

10-6-2010

Developing the Final Frontier: Defining Private Property Rights on Celestial Bodies for the Benefit of All Mankind

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DEVELOPING THE FINAL FRONTIER: DEFINING
PRIVATE PROPERTY RIGHTS ON CELESTIAL
BODIES FOR THE BENEFIT OF ALL MANKIND

Taylor Reeves Dalton *

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*That’s no Moon. It’s a space station.*¹

I. INTRODUCTION

Alone in the Moon-Sarang Mining Base, Sam Bell and faithful companion computer GERTY spend their time monitoring

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¹ *Star Wars IV: A New Hope* (1977).

the Helium-3 mining operation on the lunar surface. Lunar Industries, who owns the lunar outpost, is the number one provider of clean energy to consumers on Earth, do to the hard work of the crew in the Moon-Sarang Mining Base. Sounds like science fiction? It is. This is the context in which the main character of the recent movie *Moon* finds himself.² But is a Moon base all that far off in the future?

NASA and other agencies have shown a growing interest in establishing a lunar outpost similar to the one presented in the movie.³ In addition, the Obama administration has announced its commitment to sending humans to Mars and landing on an asteroid.⁴ With this commitment, President Obama has signaled a change in the United States' approach to space exploration a change towards more private involvement in space development. A subtle shift away from government-run space programs is opening the door for private companies to pick up the torch of space exploration.⁵ In the 2011 NASA Fiscal Budget Overview, the agency pledges significant and sustained investment in "U.S. commercial spaceflight capabilities."⁶ Charlie Bolden, NASA Administrator, reported: "NASA will accelerate and enhance its support for the commercial spaceflight industry to make travel to low Earth orbit and beyond more accessible and more affordable."⁷ Many commentators and legislators criticize the President's move; however, they fail to recognize the growing potential for private companies to enter the game. As one supporter opines: "To put it another way, it isn't NASA's job to put humans on Mars; it's

² *Moon* (2009).

³ The movie *Moon* was screened at NASA Space Center in Houston for scientists and engineers as part of a discussion on the topic of mining Helium-3 from the Moon and creating a Moon base. See Erin McCarthy, "Questions for Duncan Jones, Director of the Film *Moon* (With Video!)," *Popular Mechanics*, available at

<http://www.popularmechanics.com/technology/gadgets/news/4313243>

⁴ Text of the President's recent speech in Florida is available at http://www.nytimes.com/2010/04/16/science/space/16nasa_text.html.

⁵ See Kenneth Chang, *Obama Plans Florida Forum to Discuss NASA's Future*, NY Times (March 8, 2010), available at <http://www.nytimes.com/2010/03/09/science/space/09nasa.html?ref=space>

("The budget also seeks to nurture the commercial space industry by turning to private companies for transportation to the International Space Station and and to invest in new technologies to make future exploration of the solar system easier and cheaper.")

⁶ NASA, Fiscal Year 2011 Budget Estimates available at http://www.nasa.gov/pdf/420990main_FY_2011_Budget_Overview_1_Feb_2010.pdf

⁷ Statement by Charlie Bolden, NASA Administrator, NASA Budget Press Conference, February 1, 2010, available at http://www.nasa.gov/pdf/420994main_2011_Budget_Administrator_Remarks.pdf

NASA's job to make it possible for the National Geographic Society, or an offshoot of the Latter-Day Saints, or an adventure tourism company, to put humans on Mars."⁸

Sustainable colonization and exploitation of the lunar surface, Mars, or near by asteroids is still decades away. However, a simple Google search can reveal many websites and organizations claiming to sell land claims on the Moon and other celestial bodies. One such organization called *The Lunar Embassy* claims to be "The largest organization of space enthusiasts worldwide, and the official founders and leader of the extraterrestrial real estate market."⁹ The Lunar Embassy offers to sell a "Lunar Deed," including the buyer's name printed on the deed, for twenty-three U.S. dollars.¹⁰ The website ensures that "All properties have a prime view onto planet Earth."¹¹ These claims to lunar property are generally viewed by space scholars and lawyers as bogus. The Ninth Circuit even affirmed a district court, which threw out a man's property claim to an asteroid that he was trying to assert against NASA and the U.S. State Department.¹² The International Institute of Space Law even issued, and recently re-issued, a statement attacking these claims as invalid and opining that claims to private property in outer space and on celestial bodies is prohibited by international law.¹³

Unfortunately, the legal regime concerning the use of the Moon and other celestial bodies is largely unsettled. First off, what counts as a celestial body is not defined in under law.¹⁴ The things that likely fall into the category of celestial bodies include planets, planetary satellites—like the Moon, astronomical objects, asteroids, comets, and stars. It seems that celestial bodies

⁸ Rand Simberg, *A Space Program for the Rest of Us*, *The New Atlantis*, Number 25, Summer 2009, pp. 3-27, available at <http://www.thenewatlantis.com/publications/a-space-program-for-the-rest-of-us>.

⁹ *Lunar Embassy World Headquarters*, available at <http://www.lunarembassy.com/>

¹⁰ *Id.*

¹¹ *Id.*

¹² See *Gregor William Nemitz v. The United States of America et al.* no. CV-N-0300599-HDM (RAM), reported in Westlaw as 2003 WL 24268455 (D. Nev.) 6 Nov. 2003; WL 3703798 (D. Nev.) 28 Jan. 2004, WL 3703805, 11 Feb. 2004; 2004 WL 3167042, 26 Ap. 2004. (*affirmed* 126 Fed. Appx. 343; 2005 US App. LEXIS 2350 (9th Cir., 7 Feb. 2005).

¹³ *Statement of the Board of Directors of the International Institute of Space Law*, International Institute of Space Law, (March 22, 2009), available at <http://www.iislweb.org/docs/Statement%20BoD.pdf>.

¹⁴ See generally FRANCIS LYALL AND PAUL B. LARSEN, *SPACE LAW: A TREATISE* 175-79 (2009 Ashgate). The International Astronomical Union (IAU) is recognized as the authority responsible for naming and categorizing celestial bodies. One famous instance of their work was when they adopted a definition of "planet" that excluded Pluto from the family of planets in our solar system. *Id.*

encompasses all extraterritorial, physical objects hurdling through outer space. Given the ensuing rise in private ventures into outer space and onto other celestial bodies in our solar system, the set of rights that will protect those private ventures should be clearly defined. However, these ambiguities that exist in the status of property rights in international space law, primarily under the widely accepted *Outer Space Treaty*,¹⁵ both in the ownership of minerals removed from the land, and ownership of the land it self. The land and the resources found within that land are what carries the value and incentive for future exploration, settlement, and ultimately exploitation. Private enterprises often claim that the ambiguity regarding the status of property rights on celestial bodies is a major barrier to commercial development. Commercial development requires large amounts of financing, and the ambiguities prevent effective financing and deprives them of assurance that their investments will be protected. There is also a risk that private actors bring resources back to Earth from the Moon or other celestial bodies will be faced with confiscation of the material.¹⁶

Resolving the status of property rights on other celestial bodies is a complicated one. This Paper focuses on the issues related to territorial property rights on celestial bodies. There are many types of property rights that are involved with commercial development in outer space. For instance, orbital rights, intellectual property rights and commercial transactions are other areas in which the law regarding property rights in space need to be developed.¹⁷ Most current activities in space occur in Earth orbit. Ventures like Richard Branson's Virgin Galactic that are currently concerned with suborbital human flights for space tourism, are not concerned with territorial property rights on let say the moon. Industries that would be interested in territorial property rights are those that plan to land on celestial bodies and establish a permanent presence on that body. These companies would include lunar hotels, mining ventures, manufacturers and energy producers—similar to the fictitious company in the movie *Moon*. These types of companies face far more hurdles to viability than

¹⁵ See discussion *infra* at Part II.A.

¹⁶ Authors describe a scenario where a company contemplated landing returning space vehicles from the Moon in Australia. The company backed off after discovering that Australia was a signatory to the *Moon Treaty* and feared that Australian authorities might confiscate any material brought back to Earth under a “common heritage” argument.” Henry R. Hertzfeld and Frans G. von der Dunk, *Bringing Space law into the Commercial World: Property Rights without Sovereignty*, 6 CHI. J. INT’L L. 81, 92 (2005-2006).

¹⁷ See generally Henry R. Hertzfeld and Frans G. von der Dunk, *Bringing Space law into the Commercial World: Property Rights without Sovereignty*, 6 CHI. J. INT’L L. 81, 92 (2005-2006).

private property rights in celestial territory; nonetheless, once these companies do become viable, these issues will need to have been sorted out.

Outer space and all the resource contained within it, besides those on Earth, have been proclaimed as having value to all of humanity. All the international agreements and proclamations have this theme. This desire thus underlies the basis for all space law and serves the overarching principle. Some claim that this principle precludes the private property rights in space, because they are inconsistent with the good of community, but this is not so. Private property rights incentivize innovation and productive use, that will in turn benefit society as a whole. Private rights allow for individual efforts to flourish. Nonetheless, the overarching principle of shared benefit must somehow influence the manner and extent to which private property rights are exercised.

There is substantial disagreement over whether private property rights are permissible under the current space law regime or whether they should be recognized at all. Alan Wasser proposes that private property rights are permissible under the current regime even though state sovereignty over land on celestial bodies is prohibited. Thomas Gangale firmly repudiates Wasser's claims and points to the lack of national sovereignty as fatal to any claim of private property rights on celestial bodies. And Wayne White proposes a theory of "functional" property rights.

Although there is a convincing argument that the current *Outer Space Treaty* allows for limited, "functional" private property rights, expressing them in an international treaty is best to ensure security for developing private ventures. This paper proposes a middle ground between the advocates for private property and those that wish to keep outer space and celestial bodies the common heritage of mankind. This middle way proposes the recognition and protection of private property rights; however, these private property rights would be intrinsically limited by a social-obligation norm that would comport with the "common heritage of mankind" goals enshrined in current space law. Internal social-obligation norms exist in legal systems around the globe and serve as a way to balance individual property rights with the good of society.¹⁸ This is a different mode of property theory, which diverges from the Blackstonian view of ownership that holds out the owner as king.¹⁹

¹⁸ The South African Constitution is a prime example.

¹⁹ "Sole and despotic dominion which one man claims and exercises over the external things of the world, in total exclusion of the right of any other individual in the universe." Blackstone.

Defining private property rights on celestial bodies with an inherent social obligation norm will allow us to characterize celestial bodies as *terra nullius*, incentivizing a race to develop and acquire resources, while preserving the essential aspects of the *terra communis* aspirations enshrined in most of space law. The social obligation norm will accomplish this feat by internalizing the external costs to the community, namely wasteful uses and undesirable consumption. The ability to force actors on celestial bodies to internalize the undesirable externalities to the community will bridge the divide between the two opposing camps and provide a robust framework of celestial property rights on which to build.

Part II of this paper will lay out the current legal regime governing activities and property right in outer space and on other celestial bodies. In so doing, the relevant treaty provisions will be presented and analyzed. Next in Part III, this paper will presented various argues for and against private property rights based on the current outer space legal regime, concluding with an assessment of the debate as a whole. Part IV will then look to the two terrestrial legal regimes that deal with extraterritorial property that are most often used as viable analogies for space law reform. Each analogy will be critique and the inadequacies of each regime will be highlighted. Finally in Part V, this paper will advocate for the creation of a new space law treaty, namely a “Property Treaty” that specifically deals with the issue of property rights. This proposed treaty will provide for the substance of outer space property rights which should include a social-obligation norm to best comport with the general common heritage of mankind doctrines found through the outer space legal regime.

II. THE OUTER SPACE LEGAL REGIME: RELEVANT TREATY PROVISIONS

The legal regime governing activities in outer space is made up of a number of treaties. The two most relevant treaties dealing with property right in outer space and on celestial bodies, like the Moon and Mars, are the *Outer Space Treaty* and the *Moon Treaty*.

A. *Outer Space Treaty*

The *Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies*, or *Outer Space Treaty*,²⁰ serves as the

²⁰ *Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies*, (1968) 610

foundation for international space law. It has been described as the *Magna Carta* of Space.²¹ It is made up of seventeen articles broadly addressing issues of sovereignty, liability, safety, information disclosure, exploration, use, and militarization in outer space and on celestial bodies. The chapeau of the treaty emphasizes that the treaty is designed to further the goals of the United Nations Charter, such as the preservation of peace.²² First signed and brought into force in 1967, it is the most widely accepted of the space treaties. As of the start of 2008, ninety-eight countries have signed onto and ratified the treaty. Every space-faring nation has signed the treaty. Because of its wide acceptance, it is safe to consider some of the general principles as also representing customary international law.

The treaty contains key provisions that are relevant to the discussion of property rights and sovereignty in outer space and on other celestial bodies. Article I proclaims, “The exploration and use of outer space, including the Moon and other celestial bodies, shall be carried out *for the benefit and in the interests of all countries* [. . .].”²³ It goes on to state: “Outer space, including the Moon and other celestial bodies, shall be free for exploration and use by all States [. . .] on a basis of equality [. . .], and there shall be free access to all areas of celestial bodies.”²⁴ Article II of the treaty states: “Outer space, including the Moon and other celestial bodies, is *not subject to national appropriation* by claim of sovereignty, by means of use or occupation, or by any other means.”²⁵ This provision prohibits any nation from staking a claim by any means to any part of space or any celestial body like the Moon, Mars or asteroids. The thrust of these provisions is to firmly establish a community interest in the use of outer space and the celestial bodies.

Articles VI and VII provide that states must take responsibility for the actions of their nationals in space. Article VI mandates that “States [. . .] shall bear international responsibility for national activities in outer space, including the Moon and other celestial bodies, whether such activities are carried on by governmental agencies or by non-governmental entities [. . .].”²⁶ The provision goes on to state: “The activities of non-governmental entities [. . .] shall require authorization and continuing supervision by the appropriate State Party to the

UNTS 205; (1968) UKTS 10, Cmnd. 3519; 18 UST 2410, TIAS 6347; 6ILM 386; 61 AJIL 644; in force 10 October 1967. [*hereinafter Outer Space Treaty*].

²¹ LYALL AND LARSEN *supra* note 14, at 53.

²² *Outer Space Treaty*, chapeau.

²³ *Outer Space Treaty*, art. I (1968) (emphasis added).

²⁴ *Outer Space Treaty*, art. I (1968).

²⁵ *Outer Space Treaty*, art. II (1968) (emphasis added).

²⁶ *Outer Space Treaty*, art. VI.

Treaty.”²⁷ Article VII confers international liability onto a state that “launched or procures the launching of an object into outer space” and a state from “whose territory or facility an object is launched” for damage to another state party either on earth, in outer space, or on another celestial body.²⁸

Article VIII discusses the ownership and control of objects launched into space. It states in relevant part that:

A State Party to the Treaty on whose registry an object launched into outer space is carried shall retain jurisdiction and control over such object, and over any personnel thereof, while in outer space or on a celestial body. Ownership of objects launched into outer space, including *objects landed or constructed* on a celestial body, and of their component parts, is not affected by their presence in outer space or on a celestial body or by their return to the Earth. (Emphasis added).²⁹

This provision is key in the discussion of property rights in space and on celestial bodies. This provision ensures that ownership and control over objects and persons is not affected by their presence in outer space or on a celestial body. These ownership rights are even preserved when the objects land or are constructed on a celestial body.³⁰

Control and use of installations and vehicles in outer space is limited by the guiding principles of cooperation and non-exclusion. The Outer Space Treaty limits all activities in space to those that do not unjustifiably interfere with the uses by other states. Article IX is a type of “nuisance” provision in that it provides that:

In the exploration and use of outer space, including the Moon and other celestial bodies, States [. . .] shall be guided by the principle of cooperation and mutual assistance and shall conduct all their activities

²⁷ *Outer Space Treaty*, art. VI.

²⁸ *Outer Space Treaty*, art. VII.

²⁹ *Outer Space Treaty*, art. VIII.

³⁰ See discussion *infra* Part III.B.

[. . .] with due regard to the corresponding interests of all other States Parties to the Treaty.³¹

States must act in a manner in which is amenable to the uses of other states. In addition, Article XII mandates that “All stations, installations, equipment and space vehicles on the Moon and other celestial bodies shall be open to representatives of other States Parties to the Treaty on a basis of reciprocity.”³² This provision severely limits the right to exclude from the collection of ownership rights attaching to an installation or vehicle. Again, the *Outer Space Treaty* is establishing a strong community interest in the uses of outer space.

Under the *Outer Space Treaty*, it is debatable whether celestial bodies fall under either the paradigm of *terra nullius* or *terra communis*.³³ The three fundamental principles regarding land beyond national sovereignty are traditionally: *terra communis*, *terra nullis*, and the Common Heritage of Mankind.³⁴ Within *terra communis* the area is a commons thus any individual is free to explore, exploit and use the area and its resources.³⁵ All comers are treated equally and there is no room for exclusive property rights.³⁶ *Res communis* is usually applied to resources that are available in abundance or are significantly remote that conflicts are unlikely—an example being the “freedom of the seas.”³⁷ *Res nullius* is the principle that the commons belong to no one and may be apportioned to the exclusion of others.³⁸ The Common Heritage of Mankind principle finds its roots in the principle of *res communis* and is sometimes referred to as *res communis humanitatus*.³⁹ The Common Heritage of Mankind principle is considered to have a strong and weak version. The strong version of the principle goes further than the *res communis* principle—sometimes called *res communis plus*⁴⁰—and requires the sharing of benefits in an equitable and just manner.⁴¹ The weak version simply holds that the common heritage principle is a modern version of the *res communis* principle and that the strong version is not supported by

³¹ *Outer Space Treaty*, art. IX.

³² *Outer Space Treaty*, art. XII.

³³ See generally LOTTA VIKARI, FROM MANGANESE NODULES TO LUNAR REGOLITH 17-21 (Publications of the Faculty of Law, University of Lapland, D Series, Rovaniemi 2002).

³⁴ CARL Q. CHRISTOL, SPACE LAW: PAST, PRESENT, AND FUTURE 290 (1991).

³⁵ VIKARI *supra* note 33, at 17-18.

³⁶ *Id.*

³⁷ *Id.*

³⁸ *Id.*

³⁹ *Id.*

⁴⁰ CHRISTOL *supra* note 34, at 291.

⁴¹ VIKARI *supra* note 33, at 19.

international law. Only the Moon Treaty and UNCLOS proclaim certain areas to be common heritage, but none contain specific definition of the concept.⁴² Given this lack of content and definition, the common heritage principle is not itself a legal principle, but a principle that symbolizes aspirations of cooperation and guidance in determining future legal rules.⁴³

The principle of space benefitting all mankind suggests that *terra communis* controls. It has also claimed that the Moon and other celestial bodies are *res extra commercium*, which was a Roman legal concept that a thing or right cannot be owned or devolved through succession.⁴⁴ It is debatable whether outer space is *res extra commercium* because this actually begs the question of whether private property rights are even permissible in space. The overarching principle of protecting the interests of all mankind does not preclude the land from being *terra nullius*, because the principle can be enshrined in the very substance of private property rights as argued in this paper. The principle neither mandates that celestial bodies are *terra communis*.

Some of the principles expressed in the *Outer Space Treaty* have passed from simply binding signatories to the treaty, but into customary international law that binds all nations generally.⁴⁵ The ideas expressed in the *Outer Space Treaty* were reaffirmations of a number of UN General Assembly Resolutions, which gives the first indication that they might form a basis of international customary law.⁴⁶ The specific provisions of the treaty that have passed into customary law include at least:⁴⁷ the principle that international law applies in outer space,⁴⁸ the prohibition against national appropriation of outer space or any celestial body by any means,⁴⁹ the principle that outer space is free for exploration,⁵⁰ the mandate that states are responsible for their, and their national's action in outer space,⁵¹ states are liable for damage they cause to

⁴² See *Moon Treaty*, art. 11.1 and UNCLOS, art. 136.

⁴³ VIKARI *supra* note 33, at 21.

⁴⁴ LYALL AND LARSEN *supra* note 14, at 184.

⁴⁵ Persistent objectors may not be bound to customary international norms unless the norm is part of *jus cogens*.

⁴⁶ *International Cooperation in the Peaceful Uses of Outer Space*, UNGA Res. 1721 (XVI), 20 December 1961; *International Cooperation in the Peaceful Uses of Outer Space*, UNGA Res. 1802 (XVII) 19 December 1962. *Declaration of Legal Principles Governing the Activities of States in the Exploration and Use of Outer Space*, UNGA Res. 1962 (XVIII) 1963 (1964) 3 ILM 157.

⁴⁷ For a full discussion on the status of the principles in the *Outer Space Treaty* see LYALL AND LARSEN *supra* note 14, at 70-80.

⁴⁸ *Outer Space Treaty*, art. III.

⁴⁹ *Outer Space Treaty*, art. II.

⁵⁰ *Outer Space Treaty*, art. I.

⁵¹ *Outer Space Treaty*, art. VI.

other states,⁵² and most importantly that the use and exploration of outer space is for the benefit of all mankind.⁵³ Therefore, withdrawing from the treaty would not avail a nation from being bound by its principles.⁵⁴

B. *Moon Treaty*

In contrast to the widely accepted *Outer Space Treaty*, the *Agreement Governing the Activities of States on the Moon and Other Celestial Bodies*,⁵⁵ or *Moon Treaty*, has not been accepted by any space-faring nation.⁵⁶ Ratified as an addition to the *Outer Space Treaty*, the *Moon Treaty* was an attempt to reassert and expand the concept of the “common heritage of mankind” in to space exploration and exploitation. The treaty was created to apply to the uses of resources found on the Moon in a similar way that the law of the sea applied to resources on the sea floor. The *Moon Treaty*’s provisions substantially overlap with the *Outer Space Treaty*’s provisions. Its lack of acceptance is evidence that either many states saw the *Moon Treaty* as repetitive of the *Outer Space Treaty* or that they did not agree with the stronger emphasis on the common heritage of all mankind.

Article 11 provides that “Neither the surface nor the subsurface of the Moon, nor any part thereof or natural resources in place, shall become property of any State, international intergovernmental or non-governmental organization, national organization or non-governmental entity or of any natural person.”⁵⁷ The same article begins with the proclamation that “[t]he Moon and its natural resources are the common heritage of mankind [. . .].”⁵⁸ The article also reaffirms the prohibition on national appropriation on the Moon and other celestial bodies echoing the *Outer Space Treaty*.⁵⁹

The *Moon Treaty*’s provisions probably do not reflect customary norms beyond those already present in the *Outer Space Treaty*. The weak support of the Treaty shows that states either

⁵² *Outer Space Treaty*, art. VII.

⁵³ *Outer Space Treaty*, art. I.

⁵⁴ See 1969 Vienna Convention, art. 38; see also *North Sea Continental Shelf*, 1969 ICJ Rep. 1.

⁵⁵ *Agreement Governing the Activities of States on the Moon and Other Celestial Bodies*, UN Doc. A/34/664. Nov. 1979; UN Doc. A/34/20, Annex 2; UN Doc. A/RES/34/68; 1363 UNTS 3; (1979) 18 ILM 1434; in force 11 July 1984. [hereinafter *Moon Treaty*].

⁵⁶ As of 2008, only thirteen states have ratified the treaty. France, Guatemala, India, and Romania have signed, but not ratified the treaty. It has been speculated that Australia might secede from the treaty.

⁵⁷ *Moon Treaty*, art. 11(3).

⁵⁸ *Moon Treaty*, art. 11(1).

⁵⁹ *Moon Treaty*, art. 11(2).

consider it superfluous or do not agree with the provisions. However, the *Moon Treaty* is a persuasive document that can be gleaned for certain principles that evince the desires of developing countries. Its application to this discussion is limited.

III. ARE PRIVATE PROPERTY RIGHTS CONSISTENT WITH THE CURRENT REGIME?

The *Outer Space Treaty* has attained such wide acceptance and has survived for so long that it would be unwise to advocate for its abrogation or extensive change. If it is possible to work within the current framework, it is preferable to do so rather than reconstruct a new legal framework with large transaction costs. To this end, it is necessary to determine whether claims to private property rights on the Moon or other celestial bodies are consistent and permissible under the current framework—namely the *Outer Space Treaty*. From the beginning, it is important to note that Article 31, paragraph 1 of the Law of Treaties mandates that, “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 light of its object and purpose.”⁶⁰ There are three principle positions regarding the question of private property rights under the current regime. The first position simply states that private property rights are consistent with the current legal regime because they are not explicitly prohibited by treaty, and states can and should recognize those rights. The second position posits that the treaty allows states to exercise “functional” sovereignty, which allows for a little set of property rights based on occupation and use. Finally, the third position states that private property rights are not consistent with the current legal regime because they are implicitly prohibited, and real property rights are unnecessary in the outer space regime.

A. *Yes, Private Property Rights are Permissible*

Alan Wasser, the Chairman of The Space Settlement Institute, is a vocal proponent of private property rights on the Moon and other celestial bodies. He argues that private property is not *explicitly* excluded within the *Outer Space Treaty*; therefore, it is permissible for private actors to claim property rights on celestial bodies.⁶¹ He relies on the legal doctrine of *expressio unis*

⁶⁰ *Vienna Convention on the Law of Treaties*, United Nations, 155 U.N.T.S. 331 (1969).

⁶¹ Alan Wasser & Douglas Jobes, *Space Settlements, Property Rights, and International Law: Could a Lunar Settlement Claim the Lunar Real Estate It Needs to Survive*, 73 J. AIR L. & COM. 37 (2008).

est exclusio, or the doctrine that when interpreting a statute, one should presume that provisions not mentioned were excluded by deliberate choice, not mistake.⁶² He interprets Article II of the *Outer Space Treaty* narrowly as only applying to nations because it does not explicitly prohibit property claims by private actors.⁶³ Wasser primarily relies on a Lockean-type theory of obtaining property rights that is independent of any sovereign.⁶⁴ The natural law principle of *pedis possessio* or “use and occupation” is the theoretical basis for his property claims on celestial bodies.⁶⁵ He finds this precedent in civil law traditions based on Roman law and admits that this theory of property rights does not comport the common law standard.⁶⁶ Wasser claims that since the *Outer Space Treaty* does not explicitly prohibit a nation from recognizing a property claim, then such recognition is permissible.⁶⁷ Therefore, nations can only recognize, not confer, rights under current space law. He rebuts claims that recognition of property claims would be an act of national appropriation prohibited under Article II by clarifying that recognition of extraterritorial claims is not the same as asserting authority over the property.⁶⁸ He highlights the fact that U.S. courts recognize and defend property rights not subject to U.S. sovereignty.⁶⁹ Wasser and others like Wayne N. White⁷⁰ exploit the distinction between property and sovereignty. He also points out that Articles VI, VII, and VIII of the *Outer Space Treaty* do not turn private actors into branches or parts of the state just by the fact that the state authorizes and oversees their activities.⁷¹

What would property rights look like under Wasser’s regime? Rights holders would not have a full set of property rights. For example, the right to exclude would be abrogated by Article XII of the *Outer Space Treaty*—requiring all stations and installations must be open to representatives of other state—as well as the “benefit of all” language in Article I. How much land can be claimed? Answer: the amount of land that a settlement can, and must, use depends on what the land is being used for and how much land the settlement will need to survive.⁷²

⁶² *Id.* at 47.

⁶³ *Id.* at 43-48.

⁶⁴ *Id.* at 48-49.

⁶⁵ See “*Pedis possessio*,” BLACK’S LAW DICTIONARY.

⁶⁶ Wasser & Jobes, *supra* note 51, at 48-50.

⁶⁷ *Id.* at 47-48.

⁶⁸ *Id.* at 54-55.

⁶⁹ *Id.* at 54-55.

⁷⁰ THOMAS GANGALE, THE DEVELOPMENT OF OUTER SPACE: SOVEREIGNTY AND PROPERTY RIGHTS IN INTERNATIONAL SPACE LAW 33 (2009).

⁷¹ Wasser & Jobes, *supra* note 51, at 56-58.

⁷² *Id.*

This position suffers from a fatal theoretical flaw. It is theoretically true that property rights can exist independent of a government or sovereign. However, for those rights to have any meaning, a group or community must agree to recognize those rights. A holder of property rights can only “enforce” those rights if the rest of the community agrees to back him up. To have *legal* status, the property rights must be recognized by the sovereign, which would be the government or community in which the property rights holder chooses to enforce his rights. If the community does not recognize the property rights, then the community will not entertain a claim to enforce those rights. In the space context, it would be necessary for the international community or individual states to recognize the property rights for a rights holder to ever make a claim. And here Wasser has not shown that the community has back up his claim.

B. Yes, But Only a Limited Set of “Functional” Property Rights

Functional property rights are a kind of property right distinguishable from real property rights. This is the argument that states that have jurisdiction and control over a facility or vehicle can exercise dominion over the facilities that are attached or constructed onto the celestial land, can be exercised over an area and for a period determined by occupation and use. This control and dominion is described as “functional” property rights.⁷³ Wayne N. White advocates that this limited form of “functional sovereignty” would allow for a form of property rights because it is distinct from territorial sovereignty.⁷⁴ Problem of interplanetary fixtures: A fixture is a chattel that has been fixed to land and thus has ceased being personal property and has become part of realty. Fixtures pass with the ownership of the land they sit on. The purpose of the attachment generally controls whether it is part of the real property or chattel. The party wishing to make a chattel a fixture to the land must have an objective intention to make the chattel part of the land.

C. No, Private Property Rights are not Consistent with the Legal Regime

⁷³ GANGALE *supra* note 60, at 44-49.

⁷⁴ Wayne N. White, “Real Property Rights in Outer Space,” Proceeding, 40th Colloquium on the Law of Outer Space, 1998, American Institute of Aeronautics and Astronautics, *available at* http://www.spacefuture.com/archive/real_property_rights_in_outer_space.shtml.

Private property rights are not permissible because Article II of the *Outer Space Treaty* forbids state appropriation, which is needed for the recognition of private property ownership. The simplest form of this argument proceeds as follows:⁷⁵ Article VI of the *Outer Space Treaty* states that non-governmental entities, which include private parties, are the responsibilities of their representative states. This essentially makes private activity into national activity. One such national activity is national appropriation, which is expressly prohibited in Article II of the *Outer Space Treaty*. Therefore, private entities cannot appropriate celestial land.

Also, even if individuals “claimed” property on celestial bodies, that claim would need to be recognized by a sovereign for it to be enforceable.⁷⁶ Thomas Gangale finds that any reading of Articles II and VI of the *Outer Space Treaty* that finds that there is no prohibition on private property is incorrect. Gangale points to the language of Article II which states “by any other means” as going beyond only actions of states and covering private property rights. Therefore, he finds that the “national appropriation” provision was meant to be all-inclusive.⁷⁷ The *Outer Space Treaty* did not set up a public/private dichotomy for space related actions.⁷⁸ Nations are responsible for the activities of their private nationals, and therefore must prevent those private actors from violating the treaty regime.⁷⁹ If this were not so, then nations would be able to direct their private nationals to do what the state could not do on its own.⁸⁰ Some commentators also point to Article I of the *Outer Space Treaty*, which prohibits the exclusive use of large tracts of celestial land because these claims would interfere with the “free access” by all states.⁸¹ Where there are no laws, there are no rights.

At the core of the argument, Gangale advocates that real property rights are not necessary in the outer space legal regime.⁸² He finds that Article I provides for the free use of celestial bodies

⁷⁵ *Statement by the Board of Directors * Of the International Institute of Space Law (IISL) On Claims to Property Rights Regarding The Moon and Other Celestial Bodies*, International Institute of Space Law, (2004) available at http://www.iislweb.org/docs/IISL_Outter_Space_Treaty_Statement.pdf.

⁷⁶ See LYALL AND LARSEN *supra* note 14, at 184-85.

⁷⁷ GANGALE, *supra* note 60, at 34-39.

⁷⁸ *Id.*

⁷⁹ *Id.*

⁸⁰ Leslie I. Tennen, “Commentary on Emerging System of Property Rights in Outer Space,” United Nations—Republic of Korea Workshop on Space Law (2003), available at <http://www.oosa.unvienna.org/SAP/act2003/repkorea/presentations/specialist/ost2/tennen.doc>.

⁸¹ GANGALE, *supra* note 60, at 38.

⁸² *Id.* at 39-44.

by all states. This “free use” ability is limited by the other provisions of the treaty, but also allows certain activities. For instance, Article II prohibits appropriation thus an extensive and perpetual right to use is impermissible. However, the “free use” provision does not mean that all appropriation of any kind is prohibited, but that a limited form of appropriation is permissible. Simply put, prospective claims to wide swaths of resources and land are prohibited by the treaty. Thus the right of use is confined to the area and time of an ongoing operation, and the *in situ* utilization of resources is permitted. This is also a Lockean-type theory of ownership or property rights because ownership springs out of mixing labor with resources. Extracting the resource makes it yours. Gangle finds an analogy in law of the sea⁸³ context.⁸⁴ He states that the celestial bodies of space are *res communis* and extraction from them is like plucking fish from the sea—the fish belong to humanity until the fisherman’s labor removes the fish from the *res communis*. Therefore, there is no need for real property rights because these “use” rights would suffice.

D. Analysis of Positions

White’s argument that a certain set of “functional” private property rights are permissible in space is likely most accurate and appropriate for the further development of space and its resources. Wasser’s position, that private actors can obtain rights to a large plot of real property seems untenable and to run contrary to overarching principle of shared benefits in space law. His position advocates from broad private property rights over land that is not actively being used, but is prospective. This seems to be no more valid of a claim than the claims of companies that purport to sell land claims on the moon. There must be more than a simple proclamation of ownership; there must be some active element involved. On the other end of the spectrum, Gangle’s theory reads the prohibitions on national apportionment too broadly. It seems unreasonable that no private rights are permissible even when an individual puts their own investment and labor into the acquisition of the property. This complete prohibition on private property rights in extraterritorial property is not found in any of the other legal regimes, namely the law of the sea and the Antarctic treaty system.

The functional approach to private property rights in space best balances the interests of the private entity and the interests of the global community in the resources of the universe. It allows claims to rights only in that which is actually being used, not to

⁸³ Discussed *infra* at Part IV(A)(i).

⁸⁴ GANGALE, *supra* note 60, at 42.

property “as far as the eye can see.” Nonetheless, because the legal regime currently stands, there is too much ambiguity and no court or body to clarify the provisions. Therefore some clarification on whether private enterprises will be able to invest in establishing settlements or other operations on celestial bodies with the guarantee that those investments will be protected by a set of property rights. Many advocate that we look to terrestrial legal regimes as providing useful analogies that can help resolve the ambiguities in the outer space regime.

IV. EXTRATERRITORIAL PROPERTY THEORY—INADEQUATE MODELS FOR SPACE

Taking a step back, extraterritorial property rights pose a unique problem for any legal regime. These legal questions arise out of the use and exploitation of resources beyond the territorial jurisdiction of any one state. Thus, absent international agreement, there is no body of “law” that protects the rights of actors in the extraterritorial space. The best examples of legal regimes addressing the problem of extraterritorial property rights are the Law of the Sea Convention and the Antarctic treaty regime. Many commentators on the subject of property rights in outer space try to use terrestrial legal schemes as analogies to the outer space problems. Although they are useful guides to glean important methods of dealing with extraterritorial property rights, they do not adequately translate to the outer space context.

Before presenting a possible solution to the problem of private property rights in space, it seems fair to address the various legal regimes that are used as fodder to propose ways of instituting private property rights in outer space. In this section, the two most heavily relied upon regimes mentioned above will be presented as they relate to the issue of extraterritorial property rights. Only those provisions that most relate to the issue will be considered—leaving out the vast majority of each legal regime. Along with presenting the two legal regimes, various arguments of how these regimes could be translated into the outer space context will be presented. Finally, this section will end with a critique of why these analogies ultimately fail at addressing the heart of the matter.

A. *Terrestrial Legal Regimes*

i. *The Law of the Sea*

The 1982 U.N. Convention on the Law of the Sea (UNCLOS)⁸⁵ generally governs the activities and sovereignty of states on and in the ocean, and specifically addresses the sovereignty and rights of states in relation to the resources in high seas and the seabed. The treaty, the third incarnation of a series of treaties, is highly successful; one-hundred sixty nations, as well as the European Union, have signed and ratified the treaty. Many of its provisions codified customary international norms and many of the treaty provisions have become apart of customary law.

Part XI of UNCLOS is devoted to the exploitation of the deep seabed and the ocean floor.⁸⁶ Part XI specifically addresses issues relating to the exploitation of minerals on the seabed outside a nation's Exclusive Economic Zone (EEZ),⁸⁷ the region called "the Area."⁸⁸ The treaty designates this area "the common heritage of mankind."⁸⁹ UNCLOS required that all profit received from the exploitation of the seabed must be shared with the developing countries of the world. UNCLOS generally prohibits any "claim or exercise of sovereignty or sovereign rights nor appropriation" over "the Area or its resources."⁹⁰ Part XI also went so far as to create the International Seabed Authority (ISA)⁹¹ which had the power to license and regulate the exploitation of the ocean floor,⁹² as well as collect and distribute seabed mining royalties.⁹³ Exercise of any rights relating to the extraction, acquisition or claim to any resources in the Area must be in accordance with UNCLOS, and the rules, regulations, and procedures of the ISA.⁹⁴ This provision hindered the U.S. from ratifying the treaty; nonetheless, the U.S. accepted most of UNCLOS as customary law, except for Part XI. Subsequently, the 1994 Agreement⁹⁵ sought to address some of the concerns of the U.S. over the provisions in Part XI, by suspending

⁸⁵ Convention on the Law of the Sea, Montego Bay, 10 December 1982, 1833 UNTS 3; 1999 UKTS 81, Cm. 4524; (1982) 21 ILM 1261.

⁸⁶ See UNCLOS, part XI.

⁸⁷ The EEZ is an area of water that extends from the edge of a state's territorial waters to 200 nautical miles from the baseline. See generally UNCLOS, part V. Within this area the coastal nation has the exclusive right to exploit the natural resources of the water column and the seabed. *Id.* The freedom of the navigation and of overflight apply to the EEZ subject to mild regulation by the coastal state. *Id.*

⁸⁸ UNCLOS, art. 1(1).

⁸⁹ UNCLOS, art. 136.

⁹⁰ UNCLOS, art. 137(1).

⁹¹ UNCLOS, art. 156.

⁹² UNCLOS, art. 157.

⁹³ UNCLOS, art. 140.

⁹⁴ UNCLOS, art. 137(2) & (3).

⁹⁵ *Agreement relating to the Implementation of Part XI of the United Nations Convention on the Law of the Sea of 10 December 1982.*

the limitation on seabed production⁹⁶ and mandatory technology transfer.⁹⁷

Rosanna Sattler advocates for transfer of the concept of the EEZ into the outer space regime.⁹⁸ She proposes that states be given or declare an EEZ on celestial bodies. Once declared or acquired, they would enjoy the same privileges a coastal state enjoys in its EEZ under UNCLOS, namely the exclusive right to exploit, control, and manage resources within its zone. The nation would be able to license rights to private enterprises to exploit the resources within each nation's EEZ on the celestial body. This argument may fit within the outer space legal regime forbidding national appropriation because under the UNCLOS EEZ regime, coastal states do not have full *sovereignty* over their EEZ, but a set of conferred *sovereign rights*. The distinction is most clear by comparing the complete sovereignty available to coastal states within their territorial sea,⁹⁹ which includes criminal jurisdiction and other traditional forms of sovereignty, and the limited rights available to the coastal state in the EEZ. The EEZ is essentially the high seas—under no state's jurisdiction or control—except for the fact that the coastal state has more privileges to natural resources within the zone than all other states. Therefore, establishing EEZs on a celestial body would not be an actual conferral of sovereignty, but simply a conferral of rights against other states, possibly avoiding the prohibition on national appropriation.

ii. *Antarctica*

The *Antarctic Treaty* is the primary treaty representing the guiding principles and standards for activities in Antarctica. The *Antarctic Treaty* was signed in 1959 and went into force in 1961. The original twelve consultative nations have expanded to twenty-eight consultative nations by the year 2000. Forty-six nations have now signed onto the Treaty. The Treaty strives to ensure that Antarctica will be used solely for peaceful purposes. The *Antarctic Treaty* treats the issue of national sovereignty in Article IV where it assures that nothing in the treaty renounces or diminishes *previous* claims to sovereignty in Antarctica, but prohibits new claims of sovereignty while the Treaty is in force. The provision reads in relevant part:

⁹⁶ Agreement on Part XI (1994), Annex, sec. 6.

⁹⁷ See UNCLOS, art. 144 for the "Transfer of technology" provision and Agreement on Part XI (1994), Annex, sec. 5 "Transfer of Technology."

⁹⁸ See Rosanna Sattler, at 41-44.

⁹⁹ UNCLOS, Part II.

No acts or activities taking place while the present Treaty is in force shall constitute a basis for asserting, supporting or denying a claim to territorial sovereignty in Antarctica. No new claim, or enlargement of an existing claim, to territorial sovereignty shall be asserted while the present Treaty is in force.¹⁰⁰

Article VIII of the Treaty states that personnel in Antarctica remain under the jurisdiction of their own states.¹⁰¹ The substance of the *Antarctic Treaty* primarily focuses on scientific and exploratory activities. The legal framework applying to commercial exploitation has taken a different stance than in the law of the sea context.

In 1991 the *Madrid Protocol*¹⁰² prohibited all forms of commercial exploitation except for tourism. All mineral exploitation is banned for fifty years after the protocol went into force, and the ban can only be lifted by unanimous consent of all the Consultative Parties to the *Antarctic Treaty* and the *Madrid Protocol*.¹⁰³ A separate treaty, the *Convention on the Regulation of Antarctic Mineral Resource Activities*,¹⁰⁴ was drafted to apply to mining activities on the continent; however, the treaty was never ratified.

The legal status of Antarctica under the *Antarctica Treaty* is uncertain given the fact that the treaty allows for previous claims of national sovereignty to remain valid, but forbids further appropriations. Some claim that the *Antarctica Treaty* declared the continent to be common property or *terra communis*. *Terra communis* is common territory to which no state can claim sovereignty put the land and resources belong to humanity as a whole.¹⁰⁵ The *terra communis* paradigm does not correctly fit onto the Antarctic legal regime because, under Article IV of the *Antarctica Treaty*, a number of states can and still do uphold their claims to sections of the continent.¹⁰⁶ The paradigm of *terra*

¹⁰⁰ *Antarctic Treaty*, art. IV.

¹⁰¹ *Antarctic Treaty*, art. VIII.

¹⁰² *Protocol on Environmental Protection to the Antarctic Treaty* (1991), art. 7, 30 ILM 1455, 1464 [hereinafter *Madrid Protocol*].

¹⁰³ *Id.*, art. 25. The *Madrid Protocol* went into force in 1998, thus the ban can be lifted in 2048. *Id.*

¹⁰⁴ 27 ILM 868 (1988).

¹⁰⁵ PHILIP C. JESSUP AND HOWARD J. TAUBENFELD, CONTROLS FOR OUTER SPACE AND THE ANTARCTIC ANALOGY 181 footnote (1959 Columbia Univ. P.).

¹⁰⁶ There are seven countries, the United Kingdom, France, Chile, Norway, Australia, New Zealand, Argentina, that make claims to eight Antarctic

nullius also does not comport with the legal regime and state practice. *Terra nullius*, meaning land belonging to no one, is land that is not subject to any sovereign and can be acquired by simple occupation. Article IV of the treaty also prohibits any new claims to sovereignty; however, the pre-existing claims to the continent were most likely based on a theory of Antarctica being *terra nullius*. Therefore, the legal status of the continent is uncertain.

B. The Inadequacy of the Terrestrial Regimes to Address the Problem

On a basic level, the law of the sea and the Antarctic treaty system are an inadequate analogies to the outer space legal system because they ultimately fail to properly balance the interests of the global community with the need for private property rights. Generally, space law has been treated differently than other types of international law, and an analogy to it most likely needs to be substantially reworked to fit the context and special character of space law.¹⁰⁷ The tension between incentivizing the private development and protecting the interests of humanity continues to pose problems in both regimes. The drafters of both understood the tension and attempted to find a middle ground, but both have instituted measures that are too pro-community, at the expense of development.

The high seas regime comes closest to the type of scenario in the outer space context, but it fails to properly balance incentives to develop with community interests. The law of the sea deals primarily with the extraction of resources and the ownership of those resources, but provides that those who invest in the extraction of those resources must pay out to those that did not invest in a misguided attempt to uphold the principle of the benefit for all humanity. The system of redistribution of the wealth that is acquired from the seabed is not an appropriate solution because it harms the incentive to develop. In addition, the transaction costs and practicality of the entire regime make it untenable—which it in fact is. It also focuses on national sovereignty, i.e. dividing up territory. Although Rosanna Sattler's proposal to transfer the concept of the EEZ to the outer space regime is appealing, it ultimately fails to deal with the underlying issue. One serious question she fails to address is how the EEZs would be apportioned on a celestial body? There is no national "baseline" or

territories, covering most of the available territory on the continent. LYALL AND LARSEN *supra* note 14, at 181 n.26 and accompanying text. In 2007 the United Kingdom extended its territorial claim with respect to the continental shelf off its original land claim. *Id.*

¹⁰⁷ VIKARI *supra* note 33, at 143-44.

starting point by which to measure the EEZ from. However, fixtures or structures that have become immoveables on the celestial body might serve as a starting point.

Another inadequacy in this analogy is that the status of natural resources in the law of the sea context is conceptually different than the status of natural resources in space law. The main difference is in the weight carried by the common heritage of all mankind principle. The common heritage principle is conceived of in general terms in the *Moon Treaty*; and the legal regime implementing it was not developed.¹⁰⁸ UNCLOS is very detailed in its explanation of the common heritage principles and procedures. This can be explained by the strong bargaining power of the developing countries in the UNCLOS process, and the relatively immanency of actual seabed exploitation.¹⁰⁹ Art. II.7 of the *Moon Treaty* equates the special consideration of the “interests and needs of developing countries” to the efforts of those countries which have contributed to the exploration of the Moon, namely developed nations. The common heritage principle implementation criteria of the Moon Treaty in Art. 11.7 are meant to distinguish it from that of the law of the sea context.¹¹⁰

The Antarctic treaties deal more with sovereignty than it does private property rights. Private property rights would come from the state sovereign. In 1960, President Eisenhower expressed the view that the *Antarctica Treaty* should be used as a model for the new legal regime for outer space.¹¹¹ Although it was used as a model for space, the way it approaches the tension between the community and individual, forecloses any development of the individual, especially after the *Madrid Protocol*. The Protocol forecloses all development thus foreclosing any development at this time. The failures of both of these systems to provide adequate guidance necessitates the creation of a new approach to addressing the tension between the interests of the community and incentivizing develop by private entities.

V. SOLUTION: THE SOCIAL-OBLIGATION NORM AND A NEW TREATY

The ambiguity of the current regime must be resolved as humanity prepares to venture into space with more energy and ambition. The ambiguity lies in how we characterize the background condition on which concepts of property rights in outer space operate. As discussed with the terrestrial analogs, the

¹⁰⁸ *Id.* at 138.

¹⁰⁹ *Id.* at 138-39. *See also Moon Treaty*, art. 4.1.

¹¹⁰ VIHKARI *supra* note 33, at 139-40.

¹¹¹ *See Legal Problems of Space Exploration*, US Senate Committee on Aeronautical and Space Sciences, 87th Cong., Sen. Doc. No. 26, 1961, at 1009.

status of the extraterritorial space is crucial in determining whether private ownership is possible. The background legal regime needs to be revamped and new approaches to core problems need to be incorporated.

To address the tension between the desire to spur the development of resources on the various celestial bodies hurdling throughout the solar system, and the desire to protect the community's interest in those very resources, a new conception of private property rights needs to be imported into the outer space legal regime. This new import will serve as a bridge to cross the divide between the interests of the community and the interests of private development to produce a solution that allows for both to survive and remain protected. This new conception finds a basis in the principle of using the outer space for the good of all mankind and it can be planted within the grant of private property rights. Therefore the new import will allow us to characterize celestial bodies as an open access common without sacrificing any ambition to protect the "for all mankind" aspirations of the drafters of the *Outer Space Treaty*.

A. A Social-Obligation Norm: An Attempt to Balance Interests

Private property rights should be explicitly defined using a strong social-obligation norm. Using this norm in the definition will allow for private property, but still appeal to the drafters' "benefit for all" desires. It would appeal to the "common heritage of man" and developing states interests. Wayne N. White calls for a limited form of property rights in space and the social-obligation norm would satisfy this desire by creating inherent limits that are based on the benefit to all mankind principle.¹¹² A social-obligation norm of property is based on the Aristotelian notion that humans are inherently social and dependent on one another.¹¹³ This dependency is essential to the successful flourishing of a person and the community should foster this flourishing.¹¹⁴ An individual is able to flourish by using her property rights to acquire resources, and those rights are vindicated by the community against the encroachment of others.¹¹⁵ However, if the holder of the rights tries to assert her rights in a way that harms the

¹¹² Wayne N. White, "Real Property Rights in Outer Space," Proceeding, 40th Colloquium on the Law of Outer Space, 1998, American Institute of Aeronautics and Astronautics, *available at* http://www.spacefuture.com/archive/real_property_rights_in_outer_space.shtml.

¹¹³ Gregory S. Alexander, *The Social-Obligation Norm in American Property Law* 94 CORNELL L. REV. 745, 749-50 (2009).

¹¹⁴ *Id.*

¹¹⁵ *Id.*

flourishing of the community, then the community will not vindicate that claim.¹¹⁶ This failure to vindicate the claim that was inconsistent with the flourishing of the community does not diminish the rights of the owner because the rights of the owner only include those that are consistent with flourishing of the community.¹¹⁷ The inherent limit on an individual's property rights spring out of this social-obligation norm that is based on the well-being of the community. This theory of property rights is a useful bridge bringing together the concepts of exploitation and private enterprise with the concept of the common heritage of mankind and benefit for all.

On the Moon or other celestial body, the "community" is all of humanity. It is different than a plot of land in Ithaca, New York where there is a defined community that is affected by the property right. In an attenuated sense, that land in Ithaca *may* affect the community in a larger sense, i.e. affecting community members in New York City or even in Tokyo, in the sense that we are all connected. However, expanding the community in that context would seem inappropriate. The community that is directly affected by the property right is the community that is key. In the case of outer space, the relevant community starts out as all of humanity. This may change over time, for instance if a separate community develops on a celestial body to a point where it becomes the relevant recipient of the affects of the property rights. Nonetheless, at this point in time the relevant community for outer space rights is the global community. Thus, on a celestial body the private individual cannot make valid claims to rights that adversely affect the community.

Defining private property rights in outer space with an inherent social-obligation norm allows us to characterize celestial bodies like the Moon as *terra nullius*, avoiding the stifling affects of characterizing it as the common heritage of mankind. Characterizing celestial bodies as an open access common would allow for a first possession type of property acquisition. Allowing individual entities to acquire property rights by first possession, in much the same way as discovering a new continent on Earth, will incentivize colonization or development by prompting interested entities to compete to be the first to occupy and utilize the celestial bodies.¹¹⁸ Competition to acquire property rights on a celestial

¹¹⁶ *Id.*

¹¹⁷ *Id.*

¹¹⁸ Although it is argued here that a first possession theory of rights acquisition is the best, it should be noted that there are other methods of property acquisition, like accession. See generally Thomas W. Merrill, *Accession and Original Ownership*, 1 J. OF LEGAL ANALYSIS 459 (2009). A more in depth discussion of other methods and why this is the most desirable form of property acquisition is not warranted here, but deserves a complete treatment in another

body would prompt only the most able or the most willing to take the risk to attempt to develop the celestial body. This should prompt a relatively efficient allocation of property rights on celestial bodies based on the most capable and successful entity to first possess the land or resource on the celestial body.

Nonetheless, proponents of the common heritage of mankind conception of the background condition on celestial bodies will argue that an open access common will result in a number of undesirable results, most succinctly embodied in the tragedy of the commons,¹¹⁹ which is argued as a reason why celestial bodies should not be characterized as *terra nullius*. However, the inherent social obligation norm deals with the tragedy of the commons problem by forcing the individual property owners to internalize the costs of their actions, which violate the norm. The tragedy of the commons arises in situations where an open access system exists and, for instance, entities act to extract a finite resource from the open access system.¹²⁰ When an entity extracts the resource, that entity gets all the benefit of the extracted resource, but only shares a fraction of the cost of the depleted resource pool, which is shared amongst all the entities participating. The tragedy arises from the fact that externalities on the environment and others are not internalized, and thus a resource gathering entity will have no incentive to curb wasteful consumption. The social obligation norm short-circuits this by internalizing negative externalities by defining the scope of property rights in terms of a social obligation to the community as a whole. Therefore, with a redefined conception of private property, development can be incentivized while addressing the worries of a tragedy of the commons as humanity expands into the reaches of space.

B. A New Treaty

Many solutions to the problem of private property rights on celestial bodies have been provided by scholars. Unfortunately because technology and funding have not made the issue one that needs immediate resolution, proposed solutions wait until the theories are tested by practice and need in the future. There are plenty of solutions to the problems posed by the uncertainty of property rights in celestial territory that do not require an overhaul

piece. This article focuses on characterizing the background status of celestial bodies, and the method of property acquisition is only addressed in so far as it highlights why an open access common characterization is beneficial.

¹¹⁹ See Garrett Hardin, *The Tragedy of the Commons*, SCIENCE, 162:3859 (December 13, 1968) 1243-1248.

¹²⁰ See *id.*

of the legal space regime. Slight additions and amendments to the current regime are far more favorable to address property concerns than are drastic upheaval of settled legal norms.¹²¹ The International Institute of Space Law advocates for the creation of a specific regime for the exploitation of such resources through the United Nations.¹²² The Institute states that the purposes of such a creation are clarity and legal certainty.¹²³ As was wisely stated, “[T]he utility of law can be measured in large part by its certainty [. . .].”¹²⁴ More clarification is needed because the existing treaty system was based on cold war norms, which no longer apply, and because of the growing importance of private enterprises in the space industry as a result of the Obama administration’s new approach to NASA’s funding in favor of private ventures.

Creating a new treaty is in line with the practice in this area, i.e. there are a number of treaties that make up the main body of space law. Those advocating for the withdraw of the U.S. from the *Outer Space Treaty* fail to understand the legal scope of the main principles of the treaty.¹²⁵ Article II of the treaty has likely passed into international customary law, as discussed earlier. Therefore, even non-parties to the *Outer Space Treaty* are bound by the principles that have passed into customary international law, one of which being Article II.¹²⁶ A more practical and appropriate solution would be to create a multilateral treaty, similar to the other space law treaties, dealing particularly with the property rights of private actors. This “Property Treaty” should guarantee property rights to private actors, and craft that content of the property right using the social-obligation norm. Using the social-obligation norm as a more robust, positive theory of property over a “thin” and negative theory of property found in most liberal legal systems would appeal to a wider array of nations prompting more acceptance of the Property Treaty.

¹²¹ See Henry R. Hertzfeld and Frans G. von der Dunk, *Bringing Space law into the Commercial World: Property Rights without Sovereignty*, 6 CHI. J. INT’L L. 81, 82 (2005-2006).

¹²² *Statement of the Board of Directors of the International Institute of Space Law*, International Institute of Space Law, (March 22, 2009), available at <http://www.iislweb.org/docs/Statement%20BoD.pdf>.

¹²³ *Id.*

¹²⁴ Carl Q. Christol, *The Moon and Mars Missions: Can International Law Meet the Challenge?* 19 J. SPACE L. 123, 129 (1991).

¹²⁵ Some commentators have advocated that the U.S. withdraw from the *Outer Space Treaty* to allow private property rights and commercialization. See e.g., Michael J. Listner, “It’s time to rethink international space law,” *The Space Review*, (May 31, 2005), available at <http://www.thespacereview.com/article/381/1> (“The fastest and most efficient solution is to withdraw from the Outer Space Treaty.”).

¹²⁶ LYALL AND LARSON *supra* note 14, at 184.

There will nonetheless be resistance against a “Property Treaty” from countries that either oppose private property rights, like communist countries, or are considered developing countries. The communist countries may object to a Property Treaty on ideological grounds. However, this may not prove to be much of an obstacle given the modern acceptance of limited property rights in communist countries like China. Since the end of the cold war, capitalism and its tenets of private property have become the global paradigm. Also the developing countries would likely object to this new treaty out of fear that the powerful, first-world corporations will exploit the riches of the solar system further enriching the rich and leaving the poor behind.

United Nations Committee on the Peaceful Uses of Outer Space (COPUOS)¹²⁷ would be the optimal forum for any revisions or debates regarding a new treaty given its role as the implementer and overseer of the outer space treaties. The sixty-seven member nations of COPUOS include the main space-faring nations in the world—providing a ready forum for discussion. The Legal Subcommittee of COPUOS can take up the proposed “Property Treaty” for state discussion and hopefully ratification. The committee has already expressed interest in dealing with the debate over property rights.¹²⁸ Therefore, the mechanisms for the creation of a new treaty are already available for use.

C. The Inadequacy of Interim Measures

Some commentators on the subject of property rights on celestial bodies advocate for interim solutions until a new multi-lateral treaty is created. Some point to the Deep Seabed Hard Mineral Resources Act (Seabed Act),¹²⁹ as an example of a domestic measure that tries to bridge the gap in the deep sea mining context.¹³⁰ The Seabed Act serves as a legal regime for U.S. private entities to rely on in their deep sea ventures. The Act essentially duplicates the requirements under the UNCLOS regime, e.g. undersea mining companies apply for permits and licenses,

¹²⁷ COPUOS was first created as an ad hoc committee in 198 by G.A. Res. 1348 (XIII) (Dec. 13, 1958), and then formalized as a permanent committee in 1959 through G.A. Res. 1472 (XIV) (Dec. 12, 1959).

¹²⁸ The 47th and 48th Colloquia on the Law of Outer Space organized by the International Institute of Space Law have discussed the issue of property rights on the Moon and other celestial bodies. The Legal Subcommittee has taken note of these discussions. *See Information on the activities of international organizations relating to space law: Addendum, COPUOS: Legal Subcommittee, Item 5 of the provisional agenda, A/AC.105/C.2/L.253, Vienna, 4-15 April 2005, available at http://www.unoosa.org/pdf/limited/c2/AC105_C2_L254Add1E.pdf*

¹²⁹ 30 U.S.C. § 1401 et seq (2000).

¹³⁰ *See e.g.*, Wasser at 61-63 and 76-78.

and must conduct their exploitation in a manner that gives “reasonable regard to the interests of other states.”¹³¹ Members of the Senate have even objected to ascension to UNCLOS because the Seabed Act provides for all the benefits under UNCLOS without the additional costs.¹³² The Act was created to provide protection to U.S. interests while the U.S. considered the ratification of UNCLOS.

Using the Seabed Act as an example of what can be done in the outer space realm misses a key difference. First, in the law of the sea context there *is* a legal regime firmly established to deal with extraterritorial property rights. Part XI and the 1994 Agreement setup a widely recognized regime for the exploitation of the Area, while in the outer space context there is no such regime. UNCLOS is much more robust than the outer space treaties and there is great ambiguity whether there even *is* a right to private property rights on celestial bodies. Second, given this ambiguity, it would be unwise for a nation to unilaterally create a regime of property rights on celestial bodies without first settling the fundamental question of whether property rights are permissible. Although unilateral action by a major space-faring nation like the U.S. may prompt the international community to act in revising the outer space treaty regime, it may also cause undue conflict with other nations that may disagree with the domestic implementation.¹³³ Multi-lateral talks would best take into account the interests of a wide array of nations and peoples to balance the interests of the community. Therefore, using the Seabed Act as an example of how to address the issue of property rights in outer space is ill advised.

Rosanna Sattler points to the Commercial Space Act¹³⁴ as an analogous type of domestic legislation to the Seabed Act that attempts to fill out the gaps in an international legal regime, namely the International Space Station Intergovernmental Agreement (IGA).¹³⁵ Nonetheless, this example suffers from the same deficiencies that apply to the Seabed Act. In addition, the IGA does not address the issue of property rights that is at issue in this paper. The IGA ensures that each country will retain ownership and control of each physical module and all activities

¹³¹ 30 U.S.C. § 1401(a)(12) (2000).

¹³² Marjorie Ann Browne, *The Law of the Sea Convention and U.S. Policy* 8-9, CRS Issue Brief for Congress (Sept. 29, 2003), available at http://lugar.senate.gov/CRS%20reports/Law_of_the_sea_convention.pdf.

¹³³ See VIHKARI *supra* note 33, at 137.

¹³⁴ 42 U.S.C. § 14701 (1998). The Act emphasizes and promotes the importance of commercial enterprise in the use and operation of the International Space Station.

¹³⁵ Rosanna Sattler, *Transporting a Legal System for Property Rights: From the Earth to the Stars*, 6 CHI. J. INT'L L. 23, 39 (2005-2006).

and personnel within the module.¹³⁶ This is not an advancement and provides no clarification for private property rights on celestial bodies. It is a well-accepted rule in the outer space treaty system, as well as in the law of the sea, that a ship or vessel remains under the control of the “flag state.”¹³⁷ The IGA merely governs the use of the International Space Station and reaffirms the customary norms of ownership and jurisdiction that currently exist in international law. Looking to the IGA or any domestic legislation expanding on it is an inadequate approach. Therefore, no proposed interim provision yet proposed seems to address the fundamental ambiguities relating to property rights in the *Outer Space Treaty*.

VI. CONCLUSION

A limited form of private property rights in celestial territory, namely functional rights, are probably permissible under the current regime. To reduce ambiguity in an effort to incentivize commercial development of celestial bodies, another international agreement outlining the very basic protections to property rights should be created. When developing what rights a private actor would have, the guiding principle of the common heritage of mankind should be incorporated into the recognized property rights as a social obligation norm.

¹³⁶ For example, Article VIII of the *Outer Space Treaty*.

¹³⁷ UNCLOS, art. 91, 92, and 94. “Ships shall sail under the flag of one State only and, save in exceptional cases expressly provided for in international treaties or in this Convention, shall be subject to its exclusive jurisdiction on the high seas.” UNCLOS, art. 92(1). See *The Case of the S.S. "Lotus,"* PCIJ, Ser. A., No. 10, 1927, for a general discussion of flag state jurisdiction.