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SPACE LAW AND THE FUTURE OF PUBLIC INTEREST

*Mclee Kerolle**

INTRODUCTION

On April 10, 2013, the Obama Administration released its proposed budget for 2014 with initial reviews showing that there would be a \$200 million cut for NASA's planetary exploration program.¹ Critics against the cut, such as Planetary Society CEO Bill Nye, have spoken out about the crippling effect the cuts will have on future missions and the cuts potential to reverse a decade's worth of investment building the world's premier exploration program.² On the other hand, proponents of the budget have praised it for its approval of \$105 million for a mission to capture an asteroid so that it can be explored by 2015, as well as its funding for ongoing human spaceflight and support for private space taxis that could launch astronauts to and from the International Space Station.³ Irrespective of the divisions the budget proposal has caused among those in the space industry, one thing is for certain: the space industry is going through a resurgence. Not since the Space Race has there been more of a reason for people to be excited about what lies ahead. Rightfully so, considering that despite budget cuts and perceived setbacks from the public (such as the retirement of NASA's space shuttle program in 2011) the space industry is now a \$250 billion per year global market.⁴

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¹ Bill Nye, *Bad Budget News for NASA's Planetary Exploration*, THE PLANETARY

SOCIETY (Apr. 12, 2013, 12:01), <http://www.planetary.org/blogs/bill-nye/live-nasa-budget-webcast.html>.

² *Id.*

³ David Weaver, *NASA Administrator Bolden's Statement on the NASA FY 2014 Budget Request*, NASA.GOV (Apr. 12, 2013), http://www.nasa.gov/home/hqnews/2013/apr/HQ_13-104_Bolden_FY14_Budget_Statement.html.

⁴ *Why Space, Cyber, and Telecommunications Law?*, UNIVERSITY OF NEBRASKA-LINCOLN: SPACE, CYBER, AND TELECOMMUNICATIONS LAW (Apr. 12, 2013),

Now with what Jeffrey Kluger, a senior Time magazine writer, calls a “handful of the world’s most daring entrepreneurs”⁵ picking up where the space shuttle program left off and transporting cargo and astronauts into space, the space industry is looking to grow rapidly in what is poised to become the Second Space Race. However, unlike the Space Race of the 60s & 70s, the Second Space Race will be less about government space programs and more about the private space industry actors. With more private actors entering the space industry, more opportunities are becoming available for lawyers specializing in space exploration. While space law as a field of law is still in its infancy, the concept of a space lawyer isn’t new. Space lawyers, and space law for that matter, have been at the center of satellite issues for some time. Because satellites handle television transmissions, GPS signals, and other projects for commercial, military, and government clients, several binding international treaties such as the 1972 Convention on International Liability for Damage Caused By Space Objects⁶ and the 1967 Outer Space Treaty⁷ have been used to “address liability and risk concerns over satellites...regarding fault for either non-functioning satellites or people or property on the ground” injured or damaged by falling satellites.⁸ Current issues that will need to be faced by the space law community include commercial human spaceflight, space debris, export control reform, and flags of convenience.⁹ Other issues such as property rights to outer space resources will grow in importance as the commercial spaceflight industry matures.¹⁰

To anticipate the challenges and the industry growth that the space community will have to face in the Second Space Race, space lawyers will have to adapt to the new space paradigm in order to form new policy and laws. Part I of this article provides an overview and analysis of the current international legal regime regulating space activities. Part II examines contemporary challenges to the most fundamental principles of space law,

<http://spaceandtelecomlaw.unl.edu/why.shtml>.

⁵ Some of these daring entrepreneurs include: Elon Musk, the inventor of PayPal and the owner of California-based Space Exploration Technologies Corp. (SpaceX); Jeff Bezos, founder of Amazon.com and owner of Blue Origin (an aerospace research and development company working on spacecraft and launch systems); and Sir Richard Branson, founder of Virgin Airlines and its new division Virgin Galactic which plans to provide sub-orbital spaceflights to space tourists). Jeffrey Kluger, *Capitalists Over the Moon*, TIME: NEW SPACE DISCOVERIES, Jan. 1, 2012, at 78-85.

⁶ Neal Ungerleider, *Space Lawyers: They Exist*, FAST COMPANY (Feb. 25, 2013), <http://www.fastcompany.com/3000243/space-lawyers-they-exist>.

⁷ *Id.*

⁸ *Id.*

⁹ Matthew J. Kleiman, *Space Law 101: An Introduction to Space Law*, ABA YOUNG LAWYER’S DIVISION, http://www.americanbar.org/groups/young_lawyers/publications/the_101_201_practice_series/space_law_101_an_introduction_to_space_law.html (last visited Feb. 25, 2013).

¹⁰ *Id.*

beginning with the scope and nature of the global public interest as established under the Outer Space Treaty and how it applies to the exploration and use of outer space.¹¹ Part III discusses private companies in the space industry, with special attention on the asteroid-mining company Planetary Resources, and problems it will pose to the current international legal regime.

I. UNDERSTANDING THE OUTER SPACE TREATY

The 1967 Outer Space Treaty establishes the basic legal framework on international space law.¹² As of March 2013, 101 countries are State parties to the treaty, while another 27 have signed the treaty but have not completed ratification.¹³ The legal principles of the Outer Space Treaty recognize the inclusive interest of the international community in what Associate Professor Ram Jakhu, of the Institute of Air and Space Law, describes as the global public interest. The global public interest is established in the Outer Space Treaty by assuring that all States have the right of free access to outer space without discrimination of any kind.¹⁴ However, in order to analyze the nature, scope, and challenges to the global public interest within the current international space regime it is important to first discuss the nature and scope of the Outer Space Treaty, since the concept and principles of a global public interest are embedded in the Treaty.

Treaty interpretation is what allows the concept of the global public interest to be read into the Outer Space Treaty. Thus, the first point to keep in mind is that the tool for interpreting the international rules of the Outer Space Treaty is the Vienna Convention on the Law of Treaties.¹⁵ When it comes to any future litigation or policy that would have to be crafted in the area of space law with reference to the Outer Space Treaty, the International Court of Justice normally applies the most authoritative and important rule of international law with regard to the interpretation of treaties, Article 31

¹¹ Ram Jakhu, *Legal Issues Relating to the Global Public Interest in Outer Space*, 32 J. SPACE L. 31, 32 (2006). While the term “global public interest” is a loosely defined term of art found in many different contexts, I will be employing it in the same fashion defined by Associate Professor Ram Jakhu in the University of Mississippi School of Law *Journal of Space Law*.

¹² The foundational instrument of the outer space legal regime is the 1967 Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies, Jan. 27, 1967, 18 U.S.T. 2410 (hereinafter Outer Space Treaty).

¹³ *Disarmament Treaties Database: Outer Space Treaty*, UNODA, http://disarmament.un.org/treaties/t/outer_space (last visited Feb. 2013).

¹⁴ Jakhu, *supra* note 11, at 32.

¹⁵ *Id.* at 34 n.4.

of the Vienna Convention.¹⁶ The Article states, “A treaty shall be interpreted in good faith in accordance with the ordinary meaning to be given to the terms of the treaty in their context and in the light of its object and purpose.”¹⁷

Additionally, if supplementary means of interpretation are needed, Article 32 provides for that by including the preparatory work of the treaty and the circumstances of the conclusion of the treaty at issue.¹⁸ Therefore, while the preamble of a treaty may be considered to have less legal force than the operative part of a treaty, it becomes extremely relevant in determining the proper and precise meaning of the provisions when the court applies Article 32.¹⁹ This is important for two reasons: 1) while the term “global public interest” is never explicitly mentioned in the Outer Space Treaty, taking a totality of circumstances approach allows for what Professor Jakhu calls the “spirit” or driving force of the Outer Space Treaty to be established; 2) an authentic interpretation of the treaty would need to be carried out by all parties because, according to the Vienna Convention, no one party to a treaty can impose its particular interpretation of the treaty open the other parties.²⁰ This provision prevents any interpretation based on national perspectives from being legally valid.²¹

However, what may be considered a loophole to this safeguard is the implied consent of the other parties to a treaty not explicitly disavowing the unilateral interpretation of a treaty.²² As I’ll discuss further, this has the potential to present the biggest challenge to the principles of space law. With the advent of companies like Planetary Resources acting in ways unique to the international law regime in a rapid resurgence of an industry, few States will be able to enter, let alone compete, in an industry at the level at which private actors now excel.

Another point to consider in regards to the nature and scope of the Outer Space Treaty is that the current international space regime is based on broad legal principles, while the Outer Space Treaty is the primary treaty of a few other important law-making treaties.²³ Therefore, a broad reading of the

¹⁶ *Id.* at 35.

¹⁷ Vienna Convention on the Law of Treaties art. 31, May 23, 1969, 1155 U.N.T.S.

331.

¹⁸ *Id.*

¹⁹ *Id.*

²⁰ Vienna Convention on the Law of Treaties, *supra* note 17.

²¹ Jakhu, *supra* note 11, at 35.

²² Vienna Convention on the Law of Treaties, *supra* note 17.

²³ Jakhu, *supra* note 11, at 32 n.3 (According to Professor Jakhu, “other important law-making treaties” include, among others: the Charter of the United Nations, 26 June 1945; Constitution and Convention of the International Telecommunication Union with Annex, 1994 and ITU Radio Regulations, Edition of 2004; Treaty Banning Nuclear Weapon Tests in the Atmosphere, in Outer Space and Under Water, 5 August 1963, 14 UST 1313, TIAS 5433, 480 UNTS 43; The Convention Relating to the Distribution of Programme-Carrying

Outer Space Treaty must take into account its object and purpose of enhancing and protecting the common interest of all mankind in the exploration and use of outer space for special purpose,²⁴ This method will ensure that the legal regime of space law is looked at through a wider lens that encompasses the totality of circumstances towards benefiting all of mankind and not just one strict view that may isolate, for instance, States without the ability to engage in space activities.

II. NATURE AND SCOPE OF THE GLOBAL PUBLIC INTEREST

Because the majority of the growth in the space industry will be a result of private companies like Planetary Resources, this article will now discuss some of the components that determine the nature and scope of the global public interest in relation to the activities of private entities and Inter-Governmental Organization (IGOs). As I mentioned earlier, the global public interest is established in the Outer Space Treaty by assuring that all States have the right of free access to outer space without discrimination of any kind. According to Edwin Rekosh, Executive Director of PILnet: The Global Network for Public Interest Law:

Public interest law does not describe a body of law or a legal field; the term was adopted to describe whom the public interest lawyers were representing, rather than what matters they would work on. Instead of representing powerful economic interests, they chose to be advocates for those living in poverty. The term has grown, however, to encompass a broader range of activities of lawyers and non-lawyers working toward civil rights, civil liberties, women's rights, consumer rights, environmental protection, and 'fighting for the little guy'—that is, representing vulnerable segments of society.²⁵

Combining Professor Jakhu's definition of global public interest with Rekosh's definition of public interest results in a stricter definition of the global public interest from the perspective of space law. Similar to the definition of public interest, the global public interest should be more focused on whom the lawyers are representing: in this case, all the people of the world. Furthermore, global public interest lawyers in the space law context should in fact represent powerful economics interests that will result from the growth happening in the space industry and be advocates for States, especially the "little States," in order to ensure that the benefits,

Signals Transmitted by Satellite, opened for signature on 21 May 1974 in Brussels; entered into force on 25 August 1979, 1144 UNTS 3; and the International Convention Concerning the Use of Broadcasting in the Cause of Peace, 23 September 1936.)

²⁴ *Id.* at 33-34.

²⁵ Olanike F. Deji, *Gender and Rural Development: Advanced studies* 66 (LIT Verlag, 2011).

access, and resources of outer space are not denied to them by either the government or the private sector. Ultimately, the scope of this article is to address how and why space law is the future of the global public interest; however, it is worth addressing (and maybe expanding in a subsequent article) that benefit corporations are probably the best structure for the global public interest to strive in the space law context.²⁶

Given that the regulatory and ethical structures continue to bind current lawyers in an outdated legal framework, one of the best strategies for global public interest lawyers in the space law context to ensure that the benefits, access, and resources of outer space are not denied to “little States” is to accommodate for-profit entities that have a social benefit purpose that is central (or may become central) to their existence. While I discuss the shift that Planetary Resources represents in the current international legal space regime in the next section, one could argue that Planetary Resources is an example of a for-profit entity that has, among its purposes, a social benefit purpose. Major characteristics of a benefit corporation include: 1) a requirement that a benefit corporation must have a corporate purpose to create a material positive impact on society and the environment; 2) an expansion of the duties of directors to require consideration of non-financial stakeholders as well as the financial interests of shareholders; and 3) an obligation to report on its overall social and environmental performance using a comprehensive, credible, independent, and transparent third-party standard.²⁷ These characteristics are why I think the structure of benefit corporations are best aligned with the scope and nature of the global public interest, especially in the context of space law.

As recognized under the Outer Space Treaty, the following components from the Treaty best determine the nature and scope of the global public interest in relation to the activities of private entities and IGOs. While there are many provisions of the Outer Space Treaty that apply, I am limiting the scope of the discussion to the particular provisions that I think best determine the nature and scope of the global public interest in relation to the activities of private entities and IGOs. Article 1, Paragraph I of the Outer Space Treaty states that “the exploration and use of outer space, including the Moon and other celestial bodies, shall be carried out for the benefit and

²⁶ Legislation establishing the benefit corporation as a new type of corporate entity has already been passed and signed into law in California, Hawaii, Illinois, Louisiana, Massachusetts, Maryland, New Jersey, New York, Pennsylvania, South Carolina, Vermont, and Virginia, and has been introduced in several other states. William H. Clark Jr., Drinker Biddle & Reath LLP & Larry Vranka, Canonchet Group LLC., *The Need And Rationale For The Benefit Corporation: Why It Is The Legal Form That Best Addresses The Needs Of Social Entrepreneurs, Investors, And, Ultimately, The Public* (2013) available at http://benefitcorp.net/storage/documents/Benefit_Corporation_White_Paper_1_18_2013.pdf.

²⁷ *Id.*

in the interests of all countries, irrespective of their degree of economic or scientific development.”²⁸ Professor Jakhu considers this the most important provision (and I agree with him) because it “initiates the principle of the global public interest” in outer space and establishes that the interests, both present and future, and benefits of all States must be taken into consideration in the exploration and use of outer space.²⁹ Thus, space activities are for the benefit and in the interests of all countries.

Article I, Paragraph 2 of the Outer Space Treaty states that “Outer space including the Moon and other celestial bodies, shall be free for exploration and use by all States without discrimination of any kind, on a basis of equality and in accordance with international law, and there shall be free access to all areas of celestial bodies.”³⁰ This provision establishes the fundamental legal principle of freedom of exploration and use of outer space by all States. This Article categorically and unambiguously denies any and all claims to national sovereignty, especially traditional territorial sovereignty to outer space and celestial bodies.³¹ However, freedom to explore and use outer space is not absolute and can be exercised only within the limitations prescribed by the law, because while Article I, Paragraph 2 of the Outer Space Treaty grants freedom of action, it also specifies that this freedom must be exercised “without discrimination of any kind,” “on a basis of equality,” and “in accordance with international law.”³²

Articles XI and XII together add what Professor Jakhu considers the duty of openness and transparency component to the nature and scope of the global public interest within the current international space law regime. Under Article XI, States are obligated to inform the UN Secretary-General as well as the public and the international scientific community, to the greatest extent feasible and practicable, of the nature, conduct, locations, and results of the of their space activities.³³ In addition, Article XII declares that each State is obligated to keep open to representatives of other States all stations, installations, equipment, and space vehicles on the Moon and other celestial bodies.³⁴ Professor Jakhu asserts that the duty of openness and transparency implies that State parties to the Outer Space Treaty have recognized the global public interest in outer space.³⁵ He cites as an example the acceptance of reconnaissance satellites, which later developed into several other agreements that became the basis for the recognition of

²⁸ Outer Space Treaty, *supra* note 12, at art. I.

²⁹ Jakhu, *supra* note 11, at 38.

³⁰ Outer Space Treaty *supra* note 12, at art. I.

³¹ Jakhu, *supra* note 11, at 39.

³² *Id.* at 40.

³³ *Id.* at 54.

³⁴ *Id.*

³⁵ *Id.*

freedom of collection and distribution of satellite remote data as recognized in the 1986 UN Principles on Remote Sensing.³⁶

The last component I would like to discuss involves the activities of private entities and IGOs as recognized under the Outer Space Treaty. As mentioned already, space activities are now being carried out by private entities and IGOs. However, State parties to the Outer Space Treaty are internationally responsible for ensuring that the space activities of their private entities would be in accordance with the Treaty.³⁷ In addition, under Article VI, when space activities are carried out by an international organization, responsibility for compliance with the provisions of the international space regime is held both by the international organization and by the States participating in that organization.³⁸ Traditionally, the rules of general international law maintained that a State could be held responsible only if there is a “genuine link” between that State and the activity concerned. Thus, in regard to space activities of private enterprises, State responsibility is the new norm of international law.³⁹ This is why Professor Jakhu asserts that Article VI has been designed to create a universally coherent global legal regime that implements the notion there is a responsibility of all State Parties to the Outer Space Treaty, regardless of whether their space activities are carried out by public or private entities.⁴⁰

These mentioned components of the Outer Space Treaty that help define the nature and scope of the global public interest in relation to the activities of private entities in the current international space regime is not a definitive list. As I mentioned earlier, other treaties and agreements help govern the current space regime. While the Outer Space Treaty is the most determinative, there are bound to better provisions within the Treaty than the ones I mentioned and provisions in other international agreements. However, I can say that the components mentioned establish and guarantee the equal right of access to outer space for all States without discrimination of any kind; that the exploration and use of outer space benefit mankind; transparency and openness among States in regards to their space activities; and that these components, whether carried out by private entities or not, do not disregard the interests of the other States; thus encompassing a more in-depth definition of the global public interest.

In fact, with the exponential growth occurring in the space industry there has already been a call echoing the ideals of the Outer Space Treaty and the global public interest from one of the least likely States, China. The reason why China seems like the least likely candidate to call for

³⁶ *Id.*

³⁷ *Id.* at 52.

³⁸ *Id.*

³⁹ *Id.*

⁴⁰ *Id.*

international cooperation in the space regime is that China, with its own contemporary manned space program, is not a partner of the International Space Station (which in itself is seen as a concrete example of international cooperation). However, according to the director of China's Astronaut Research and Training Center, Deng Yibing, China has been pushing for international cooperation in a manned space program under the principles of mutual respect, equality, mutual benefit, transparency, and openness.⁴¹ As mentioned in this section, there are specific articles in the Outer Space Treaty that address these exact principles that China is calling for. If China and other States truly seek international cooperation, then it is worth it for these actors to re-visit the Outer Space Treaty in order to establish a true global public interest paradigm.

III. PLANETARY RESOURCES

This article will now focus special attention on the asteroid mining company Planetary Resources and its vision of bringing the natural resources of space within humanity's influence, and how the broad framework of the Outer Space Treaty must be applied to make sure the extraction of the raw resources are equitably distributed to take into account the interests of all States, even though it is a private company. Co-founded by Eric Anderson and Peter H. Diamindis, with investors including James Cameron and Google CEO Larry Page, Planetary Resources' mission is to develop low-cost robotic spacecrafts to explore resource-rich asteroids and develop the most efficient capabilities to deliver these resources directly to both space-based and terrestrial customers.⁴² To put this in perspective, not only are there about 1,500 asteroids that are as easy to get to as the surface of the moon, but a single 500-meter platinum rich asteroids contains about 174 times the yearly world output of platinum.⁴³ Furthermore, a single water-rich 500 meter wide asteroid contains 80 times more water than the largest supertanker can contain and, if converted to rocket propellant, more than 200 times the rocket fuel required to launch all the rockets ever launched in history.⁴⁴ Due to the near-infinite amount of metals and minerals located in space, Planetary Resources is looking to redefine our

⁴¹ *China Calls For International Cooperation In Manned Space Program*, Space Daily (Jun. 27, 2013), http://www.spacedaily.com/reports/China_calls_for_international_cooperation_in_manned_space_program_999.html.

⁴² *Mission*, PLANETARY RESOURCES, <http://www.planetaryresources.com/mission/> (last visited Feb. 15, 2013). Planetary Resources was formed in 2009 as Akyrd Astronautic, reorganized and reformed in 2012, and public announced in April 2012.

⁴³ *Composition*, PLANETARY RESOURCES, <http://www.planetaryresources.com/asteroids/composition/> (last visited Feb. 15, 2013).

⁴⁴ *Id.*

view of natural resources. Rightfully so, because not only is Planetary Resources constantly receiving support from high-profile investors,⁴⁵ but some have projected that their activities of extracting raw materials from non-earth resources will add trillions of dollars to the global GDP.⁴⁶

While we are still a couple years from mining the first asteroid, problems may arise because, as Marine helicopter pilot turned space lawyer Doug Griffith stated, “Outer space mining, in legal terms, is the Wild West.”⁴⁷ A major reason is that no one has truly figured out sovereignty laws for outer space and private, non-governmental exploration; thus, private corporations may be able to claim sovereignty over an asteroid, but the United States or China cannot.⁴⁸ My concern is that because a private company is extracting these resources there is not only the potential that these resources may be used for personal gain, but that they may directly or indirectly marginalize or deny access to other States, thus going against the very essence of the Outer Space Treaty and the global public interest. On Planetary Resources’ FAQ page, this is the response to “What organizations will benefit as Planetary Resources moves forward?”

Planetary Resources’ advances in low-cost spacecraft and cost-effective space technologies, as well as access to plentiful in-space resources such as water and rocket propellant, will benefit a wide range of stakeholders. Examples include government agencies such as NASA, the scientific community and universities, non-profit institutions, and the commercial spaceflight sector.⁴⁹

Not only does Planetary Resources make no reference to benefitting States nor identify the types of non-profit institutions that will benefit from their resources, they also state that one of their advantages is that they “are not constrained by federal budget cycles or the ever-changing political landscape.”⁵⁰ The best way to understand whether and how Planetary Resources can claim ownership over an asteroid is to look at the Outer Space Treaty. Some may argue that Article II of the Treaty, which states that “Outer space, including the moon and other celestial bodies, is not subject to national appropriation by claim of sovereignty, by means of use

⁴⁵ On April 16, 2013, they announced a partnership with Bechtel, one of the world’s largest engineering firms. *Bechtel Partners with Planetary Resources for Space Initiative*, PLANETARY RESOURCES (Apr. 16, 2013), <http://www.planetaryresources.com/2013/04/bechtel-partners-with-planetary-resources-for-space-initiative/>.

⁴⁶ Andrew Pulver, *James Cameron Backs Space Explorers Planetary Resources*, THE GUARDIAN (Apr. 20, 2012, 6:50 AM), <http://www.guardian.co.uk/film/2012/apr/20/james-cameron-backs-space-explorers-planetary-resources?newsfeed=true>.

⁴⁷ Ungerleider, *supra* note 6.

⁴⁸ *Id.*

⁴⁹ *FAQ*, PLANETARY RESOURCES, <http://www.planetaryresources.com/faq/> (last visited (Mar. 12, 2013)).

⁵⁰ *Id.*

or occupation, or by any other means,”⁵¹ bans all space property rights.⁵² On the other hand, citing the same provision of the Treaty, some may argue that Article II applies only to nations and thus individuals are free to claim parts of the solar system.⁵³ As I stated earlier, Article VI of the Treaty maintains that States are responsible for the space activities of private enterprises, including making sure that private entities follow the provisions of the Outer Space Treaty, yet even if States claim responsibility, a loophole still seems to exist regarding private entities’ use of space activities. Fortunately, there is at least one case we can cite for guidance.

In *Nemitz v. United States*, the plaintiff Greg Nemitz had filed a claim of ownership on asteroid 433, also known as Eros, with the online database known as the Archimedes Institutes, and had filed a California Uniform Commercial Code security interest where he named himself the debtor and creditor.⁵⁴ When NASA’s NEAR Shoemaker spacecraft landed on Eros on February 12, 2001, Nemitz claimed that the landing infringed on his private property rights and that he should be compensated for “parking” and “storage” fees which totaled twenty cents per year.⁵⁵ Nemitz estimated that every day the spacecraft remained on Eros without paying the fees, he suffered damages of \$5,000,000 because he was legally inhibited from “accessing the full value of the asteroid and proceeding with his planned developments”.⁵⁶ The case was eventually dismissed by the U.S. 9th Circuit Court of Appeals because Nemitz was unable to prove actual ownership rights since a “mere unilateral expectation is not a property interest entitled to protection.”⁵⁷ Furthermore, since there was a complete absence of any showing of a property interest in Eros, the Court did not have to answer Nemitz’s question of whether or not the Outer Space Treaty prohibited private ownership of celestial property.⁵⁸ However, if the case were permitted to continue it would probably be decided based on Article VI of the Outer Space Treaty, because it creates international responsibility of a State for their citizens. In addition, as pointed out in the *Journal of Space Law*:

[I]t would be illogical to believe that a State could authorize a private actor to act when the State itself is denied the same action.

⁵¹ Outer Space Treaty, *supra* note 12, at art. II.

⁵² Szoka & James Dunstan, *Space Law: Is Asteroid Mining Legal?*, WIRED (May 1, 2012, 11:00 AM), <http://www.wired.com/wiredscience/2012/05/opinion-asteroid-mining/>.

⁵³ *Id.*

⁵⁴ Robert Kelly, *Nemitz v. United States, A Case of First Impression: Appropriation, Private Property Rights and Space Law before the Federal Courts of the United States*, 30 J. SPACE L. 297, 297-98 (2004).

⁵⁵ *Id.* at 298.

⁵⁶ *Id.*

⁵⁷ *Id.* at 304.

⁵⁸ *Id.* at 305.

To do so would allow States to circumvent treaty obligations by delegating authority to act in unauthorized manners to non-state actors.⁵⁹

Moreover, there are already actual examples of ownership in outer space in the form of lunar samples.⁶⁰ NASA claims that the lunar samples are “a limited national resource, a future heritage, and require[s] that samples be released only for approved applications in research, education, and public display.”⁶¹ While the United States is willing to prosecute anyone thought to have improperly obtained lunar samples, NASA has exchanged approximately 300 grams of lunar material with the Soviet Union in the past.⁶² Under any definition of ownership, any entity that can claim something as an exclusive resource, control its transport and distribution, and exchange for it something of value (like other lunar samples), owns the object.⁶³ In fact, because there is a practice of Russian lunar samples being re-sold by private individuals, it establishes that “portions of a celestial body can be subject to ownership if they are removed from that celestial body, by governments or private parties, even if the celestial bodies themselves are not subject to appropriation.”⁶⁴ This sets up the most important legal precedent for all property rights in space because it allows ownership of resources extracted from celestial bodies while still being consistent with the Outer Space Treaty’s ban on appropriation.

However, while there may be some loophole for extracting resources and minerals from asteroids, this still does not explain how these resources will be distributed equitably and consistent with the global public interest. While space activities are supposed to be for the benefit and interest of all countries as pursuant to the Outer Space Treaty, there is no remedy to enforce private companies to carry out their mission in an altruistic manner. One possible strategy to enforce Article I, Paragraph I, of the Outer Space Treaty is through the Convention on International Liability for Damage Caused by space Objects, commonly known as the Liability Convention. The Liability Convention is an expansion of the Outer Space Treaty meant to protect the interests of other nations from damage caused by space activities, both on the surface of the Earth and in outer space.⁶⁵ The Liability Convention refers to damage done by “space objects,” but poorly

⁵⁹ *Id.* at 308.

⁶⁰ Szoka, *supra* note 52.

⁶¹ *Id.*

⁶² *Id.*

⁶³ *Id.*

⁶⁴ *Id.*

⁶⁵ Convention on International Liability for Damage Caused by Space Objects, Mar. 29, 1972, 24 U.S.T. 2389 (hereinafter Liability Convention).

defines what constitutes a space object.⁶⁶ However, the term “damage” is defined as the loss of life; personal injury or other impairment of health; or loss of or damage to property of States or of persons, natural or juridical; or property of international intergovernmental organizations.”⁶⁷

If the Liability Convention is not amended to explicitly include scenarios dealing with the rapid growth of the industry and what may occur from private companies denying or not equitably distributing the benefits and resources of space to other States, the articles of interpretation found in the Vienna Convention could be used to interpret “damage” as including the economic damage that may result. Furthermore, the definition of “space objects” can be interpreted to include objects extracted from space. This would not only be a safeguard against corporations like Planetary Resource, but it could enforce the idea of space law being utilized as the future vehicle of public interest by amending the Liability Convention to include explicit provisions holding States or private entities accountable for not promoting the benefit of all mankind through their space activities.

CONCLUSION

Space law should be recognized as the future of the public interest, not because it is cutting edge or because of the natural connotation space has associated with “the future,” but because treaties such as the Outer Space Treaty and the Liability Convention contain the principles of a global public interest within their language. However, the treaties need to be amended or re-interpreted to take in account the rise of private corporations within the space industry. While Planetary Resources is the first space corporation that may present the most challenges to amending the current international space regime, it certainly won’t be the last.

For instance, non-profit organization Mars One plans to establish a permanent human colony on Mars by 2023.⁶⁸ While challenges and concerns exist over the logistics of space flight and actually living on Mars, huge philosophical challenges will present themselves for the international space legal regime by the establishment of a permanent human colony. The founder’s of Mars One, Bas Lansdorp, foreshadowed my sentiment when he said, “I hope at some point the colony on Mars will declare its independence; that would mean we really are a multi-planetary species.”⁶⁹ Who exactly would Mars be declaring independence from? Earth? The Netherlands (the country of origin for Mars One)? Mars One? Considering

⁶⁶ *Id.* at art. I(d).

⁶⁷ *Id.* at art. I(a).

⁶⁸ *Roadmap*, MARS ONE, <http://www.mars-one.com/en/roadmap2023> (last visited June 27, 2013).

⁶⁹ *Moving To Mars*, Space: A Commemorative Issue, 2013, at 86.

that more than 78,000 people have registered for Mars One's selection program within 2 weeks of its launch,⁷⁰ and that 2023 is only a decade away, addressing the challenges Mars One will present in the international space legal space regime should be more of a reality than speculation. Through careful interpretation and amendment of treaties such as the Outer Space Treaty and Liability Convention to anticipate the growth in the industry by private actors, we may soon truly establish a global public interest benefiting all of mankind as opposed to a few States.

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⁷⁰ *About Mars One*, MARS ONE, <http://www.mars-one.com/en/about-mars-one/about-mars-one> (last visited June 27, 2013).