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THE NEW SPACE RACE: **AMERICA'S JOURNEY TO STAY AHEAD OF THE INTERNATIONAL** **COMMUNITY THROUGH PROPOSED LEGISLATION**

By: Dylan R. Conroy¹

“We choose to go to the Moon in this decade and do the other things, not because they are easy, but because they are hard”- John F. Kennedy²

These immortal words were delivered on September 12, 1962,³ and galvanized the American people into supporting their government's efforts⁴ in the race for space.⁵ By 1970, the space race cooled down and was no longer a national priority.⁶ As time has progressed, new countries and intergovernmental organizations have become space capable and have started their own space agencies.⁷ Japan, through its space agency, JAXA,⁸ has shown amazing strides in its capabilities to launch rockets not only into Earth's orbit, but to near-Earth asteroids as well.⁹ The United States (“U.S.”) government has publicly addressed

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² See John F. Kennedy, “Address at Rice University in Houston on the Nation's Space Effort,” September 12, 1962, *Public Papers Of The Presidents Of The United States*, Jan. 1 to Dec. 31, 1962, 668-671, 669 (1963) (addressing the nation on the space program).

³ *Id.*

⁴ See Steve Garber, *The Decision to Go to the Moon*, NASA HISTORY OFFICE (Oct. 29, 2013), <https://history.nasa.gov/moondec.html> (describing the reasons why the U.S. government was heavily focused on space exploration); see also LEWIS D. SOLOMON, *THE PRIVATIZATION OF SPACE EXPLORATION BUSINESS, TECHNOLOGY, LAW AND POLICY* 3 (2012) (discussing how the Cold War led to spaceflight being a province of the government).

⁵ See generally History.com Editors, *The Space Race*, HISTORY (Updated Mar. 29, 2019), <https://www.history.com/topics/cold-war/space-race/>.

⁶ See Solomon, *supra* note 4, at 18-9 (explaining the reasons for stagnation in space exploration).

⁷ See *Top 10 Space Research Organizations in the World 2018*, THESIS SCIENTIST, <https://www.thesisscientist.com/blog/top-10-space-research-organizations-in-the-world-2018> (last visited June 23, 2019) (listing Canada's Space agency “CSA” at #10, India's Indian Space Research Organization “ISRO” at #9, China's China National Space Administration “CNSA” at #8, Italy's Italian Space Agency “ISA” at #7, Germany's German Aerospace Center “DLR” at #6, France's French Space Agency “CNES” at #5, Japan's Japan Aerospace Exploration Agency “JAXA” at #4, European Space Agency “ESA” at #3, Russia's Russian Federal Space Agency “ROSCOSMOS” at #2, and U.S.'s National Aeronautics and Space Administration “NASA” at #1).

⁸ See generally JAXA *Missions*, JAXA, <http://global.jaxa.jp/projects/index.html> (last visited June 23, 2019) (explaining various space projects that Japan is currently involved in or plans on exploring).

⁹ See Paul Rincon, *Hayabusa-2: Japan sets date for spacecraft's asteroid touchdown*, BBC NEWS (Aug. 30, 2018), <http://www.bbc.com/news/science-environment-45363130> (describing Japan's current plan to land, mine, and return minerals from an asteroid).

some of its concerns, feeling that other nations' space activities pose a threat to U.S. national interests both economically¹⁰ and militarily.¹¹

America is currently in the middle of another space race in which it is vying for hegemonic control. Congress, in proposing the American Space Commerce Free Enterprise Act ("the Space Enterprise Act"),¹² has stated the success of "private exploration and use of outer space by non-governmental entities will further the national security, foreign policy, and economic interests of the United States."¹³ The U.S. government has shown a keen interest in helping the private space industry grow.¹⁴ With this show of support, private companies, such as SpaceX and Blue Origin, have begun to enter the field of space exploration.¹⁵

For the U.S. to remain ahead of other nations, Congress must act and pass currently proposed pieces of legislation¹⁶ to allow the private sector to grow. Without such legislation, the U.S. will lag behind the other space-faring nations in regard to space exploration.¹⁷ This is patently unacceptable.

Part I of this article discusses the international treaties that govern nations' activities in outer space, which impose certain regulations and requirements. This section outlines how such regulations hinder private U.S. space companies from growing by placing legal hurdles before them. Part II of this article focuses on foreign nations, primarily on Japan, China, Russia, and Luxembourg, and their

¹⁰ See Jeff Foust, *Commercial space bill clears Senate committee*, SPACENEWS (Aug. 1, 2018), <https://spacenews.com/commercial-space-bill-clears-senate-committee/> (describing the primary focus for new legislation is commercial reform); see also Sandra Erwin, *White House report: Defense industry faces 'unprecedented challenges,' China's 'economic aggression' a threat to national security*, SPACENEWS (Oct. 4, 2018), <https://spacenews.com/white-house-report-defense-industry-faces-unprecedented-challenges-chinas-economic-aggression-a-threat-to-national-security/> (describing how China's space program has a direct effect on the U.S. sale of certain technology and the economy as a whole).

¹¹ See Erwin, *supra* note 10 (explaining how China's space program threatens the U.S. national security); see also Douglas Loverro, *Why the United States needs a Space Force*, SPACENEWS (June 25, 2018), <https://spacenews.com/why-the-united-states-needs-a-space-force/> (explaining why it is important for the U.S. to have a separate space force organization).

¹² See American Space Commerce Free Enterprise Act, H.R. 2809, 115th Cong. (2018) (detailing how the U.S. plans on reorganizing the commercial space industry in order to keep up with competing nations).

¹³ *Id.*

¹⁴ See Marina Koren, *Space Art is Causing a Ruckus Among Astronomers*, THE ATLANTIC (Aug. 29, 2018), <http://www.theatlantic.com/science/archive/2018/08/orbital-reflector-trevor-paglen-space-art-humanity-star/568858/>.

¹⁵ See Alan Yuhas, *The new space race: how billionaires launched the next era of exploration*, THE GUARDIAN (Feb. 9, 2018), <https://www.theguardian.com/science/2018/feb/09/new-space-race-billionaires-elon-musk-jeff-bezos> ("The Space age was born out of a race between governments, starting with the Sputnik moment, what we're seeing in the last five to 10 years is this fomented competition between companies, and sometimes between governments and companies."); see generally CHRISTIAN DAVENPORT, THE SPACE BARONS: ELON MUSK, JEFF BEZOS, AND THE QUEST TO COLONIZE THE COSMOS (PublicAffairs, 1st ed. 2018) (explaining how companies started to enter into the space industry and change the direction of the industry).

¹⁶ H.R. 2809; Reasserting American Leadership in Space Act, H.R. 870, 115th Cong. (2017).

¹⁷ See *supra* text accompanying note 10.

existing practices and legal policies with respect to space exploration. These countries have shown the capability to directly challenge U.S. interests in space exploration.

Through the passing of domestic legislation to overcome the various hurdles imposed by international obligations, the United States' plan will be discussed in Part III. Part III also focuses on the Space Enterprise Act and how it can help bring the U.S. private space industry to the forefront by specifically targeting key legal hurdles currently being faced. Finally, Part IV concludes this article by analyzing the future effectiveness of the Space Enterprise Act. By proposing such legislation, Congress is showing that America still has the courage to shoot for the stars.

I. INTERNATIONAL TREATIES

The current legal environment for the private space sector in the U.S. is a plethora of transnational treaties and domestic rules and regulations. Companies wishing to enter the space industry must navigate this maze of laws. There are five international treaties governing nations' activities regarding outer space: the Outer Space Treaty,¹⁸ the Rescue Agreement,¹⁹ the Liability Convention,²⁰ The Registration Convention,²¹ and the Moon Agreement.²²

A U.S. company must comply with all international treaties and obligations in which the U.S. is a party.²³ This forced compliance imposed on private companies to follow transnational law is in place because the U.S. is responsible 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*." [emphasis added]²⁴

Three major barriers currently facing private companies as a result of these treaties are costly registration and licensing requirements,²⁵ liability concerns under

¹⁸ 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, 510 U.N.T.S. 205 [hereinafter "OST"] (commonly referred as the "Outer Space Treaty" and considered to be the cornerstone of international space law).

¹⁹ Agreement on the Rescue of Astronauts, the Return of Astronauts and the Return of Objects Launched into Outer Space, Apr. 22, 1968, 19 U.S.T. 7570 [hereinafter "Rescue Agreement"].

²⁰ Convention on International Liability for Damage Caused by Space Objects, Mar. 29, 1972, 24 U.S.T. 2389 [hereinafter "Liability Convention"] (explaining the liability requirements of nations and their space objects).

²¹ Convention on Registration of Objects Launched into Outer Space, Jan. 14, 1975, 28 U.S.T. 695, 1023 U.N.T.S. 15 [hereinafter "Registration Convention"] (explaining the process and obligations nations have to register any object that is launched in space from their territory).

²² Agreement Governing the Activities of the States on the Moon and other Celestial Bodies, Dec. 18, 1979, 1363 U.N.T.S. 3 [hereinafter "Moon Agreement"] (explaining how nations should handle their space-related activities while on the Moon).

²³ OST, *supra* note 18, at Article VI.

²⁴ *Id.*

²⁵ Solomon, *supra* note 4, at 99.

the Liability Convention,²⁶ and property rights.²⁷ Each of these issues deserve special attention because, “when you add legal uncertainty and bureaucratic barriers to the mix, it becomes more difficult to find willing investors.”²⁸ Without the possibility of investors, the private space-industry will not be able to flourish and expand.²⁹

(a) Registration and Licensing

The Registration Convention provides “[w]hen a space object is launched into [E]arth’s orbit or beyond, the launching State shall register the space object by means of an entry in an appropriate registry which it shall maintain.”³⁰ The U.S. requires companies to apply for a license and meet certain regulatory requirements in order to be in compliance with the Registration Convention.³¹ Countries are required to turn this information over to the Secretary-General of the United Nations³² so it can be recorded in a separate registry.³³ For a startup space company, this can be a very costly and time-consuming process that requires a good amount of capital and a lot of human resources.

In the U.S., the Federal Communications Commission (“FCC”) is the government agency that oversees and authorizes space objects that are bound for outer space.³⁴ Congress, over the years, has passed several pieces of legislation in order to make it easier for companies to obtain a license. Part of the need for new legislation is that the national³⁵ and international³⁶ regulations and agreements regarding space are outdated. They are unfit to manage a rapidly changing industry and the challenges it is facing.³⁷

²⁶ Liability Convention, *supra* note 20, at Article II-IV.

²⁷ OST, *supra* note 18, at Article II; Moon Agreement, *supra* note 22, at Article 11.

²⁸ See Solomon, *supra* note 4, at 93.

²⁹ *Id.*

³⁰ Registration Convention, *supra* note 21, at Article II.

³¹ *Id.*

³² *Id.* at Article IV.

³³ *Id.* at Article V.

³⁴ Koren, *supra* note 14.

³⁵ National Aeronautics and Space Act of 1958, Pub. L. No. 85-568, 72 Stat. 426 (codified as amended at 42 U.S.C. §§ 2451-84 (2006)); Commercial Space Launch Act, Pub. L. No. 98-575, 98 Stat. 3055 (1984) (codified as amended at 49 U.S.C. § 70101 (Supp. II 2008)). Communications Satellite Act of 1962, Pub. L. No. 87-624, 76 Stat. 419 (codified as amended at 47 U.S.C. § 701-69 (Supp. II 2008)); Land Remote Sensing Policy Act of 1992, Pub. L. No. 102-555, 106 Stat. 4163 (codified as amended at 15 U.S.C. §§ 5601-72); NASA Authorization Act, Pub. L. No. 106-391 §§ 303, 309, 114 Stat 1577, 1593 (2000).

³⁶ OST, *supra* note 18; Rescue Agreement, *supra* note 19; Liability Convention, *supra* note 20; Registration Convention, *supra* note 21; Moon Agreement, *supra* note 22.

³⁷ Solomon, *supra* note 4, at 2.

(b) Liability

The second legal hurdle faced, liability concerns, can be even more challenging than the registration process. Article VII of the Outer Space Treaty further explains that a State Party “is internationally liable for damage to another State Party to the Treaty or to its natural or juridical persons by such object or its component parts,”³⁸ whether the activity is carried on by governmental or non-governmental entities.³⁹ The responsibilities of nations are further spelled out in the Liability Convention, which assigns varying degrees of liability to parties depending on where an accident occurs.⁴⁰ Because Nation States can be held liable for damages caused by private companies under their jurisdictional control, many nations require private companies to carry some form of liability insurance.⁴¹ A typical insurance plan is extremely costly because it covers the entire projected flight history of the space object.⁴² This is yet another cost that a private company is burdened with.

(c) Property Rights

Article I of the Outer Space Treaty explains that “[t]he 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 the countries. . . and shall be the providence of all mankind.”⁴³ The treaty further states in Article II that “[o]uter 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 means.”⁴⁴ These two articles, further elaborated upon in the Moon Agreement,⁴⁵ are problematic for nations and private companies who wish to conduct possible mining operations in space. Read in total, these provisions in the treaties essentially do not allow for property rights in outer space.

In the U.S., property rights are protected under the Fifth and Fourteenth Amendments and cannot be taken away without due process of law.⁴⁶ Private individuals and companies have a fundamental right to property;⁴⁷ property rights include mineral rights and natural resources which one harvests. While the U.S. is

³⁸ OST, *supra* note 18, at Article VII.

³⁹ *Id.* at Article VI

⁴⁰ Liability Convention, *supra* note 20, at Article II-IV.

⁴¹ See American Space Commerce Free Enterprise Act, H.R. 2809, 115th Cong. (2018).

⁴² Solomon, *supra* note 4, at 99.

⁴³ OST, *supra* note 18, at Article I.

⁴⁴ *Id.* at Article II.

⁴⁵ Moon Agreement, *supra* note 22, at Article 11.

⁴⁶ U.S. CONST. amends. V, XIV.

⁴⁷ *Id.*

a party to the Outer Space Treaty,⁴⁸ the U.S. has neither signed nor ratified the Moon Agreement.⁴⁹ Therefore, the Moon Agreement's provisions that put further limitations on property rights is non-binding on the U.S.⁵⁰

As private companies begin to explore outer space, they are forced to operate in a legal grey area regarding property rights. This may mean that they will not be able to financially benefit from their initial investments.⁵¹ The denial of property rights in outer space is extremely troublesome and may have a negative impact not only on private exploration but space exploration as a whole.

II. FOREIGN COUNTRIES ACTIVITIES

The U.S. is not the only nation vying for control over outer space and celestial resources. Japan, China, Russia, and Luxembourg currently have their own respective agencies that rival those of the United States.⁵² Foreign countries are also attempting to pass their own national legislation that would ensure that their private companies' rights are protected.⁵³ Favorable legislation could entice private companies to conduct their business overseas.

Luxembourg has recently passed legislation that would allow for its private companies to have property rights in outer space.⁵⁴ This would include property rights over objects mined on the moon or other celestial bodies. The United Arab Emirates has also shown an interest in passing similar legislation; meanwhile, Russia and Brazil believe the current approach is in violation of international law.⁵⁵ Japan has recently launched missions to asteroids in hopes of determining if there are valuable resources. The recent Japanese Hayabusa-2 mission signaled to other countries that they are no longer far behind the United States in outer space exploration.⁵⁶

If Nation States begin to mine valuable celestial resources, the likelihood of conflict between nations will rise. The creation of a new international legal framework regarding property rights is imperative to promote the peaceful exploration of outer space. Possible failure of new legal framework can create lawlessness and exploitation of resources.

⁴⁸ OST, *supra* note 18.

⁴⁹ Moon Agreement, *supra* note 22, at Article 17-18.

⁵⁰ *Id.* (list of signatories).

⁵¹ Solomon, *supra* note 4, at 93.

⁵² *See* Thesis Scientist, *supra* note 7.

⁵³ Frans G. von der Dunk, Comment, *Asteroid Mining: International and National Legal Aspects*, 26.1 MICH. ST. INT'L. L. REV. 83, 96 (2017).

⁵⁴ *Id.*

⁵⁵ *Id.* at 96-99.

⁵⁶ *See generally* Rincon, *supra* note 9.

III. THE SPACE ENTERPRISE ACT

The problem with the international treaties governing space exploration is that they were written during the height of the Cold War, over forty years ago.⁵⁷ During this time, tensions in the international community were at an extreme high.⁵⁸ The tensions between nations led to a space race that was ultimately dominated by governments with limited interaction on behalf of the private sector.⁵⁹ Private companies are now facing legal barriers because of these treaties that were written during a different era and for different players.

Congress has realized the burden placed on private companies and is attempting to pass domestic legislation that will help ease the woes of private companies. The Space Enterprise Act, which has passed the House of Representatives and is currently before the Senate for voting, attempts to clarify certain legal concerns.⁶⁰ This is important because, “[b]usiness entities and investors, unsure of their rights and lacking assurance that their efforts and investments will receive legal protection, may hesitate to undertake the risks involved in developing new technologies and investing financial and human resources if they cannot be assured of some reasonable return.”⁶¹

(a) Registration Remedies

In the “Findings; Policy; Purposes” section of the Space Enterprise Act, Congress has found that “[a]uthorization and supervision mechanisms as of the date of enactment of this Act could be improved to relieve administrative burdens on new and innovative nongovernmental space actors.”⁶² Thus, Congress has made the registration process for private companies in the domestic sphere much easier. As a result, private companies can focus on compliance with international requirements set out by the Registration Convention.⁶³

It is Congress’ stated policy in the Space Enterprise Act that “nongovernmental activities in outer space shall only be authorized and supervised in a transparent, timely and predictable manner, with minimal costs and burdens placed on the entities authorized and supervised.”⁶⁴ The application process to obtain a license is outlined in § 80103.⁶⁵ The proposed application process

⁵⁷ Garber, *supra* note 4.

⁵⁸ *Id.*

⁵⁹ Solomon, *supra* note 4, at 3.

⁶⁰ *See generally* Space Enterprise Act, *supra* note 12.

⁶¹ Solomon, *supra* note 4, at 93.

⁶² *See* American Space Commerce Free Enterprise Act, H.R. 2809, 115th Cong. (2018), at § 2(a)(3).

⁶³ *See generally* Registration Convention, *supra* note 21.

⁶⁴ H.R. 2809, at § 2(b)(5).

⁶⁵ *Id.* at § 80103.

attempts to make it less expensive and faster for companies to obtain a license, allowing companies to focus on more crucial matters such as flight safety and security.

(b) Liability Remedies

There are certain liability concerns that private companies must still navigate. The Space Enterprise Act attempts to address some of the regulations and limitations that impact private companies.⁶⁶ In § 80305, Congress has suggested, “[t]o the maximum extent practicable, the President, acting through appropriate federal agencies, shall interpret and fulfill international obligations, including under the covered treaties on outer space, to minimize regulations and limitations on the freedom of the United States non-governmental entities to explore and use space.”⁶⁷ Consequently, private companies are more willing to be adventurous in space exploration. This further supported by § 80103 (c)(2)(B), stating that “[t]he Federal Government shall not presume all obligations of the United States under the Outer Space Treaty are obligations to be imputed upon United States non-government entities.”⁶⁸ With fewer obligations and less legal concerns, a company’s liability and insurance costs will decrease.

(c) Property Right Remedies

A founding principle of the Outer Space Treaty that outer space is seen as a global commons and the province of all mankind.⁶⁹ This principle has limited the idea of property rights in outer space. “Notwithstanding any other provision of law, outer space shall not be considered a global commons.”⁷⁰ By including this in the Space Enterprise Act, the U.S. has shown its departure from the general idea of space being a global commons. Furthermore, Congress has stated in the Policy section that “United States citizens and entities are free to explore and use space, including the utilization of outer space and resources contained therein, without conditions or limitations.”⁷¹ This is an attempt to alleviate the concern of private companies about their property rights in outer space.

The Constitution has protected individual property rights, granted under the Fifth and Fourteenth Amendments.⁷² The property rights of private companies are

⁶⁶ *Id.* at § 2(b)(3).

⁶⁷ *Id.* at § 80305.

⁶⁸ *Id.* at § 80103(c)(2)(B).

⁶⁹ OST, *supra* note 18, at Article I.

⁷⁰ See American Space Commerce Free Enterprise Act, H.R. 2809, 115th Cong. (2018), at § 80308.

⁷¹ *Id.* at § 2(b).

⁷² U.S. CONST. amends. V, XIV.

protected to the same extent as that of the individual.⁷³ The Space Enterprise Act continues to ensure that these property rights into outer space are guaranteed by § 80111 “The President shall — protect ownership rights of United States entity space objects and obtained space resources.”⁷⁴ Protecting private companies’ property rights over minerals and objects found in outer space ensures that U.S. economic interests are maintained in outer space.

IV. CONCLUSION

Space exploration has grown drastically since the early years of Sputnik and the Apollo missions.⁷⁵ Now private companies have emerged and many countries have entered the space race since then. The U.S. has shown the desire to ensure it remains ahead of other nations in space exploration. While trying to remain within the four corners of current international treaties, Congress has proposed legislation that would ensure the U.S. is a superpower in space exploration for years to come. The Space Enterprise Act will allow private companies to grow by more accurately defining private companies’ legal responsibilities and obligations. It will also allow private companies to grow by decreasing the cost and time it would take them to obtain licenses to send a space vehicle into outer space. It is not far-fetched to imagine a private company one day planting the American flag either on Mars or an asteroid in hopes of reigniting the American dream that Kennedy set out when he delivered his famous speech at Rice University.

⁷³ *Id.*

⁷⁴ H.R. 2809, at § 80111.

⁷⁵ Solomon, *supra* note 4, at 3.