such initiatives.

Technological advancements play a crucial role in enabling space exploration and resource utilization. SpaceX, founded by Elon Musk, has emerged as a pioneering force in the space industry, with its innovative technologies and ambitious goals. The introduction of the SpaceX Falcon launcher represents a significant milestone in reducing the cost of space transportation, making it more accessible and economically viable for various missions.

The Falcon launcher's ability to deliver payloads to low-Earth orbit at a fraction of the cost compared to previous methods has opened up new possibilities for space exploration and commerce. With the prospect of sending personnel into space at a significantly lower cost, the barriers to entry for space-based activities are steadily diminishing.

Despite these advancements, the legal landscape governing outer space activities remains inadequate. The United Nations' Outer Space Treaty, while serving as the foundational framework for space law, falls short in addressing critical issues such as property rights and commercialization. Moreover, its lack of

enforceability among signatory nations undermines its effectiveness in regulating space activities.⁴

In light of these challenges, there is a pressing need for more robust and comprehensive legislation to govern outer space. Such legislation should address key concerns such as sovereignty, property rights, and commercial exploitation while providing a clear framework for international cooperation and dispute resolution.

In conclusion, the aspirations and technological advancements driving humanity's exploration of outer space hold immense promise for the future. However, realizing this potential requires the establishment of a clear and effective legal framework that addresses the complexities and challenges inherent in space exploration and resource utilization. Only through concerted international efforts can we unlock the full potential of humanity's journey into the cosmos.

LITERATURE REVIEW

The exploration of extraterrestrial property rights and the legal framework surrounding them represents a relatively understudied area within academic literature. However, scholars have begun to address this complex and multifaceted issue, often drawing upon theoretical frameworks to analyze and critique existing legal instruments such as the Outer Space Treaty.

One key aspect that scholars frequently examine is the Outer Space Treaty's legal authority and its implications for extraterrestrial property rights. Scholars like Virgiliu Pop and Frans von der Dunk have delved into the treaty's provisions and its significance in establishing the foundational principles of space law. They emphasize its role in prohibiting the national appropriation of celestial bodies and affirming space as the province of all humankind. Despite its importance, scholars have also highlighted shortcomings within the treaty, particularly regarding its lack of enforceability⁵.

The concept of sovereignty, as identified by the author, is a central theme in discussions surrounding the effectiveness of the Outer Space Treaty. Legal

⁴ 6 Sovereignty, LEGAL INFORMATION INSTITUTE, <https://www.law.cornell.edu/wex/sovereignty> 7.J N.

Hooker, Moral Implications of Rational Choice Theories, TEPPER SCHOOL OF BUSINESS,
⁵ IBID

scholars such as Joanne Irene Gabrynowicz have explored the implications of sovereignty—or the lack thereof—in the context of space law. They argue that the absence of a sovereign authority capable of enforcing compliance with the treaty poses significant challenges to its efficacy. Without a mechanism for enforcement, the treaty's provisions may be difficult to uphold, particularly in cases where nations prioritize their own interests over collective obligations.

In addition to sovereignty, scholars often employ economic theories to analyze the motivations behind state behavior in relation to space law. The theory of rational self-interest, as mentioned by the author, has been applied by researchers like Steven Freeland to assess the actions of states in the context of space exploration and exploitation. By understanding states' pursuit of their economic interests, scholars aim to elucidate potential challenges to the implementation and enforcement of international agreements such as the Outer Space Treaty⁶.

While the literature on extraterrestrial property rights and the Outer Space Treaty is still evolving, these theoretical perspectives offer valuable insights into the complexities of governing human activities in space. Moving forward, further interdisciplinary research and analysis will be crucial for addressing the legal and practical challenges associated with the utilization of extraterrestrial resources and the establishment of property rights beyond Earth.

COMMERCIAL SPACE LAUNCH COMPETITIVENESS ACT OF 2015

A glaring illustration of the Outer Space Treaty's inability to effectively constrain signatory nations arose with the enactment of the USA's Commercial Space Launch Competitiveness Act (CPLC Act) in 2015, more commonly known as the Space Act of 2015. This legislation grants U.S. citizens the freedom to engage in commercial exploration and utilization of outer space resources.

While the CPLC Act explicitly prohibits the assertion of sovereignty over extraterrestrial properties, its

underlying goal of facilitating the utilization of space resources has been perceived as a de facto assertion of sovereignty. The primary aims of the Act include fostering private sector space exploration and resource utilization, as well as providing spaceflight companies with the autonomy to conduct their operations without undue governmental intervention⁷.

The enactment of the CPLC Act exemplifies a significant failure of the Outer Space Treaty to effectively constrain one of its major signatory nations. By crafting legislation that enables its citizens to fully exploit space resources, the United States has effectively challenged the constraints imposed by the treaty. This development underscores the author's contention that the Outer Space Treaty lacks provisions for addressing sovereignty issues and lacks mechanisms for enforcement or providing incentives to deter nations from asserting sovereignty over extraterrestrial property⁸.

EFFECTIVE RECOGNITION OF THE OUTER SPACE PROPERTY RIGHTS AND ITS BENEFITS

The pressing need for effective recognition of outer-space property rights has become increasingly apparent. However, addressing this issue requires a careful examination of why many believe such recognition to be an insurmountable challenge.

One commonly held assumption, as articulated by space-law analyst Leslie I. Tennen, is that national governments would only acknowledge property claims made by their own citizens or legal entities. Tennen argues that recognition of property rights by a state could be perceived as

de facto national appropriation, effectively excluding other states and their citizens from accessing extraterrestrial resources.

Another concern is the potential for national governments to resort to physical force to defend these property claims, undermining the principles of peaceful cooperation espoused by space law., contradicting the spirit of cooperation promoted by treaties like the Outer Space Treaty.⁹

However, what if governments were to adopt a more

⁶ 8US.. Commercial Space Launch Competitiveness Act Public Law 114-90

⁷ Supra note 6

⁸ Leslie I. Tennen, OUTER SPACE: PRESERVE FOR AL HUMANITY, HJIL, 145, (Oct. 28, 202 07:54 PM) <http://www.hjil.org/articles/hjil-2-1-tennen.pdf>

⁹ Supra note 6

inclusive approach to property rights recognition, irrespective of citizenship or country of origin? This is precisely the proposal put forth by the New York-based Space Settlement Institute through its Space Settlement Prize Act. This proposed legislation would require governments to recognize and support land ownership claims of any private entity that establishes a permanently inhabited settlement on the Moon, Mars, or an asteroid, with regular transportation between the settlement and Earth available to paying passengers.

By adopting this approach, the problem of the Outer Space Treaty's prohibition on "national appropriation" could be effectively addressed. Under this system, a corporation from any country could establish and occupy a settlement on celestial bodies without explicitly asserting national ownership. Instead, the national government would formally recognize the corporation's legal ownership rights over its settled lunar land, thereby avoiding any violation of the ban on national appropriation.¹⁰

This proposal not only resolves the issue of sovereignty by preventing privately owned space settlements from falling under the control of terrestrial governments but also addresses economic concerns. By providing certainty regarding property rights, individuals and businesses investing in space exploration and settlement can secure their investments. Moreover, the proposed law would prohibit discrimination against property claims based on nationality while imposing obligations on property owners to ensure fair access to their property for citizens of all nations.

In essence, adopting such a legal framework would not only pave the way for the recognition of outer-space property rights but also promote peaceful cooperation and equitable access to extraterrestrial resources, aligning with the overarching goals of international space law.

CRITICISMS AND PROBLEMS

The prospect of achieving universal recognition of property rights in space is fraught with challenges,

primarily stemming from diverse ideological viewpoints.

Firstly, environmental concerns loom large. Many environmentalists are wary of human settlement and development in space, fearing it may lead to the exploitation or contamination of celestial bodies. This could ignite debates over the trade-offs between economic growth and environmental preservation.

Secondly, political concerns abound¹¹, particularly regarding diplomacy. Introducing legislation to establish space property rights may strain international relations, as some nations may perceive it as favoring commercial interests over the principle of shared global resources. This could lead to discontent among treaty signatories and potential diplomatic tensions.¹²

Thirdly, economic and fiscal considerations pose significant hurdles. Recognizing space property rights would entail substantial investment to bolster space budgets and defend these claims. Estimating the financial implications is complex, given budgetary constraints, and could impact foreign economic relations through trade sanctions or diplomatic fallout. Additionally, investing in fundamental space technologies is essential for achieving the objectives of such legislation, further straining national governments already facing economic constraints¹³.

In essence, while the concept of universal recognition of space property rights holds promise, navigating the environmental, political, and economic challenges it presents will require careful deliberation and strategic planning.

CONCLUSION

The author contends that the emergence of new, cost-effective spaceflight technologies is paving the way for widespread private activity in space. However, this trajectory towards space exploration and utilization confronts a regulatory framework anchored in the Outer Space Treaty, a document perceived by some as outdated in the context of contemporary space endeavors. If humanity is to fully capitalize on the potential of space as a new frontier for habitation and development, rather than merely preserving it as a

¹⁰ US.. Commercial Space Launch Competitiveness Act Public Law

¹¹ Supra Note 2

¹² IBID

¹³ Richard Tangum, Future Space Development Scenarios: Environmental Considerations, SPACE NSS (Oct. 72 202 08:41 PM) <https://environment.html>

scientific domain, there arises a pressing need to reassess and potentially overhaul this foundational treaty.

The Outer Space Treaty, signed in 1967 during a period dominated by Cold War dynamics and primarily focused on preventing the militarization of space, may not adequately address the complexities of modern space activities. As private entities and nations alike set their sights on space as a realm ripe for exploration, resource extraction, and even colonization, the limitations imposed by the treaty become increasingly apparent. It's evident that the current legal framework does not align with the ambitions of stakeholders seeking to expand human presence beyond Earth.

One organization, the Space Settlement Institute, has proposed legislation aimed at catalyzing the establishment of property rights in space. While the approach advocated by this institute may seem overly aggressive to some, it nonetheless highlights the necessity of addressing the legal vacuum surrounding space property rights. By gradually extending property rights to lunar samples and artificial satellites, without inciting significant political backlash, a pathway towards more comprehensive space governance can be forged.

However, implementing such legislation requires a delicate balance between promoting private enterprise and ensuring equitable access to space resources. Any efforts to revise or replace the Outer Space Treaty must consider the diverse interests of stakeholders, including nations, corporations, and advocacy groups. Moreover, the new legal framework must address not only property rights but also environmental sustainability, equitable resource allocation, and the prevention of conflict in space¹⁴.

Critics argue that simply reinterpreting existing treaties may not suffice in addressing the multifaceted challenges posed by the burgeoning space industry. Instead, a holistic reevaluation of space governance is

imperative. This entails crafting new agreements that reflect the evolving landscape of space exploration while safeguarding the common interests of humanity. By fostering dialogue and collaboration among stakeholders, including governments, industry leaders, and civil society, a more robust legal framework for space activities can be established. Such a framework should facilitate innovation and investment in space while upholding principles of fairness, transparency, and sustainability.¹⁵ In conclusion, the increasing accessibility of space presents both opportunities and challenges for humanity. To fully harness the potential of space as a frontier for exploration and habitation, it is essential to reexamine and update existing space treaties. While this process may be complex and contentious, it is crucial for ensuring that space remains a domain of cooperation, progress for generations to come.

¹⁴ Julia Replogle, Politics of a Moon Colony, DEEP SPACE, (Oct. 27 2022 09:41 PM) https://www.deepspace.ucsb.edu/wp-content/uploads/2020/05/06_Politics-of-a-Moon-Colony-JVedit.pdf

¹⁵ 6 Dastagiri MB.. The Theory and Economies of MARS and MOON Colonization: Steps and Policy Advocacy, UE JOURNAL (Oct. 27 2022 10:13 PM)

<https://www.google.com/url?sa=1&rctj&q=&esrc=s&source-web&cd=&ved=2ahUKEwjatrmM14r7AhVj=jgGHX8QD3wQFnoECAsQAQ&url=https%3A%2F%2Ffejjournal.org%2Findex.php%2Fesj%2Farticle%2Fview%2F10056%2F9546&usg=AOvVaw181LXd19rLeZ5XYhavtDRU>