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RENOVATING SPACE: THE FUTURE OF INTERNATIONAL SPACE LAW

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Buildings are constructed by first erecting an interior frame or architecture and then, upon that architecture, the exterior is layered on giving the building its appearance. In a similar fashion law is often layered on underlying social and geopolitical structures forming a structure which then affects how we interpret the underlying social structure.¹ Law, to the extent that it is reactionary in this manner, can only be fully understood when the underlying architecture that it has been mapped onto is exposed. Often though, like in older buildings, we find that the underlying architecture has changed. In buildings termites and settling affect the structure without changing the exterior characteristics. Law is similar to the extent that the values it embodies can remain in place well past the demise of the social structures that it was built to regulate. Due to the dynamic nature of the social sphere, law can encounter application and interpretation problems later in its life. Rigid interpretations may be a bad fit for newer developments, whereas adaptive interpretations can become controversial. Striking a balance in this spectrum can be difficult.

Understanding the architecture that laws are built on is important in understanding if and how older regulations can be applied to modern times. This is especially important in laws dealing with technological areas which are prone to rapid change but that nonetheless need regulation. In this article, the term "architecture" is used to describe the underlying social, cultural, and political environment that inevitably influenced the development of law. The interests involved in these areas build a framework upon which the law is then mapped so as to best serve the goals sought. Obviously though, society and politics are not static, and when they change the law is often left as a rigid exo-structure that no longer suits the architecture underneath. It becomes a

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1. It should be acknowledged that this is not a perfect analogy, and indeed is one that can be flipped on its head by arguing that law forms the architecture and society maps itself around law. In fact most likely both phenomena are happening. It is submitted though, that at the international level and especially in the area of regulation of technologies, the competing interests of States create an environment wherein law is more likely to be mapped onto geopolitical structures than vice versa.

historic building in need of restoration, and the law can often, in a sense, be renovated by evaluating the new architecture and remapping to suit that framework.

International space law (and indeed much of international law) is currently at a place wherein its underlying architecture has dramatically changed. This paper will discuss the future challenges for international space law as it is applied to new geopolitical situations and the trends that are developing as this process takes place. Part I will describe the architecture upon which international space law was built, Part II will discuss how that architecture has changed, and Part III will analyze the trends that are changing the structure of space law and shaping its future.

I. BUILDING A COLD WAR BUILDING

It is no secret that international space law is a product of the Cold War. There is a great deal of literature on its development and the roles that the United States and the Soviet Union played in negotiating the original founding principles.² This article will, as much as possible, avoid revisiting this well documented past. However, it will seek to give an understanding of the regulatory goals that the architects were building for in this geopolitical climate.

The primary goal of the architects when first negotiating space law principles was security.³ The popular narrative that accompanies the Space Race at the beginning of the "space age," involves two superpowers vying for technological superiority over the other. The launch of *Sputnik* is often portrayed as a black eye to the United States in its quest for space superiority, from a country that should have been its technological inferior.⁴ The oft forgotten part of that narrative is that the Soviet launch raised a serious strategic threat to the United

2. See generally Joanne Irene Gabrynowicz, *Space Law: Its Cold War Origins and Challenges in the Era of Globalization*, 37 SUFFOLK U. L. REV. 1041 (2004); WALTER MCDUGAL, *THE HEAVENS AND THE EARTH: A POLITICAL HISTORY OF THE SPACE AGE* (1985).

3. One of the prominent themes in Space Law is the concept of "peaceful purposes," this is because of the close relationship of space technology to that of weapons delivery systems. The lawmaking process held international peace and security at its heart, and the value is explicitly stated in Article III of the Outer Space Treaty: "States Parties to the Treaty shall carry on activities in the exploration and use of outer space, including the moon and other celestial bodies, in accordance with international law, including the Charter of the United Nations, in the interest of maintaining international peace and security and promoting international co-operation and understanding." Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies, opened for signature Jan. 27, 1967, 18 U.S.T. 2410, 610 U.N.T.S. 205 [hereinafter Outer Space Treaty].

4. Dwayne Day, *The Sputnik Non-surprise*, THE SPACE REVIEW, Sept. 8, 2009, <http://www.thespacereview.com/article/1457/1>.

States, in that it showed that the Soviet Union was much closer to the technology that would allow for the intercontinental delivery system for a nuclear warhead (an Intercontinental Ballistic Missile – ICBM). Tensions rose between the two states as they both got closer to developing not only the delivery capability for nuclear weapons but also the nuclear weapons themselves. The international community and specifically the two superpowers saw that there was great strategic risk, and that it warranted negotiating principles to reduce these tensions. This resulted in a UN General Assembly Declaration of Legal Principles followed by the Outer Space Treaty.⁵ The legal principles found in these documents were specifically designed to ease tension in outer space activities. Some of these principles are outright prescriptions, such as the ban on the “national appropriation” of space.⁶ Others are softer obligations that serve to build confidence by placing strong emphasis on principles such as transparency and international cooperation.⁷ The principles as a whole though served to lay the foundation of a legal regime that promoted the peaceful exploration of space by reducing the opportunity for tensions in the new arena.

These principles were later integrated into the Outer Space Treaty, which has been referred to as a “constitution for space.”⁸ This treaty, though, was designed to suit underlying societal and political realities that shaped the drafters goals.⁹ Primary amongst these realities is that the treaty was built around a binary world; one dominated by two symmetric yet opposed powers.¹⁰ As a result the law had to be seen by

5. Declaration of Legal Principles Governing the Activities of States in the Exploration and Use of Outer Space, G.A. Res. 1962 (XVIII), U.N. GAOR, 18th Sess., 1280th plen. mtg., U.N. Doc. A/RES/1962(XVIII) (Dec. 13, 1963).

6. *Id.* princ. 3.

7. *Id.* princ. 6.

8. Stanley B. Rosenfield, *Where Air Space Ends and Outer Space Begins*, 7 J. Space L. 137, 144 (1979).

9. It should be noted that this is not a critique of the drafters. They were writing law for the world they knew, and could not be expected to envision the changes in the geopolitical climate nor in the nature of space activities. While predictions of future technology are ubiquitous, they are often incorrect. See generally *The Paleofuture*, <http://www.paleofuture.com/> (last visited Aug. 24, 2011).

10. The use of symmetric here refers to goals and strategies. See P.J. Blount, *The Development of International Norms to Enhance Space Security Law in An Asymmetric World*, in PROCEEDINGS OF THE 52ND COLLOQUIUM ON THE LAW OF OUTER SPACE (2010). While technological and military might was not always in symmetry, the two states pursued very similar strategies in coping with the others power. The arms race the primary example of this relationship. Both sought sheer numerical superiority, as opposed to others sorts of advantages. This can be compared today wherein both States and other actors seek to gain strategic advantage via asymmetrical means. For example, a prominent thought in Chinese theory on warfare is the idea of defeating the superior with the inferior. See Zhao Nanqi, *Deng Xiaoping's Theory of Defense Modernization*, in CHINESE VIEWS OF FUTURE WARFARE 11, 18 (Michael Pillsbury ed., 1998).

both of these nations as serving its own self interests, otherwise it would fail for lack of support from one or the other. This, predictably, had a dramatic effect on the final product, in that law reduced tensions, but at the same time left lacunae in which states could pursue their own security interests.

A second underlying assumption that is critical to understanding the regulatory system adopted is that space activities were to be purely state undertakings.¹¹ While future commercial activities were to a small extent envisioned, international space law was built on the principle that space activities are uniquely state controlled activities. To this end the negotiators sought to control state actions as opposed to those of private actors. The idea of private actors was not completely ignored though, and Article VI of the Outer Space Treaty was drafted to deal with such situations. This article is quite exceptional in international law and makes states "internationally responsible for national activities in outer space" carried on by non-governmental actors.¹² At the end of the day though, the law was crafted around an architecture that did not include a full panoply of non-governmental actors, and has left numerous question about the obligations that states have to regulate these entities.

This geopolitical situation formed the underlying architecture that international space law was mapped onto. The space treaties were built to serve regulatory goals that served the vision of the world held by the drafters at the time. In fact mapping the law onto this structure was critical in achieving the primary regulatory goal of increasing international peace and security. If the law had not been constructed in such a way as to conform with the geopolitical architecture it is arguable that the system could have collapsed like a house of cards.

II. THE NEED FOR RENOVATION

In the past 20 years, the geopolitical climate in which space activities take place has changed dramatically. Most notably, the Cold

11. Eilene Galloway, *The Community of Law and Science*, 1 PROC. COLL. L. OUTER SPACE 62 (Andrew G. Haley & Welf Heinrich eds., Wein, Springer, Verlag 1959) (arguing that due to the great cost of space exploration "it is a matter for government appropriations."). See *Legal Problems of Space Exploration: A Symposium, prepared for the use of the Committee on Aeronautical and Space Sciences, U.S. Senate, by the Legislative Reference Service*, Mar. 22, 1961, Washington, Library of Congress, 450 (1961).

12. Outer Space Treaty, *supra* note 3, Art. VI. Compare this to the Draft Articles on State Responsibility which states that States only bear international responsibility when those actions are attributable to the State. Draft Articles on State Responsibility, Art. 8. It should be noted that Article 11 of the Draft Articles allow States to accept greater obligations in relation to making actions by non-governmental actors attributable to it, which is what the Outer Space Treaty does in Article VI. *Id.* Art. 11.

War ended and commercial actors have begun to edge their way into the market. These events have changed underlying architecture that space law was built around.

The End of a Binary Existence

The end of the Cold War, predictably, has had a dramatic effect on geopolitics in the world. No longer did two diametrically opposed symmetric superpowers exist. Instead there remained a dominant superpower, and “[s]pace went from being a two-player game with both players starting from the same point and nearly equally matched, to a multiplayer game with one leading player and many other various points of a spectrum of capabilities.”¹³ Specifically, Asian states have begun to get very involved in space activities. China, Japan, and Korea have all started their own space programs with varying levels of success. Korea is developing its indigenous launch capability¹⁴, Japan has become an important partner in the ISS¹⁵, and China has become the third nation to embark on a human exploration program¹⁶. In fact, some commentators have referred to this trend as a “new space race” that pits Asian nations against each other, but also in another iteration - pits the United States against China.¹⁷

Additionally, developing nations have begun to gain an increasing interest in access to the benefits of space technology. These states’ interests come in a wide variety. Some partner to gain access to data, some contract to have satellites launched on their behalf, and others seek out indigenous technologies. Developing nations have embraced space technology as way to participate in the global community via access to better telecommunications technologies as well as access to the benefits of remote sensing technologies, and this has led to the

13. JOAN JOHNSON-FREESE, *HEAVENLY AMBITIONS* 4 (2009).

14. Sang-Myon Rhee, *Current Status and Recent Developments in Korea’s National Space Laws*, 35 J. SPACE L. 523, 526-27 (2009).

15. See Agreement among the Government of Canada, Governments of the Member States of the European Space Agency, the Government of Japan, the Government of the Russian Federation, and the Government of the United States of America Concerning Cooperation on the Civil International Space Station (Jan. 29, 1998), available at <http://web1.olemiss.edu/ncrsasl/atlas/archive/files/48f1051fcc3fa68947ea7941fd7340b7.pdf>. See also Memorandum of Understanding between the National Aeronautics and Space Administration of the United States of America and the Government of Japan Concerning Cooperation on the Civil International Space Station (Feb. 24, 1998), available at http://www.nasa.gov/mission_pages/station/structure/elements/nasa_japan.html.

16. *China puts its first man in space*, BBC, Oct. 15, 2003, <http://news.bbc.co.uk/2/hi/asia-pacific/3192330.stm>.

17. Bruce Sterling, *The New Space Race*, WIRED, Dec. 2004, <http://www.wired.com/wired/archive/12.12/china.html> and Jeff Foust, *China and the US: Space Race or Miscommunication*, THE SPACE REVIEW, Mar. 3, 2008, <http://www.thespacereview.com/article/1075/1>.

adoption of a UN General Assembly resolution on space and developing countries.¹⁸ States have traditionally seen space as a way improve the lives of their citizens, achieve security goals, and increase their international stature.¹⁹ Space activities though have not been divorced from their early roots. Indicative of this is that some states have pursued space to achieve strategic goals by developing launch delivery systems. States such as Iran²⁰ and North Korea²¹ have pursued indigenous launch capability in order to develop completely domestic space programs and possible ICBM capabilities. These states have used the terms of the Outer Space Treaty to justify their exploration of technology that can lead to the development of delivery systems for weapons of mass destruction.²²

International space law was built around the tenets of international peace and security. To this end the Outer Space Treaty and its progeny can and should be read as security treaties. As already stated, they are security treaties built around a bipolar world. The goals and aspirations of these treaties still remain valid, but the activities they were meant to support and regulate have changed dramatically. First, maintaining security in a world with a wider and more disparately situated set of actors has become increasingly challenging. During the Cold War "the *modus operandi* that arose between the Soviet Union and the United States during the Cold War that each side appeared to value its own assets more than it valued the ability to destroy the assets of its adversaries."²³ This strategic balance is shifting with the proliferation of space actors. The idea that there are spoilers who might value the destruction of an adversary's space asset over preservation of their own is emerging.²⁴ The most accessible example of this is the entry of Iran and the attempted entry of North Korea into space activities. These outliers have both sought to become

18. Declaration on International Cooperation in the Exploration and Use of Outer Space for the Benefit and in the Interest of All States, Taking into Particular Account the Needs of Developing Countries, U.N.G.A. Res. 51/122 (Dec. 13, 1996).

19. For example, the Japanese Space Policy includes sections on economic growth, strategic growth, and space diplomacy. Setsuko Aoki, *Japanese Law and Regulations Concerning Remote Sensing Activities*, 36 J. Space L. 335, 350-64 (2010).

20. Adam Gabbat, *Iran Rocket Launch Opens Can of Worms in Space Race with West*, THE GUARDIAN, Feb. 3, 2010, <http://www.guardian.co.uk/world/2010/feb/03/iran-launches-rocket-carrying-animals>.

21. See THE NORTH KOREAN EXPENDABLE CARRIER ROCKET, UNHA-2: SELECTED LEGAL DOCUMENTS (P.J. Blount & Joanne Irene Gabrynowicz eds., 2010).

22. See P.J. Blount, *Developments in Space Security Law and Their Legal Implications*, 44/2 LAW/TECHNOLOGY 19, 35-39 (2011).

23. ROGER G. HARRISON, SPACE AND VERIFICATION VOLUME I: POLICY IMPLICATIONS 9 (Eisenhower Center 2011).

24. Charles D. Lutes, report, *National Space Forum 2007: Towards a Theory of Spacepower*, 2 SPACE AND DEFENSE 41, 55 (2008).

space actors, conspicuously though they are also both pursuing the development of nuclear weapons, and space launch vehicles are a very similar technology to ICBMs. Both countries though have used the concept of “peaceful purposes”²⁵ and have capitalized on the Outer Space Treaty guarantee of “free access”²⁶ as a shield to their activities. This is troubling because it allows the very laws that are supposed to ensure peace and security in space to be invoked to protect the development of technologies that can threaten peace and security terrestrially.

Another example of the increasing complexity of space activities can be seen in the relations between the United States and China. The United States does not trust China to not exploit space technologies to increase its military might, and to this end, whether right or wrong, the United States actively marginalizes China from space cooperation activities.²⁷ As a result, China has successfully developed these technologies without the assistance of the world’s leading space power. However, China also often behaves in a non-cooperative manner that threatens the security and safety of the space environment, which could probably be avoided if a more open dialogue was had among the space faring states. While the drafters of the Outer Space Treaty sought facilitate such discourse, the gaps left by the geopolitical architecture leave seams that both the United States and China can exploit.

The Ticket Office is Now Open

The second major development is the rise of commercial actors in space. Currently, there are several entrepreneurial companies around the world seeking to gain private access to space for a variety of reasons.²⁸ Interestingly, these “newspace” companies are seeking to step outside the status quo of governmental contracting which has been the norm for commercial space actors to date.²⁹ These entities are seeking to jumpstart business models for space tourism and private launch providers. While the success of this strategy has yet to be seen,

25. Iran launches homegrown satellite, BBC, Feb. 3, 2009, <http://news.bbc.co.uk/2/hi/7866357.stm> and KCNA, *Preparations for Launch of Experimental Communications Satellite in Full Gear*, in THE NORTH KOREAN EXPENDABLE CARRIER ROCKET, UNHA-2: SELECTED LEGAL DOCUMENTS, *supra* note 21, at 31.

26. Outer Space Treaty, *supra* note 3, Art. I.

27. Keith B. Richburg, *Mistrust stalls U.S.-China space cooperation*, THE WASHINGTON POST, Jan. 22, 2011, <http://www.washingtonpost.com/wp-dyn/content/article/2011/01/21/AR2011012104480.html>.

28. Jeff Foust, *The evolving ecosystem of NewSpace*, THE SPACE REVIEW, Aug. 15, 2011, <http://www.thespacereview.com/article/1906/1>.

29. MARYLAND DEPARTMENT OF BUSINESS AND ECONOMIC DEVELOPMENT, MARYLAND: THE BUSINESS OF SPACE SCIENCE 11 (May 2011) (“For decades it was largely driven by government markets and manned space flight. While still substantial, government spending on space no longer accounts for the majority of economic activity.”).

there is hope that these companies can survive. The idea of privatizing space access does seem to be gaining ground, as well. Of particular interest is the new United States Space Policy which relies on buying services from such providers in the post Space Shuttle era.³⁰ The government is looking to buy the service as opposed to the hardware.³¹ This, of course, begs the question of whether these start-up companies will rely on government contracts for their existence much as their predecessors have. Regardless, though, these companies seem to be fundamentally different, and that difference is helping to change the state motivations behind space regulation.

The shift that is being seen in space regulation is an important one, since it serves to inform what state interests and goals are. As stated above security has been a primary and historical goal of states when regulating space activities. Commercial actors in space have begun to change how states view regulatory goals. Specifically, the goal of fostering commercial space activities to enhance the economic life of the country and to enhance the everyday life of citizens has been introduced. This goal is different in form and often conflicts with ideas of security. A prime example of this is the ongoing debate over property rights on celestial bodies.³² Property rights for private entities would be more economically favorable to commercial space exploration as it would help to ensure investments of companies seeking to exploit resources on celestial bodies. However, if as the majority of scholars argue, these rights are precluded by the Outer Space Treaty, then private entities will lack incentive to invest in the exploitation of those resources due to the lack of predictability on whether the investment will be protected. The non-appropriation clause in the Outer Space Treaty does indeed serve a security interest by disincentivizing states from reenacting terrestrial "land rushes" and taking boundary disputes – a traditional reason for armed conflict – into space.³³ The conflict

30. NATIONAL SPACE POLICY OF THE UNITED STATES OF AMERICA 5 (June 28, 2010).

31. To this end NASA has sponsored Space Act Agreements through its Commercial Orbital Transportation Services (COTS) program to help commercial actors develop their technology. NASA, Commercial Crew and Cargo Program: Commercial Orbital Transportation Services, http://www.nasa.gov/centers/johnson/pdf/429622main_FS-2009-006-009-JSC-COTS021710.pdf.

32. See generally FABIO TRONCHETTI, THE EXPLOITATION OF NATURAL RESOURCES OF THE MOON AND OTHER CELESTIAL BODIES: A PROPOSAL FOR A LEGAL REGIME (Martinus Nijhoff 2009); VIRGIU POP, WHO OWNS THE MOON?: EXTRATERRESTRIAL ASPECTS OF LAND AND MINERAL RESOURCES OWNERSHIP (Springer 2009).

33. JOHNSON-FREESE, *supra* note 13, at 34 ("... both the Soviet Union and the United States instead endorsed the principle that sovereignty cannot be extended to space. Both countries took the approach that it was in their interests to use space to stabilize *deterrence*, the guiding strategic doctrine of the day, and to support arms control toward that goal. That meant that in order to protect their own interests, both had to accept the use of space by each other, and eventually other countries. This acceptance

between these goals increases risk for commercial actors in an already risky environment.

States are now beginning to adopt as a goal the development of the commercial space industry. This differs from a great deal of national legislation which is intended to protect national security interests as well as ensure compliance with international treaties. A robust commercial space industry can be a competing goal with national security, and poses specific problems for compliance with international agreements. While there is now a trend among nations to write such encouragement into national legislation, these laws must comport with the requirements of the Outer Space Treaty. But as explored below these laws can inform, via a feedback loop, us as to the content of the norms contained in the Outer Space Treaty, especially in light of its more ambiguous terms.

III. THE FUTURE OF SPACE LAW

Tearing Down the House?

Drawing from the architecture analogy, the immediate question when approaching an old structure is whether it should be razed and a new structure built, or whether it can be salvaged and whether it is worth being salvaged. Are its boards too rotten to support new users, and can it be adapted to fit the new uses? The first question to be addressed when investigating the future of space law is whether the international regime flowing from the Outer Space Treaty can still be effective in a dramatically changed world.

The arguments for scrapping the system include a lack of clarity in the Outer Space Treaty, the inhibiting nature of its rules due to drafting for a different geopolitical climate, and its lack of attention to commercial entities.³⁴ These arguments point to lacunae and ambiguous terms found in the regime, which create questions of meaning and the possibility for low or unfavorable regulability of some activities. For instance, the Chinese ASAT of 2007 was unarguably a destabilizing moment for space and led to decreased security and safety in space. However, legal scholars, though mostly in agreement that the act was not within the spirit of the law, were hard pressed to find a

reflected a largely tacit acknowledgement that the physical environment of space was so different, and limiting, that there was little choice but to treat it differently in terms of expectations of sovereign rights.”).

34. See generally John Hickman, *Still crazy after four decades: The case for withdrawing from the 1967 Outer Space Treaty*, THE SPACE REVIEW, Sept. 24, 2007, <http://www.thespacereview.com/article/960/1>. Theresa Hitchens, *The Perfect Storm: International Reaction to the Bush National Space Policy*, HIGH FRONTIER JOURNAL, Mar. 2007, at 23.

specific clause that outlawed such behavior.³⁵ Most argued that China violated Article IX by not seeking consultations.³⁶ States on the other hand, made diplomatic protests, but did not direct legal claims at China.³⁷ This is because the Outer Space Treaty left the use of conventional weapons an open question, by simply not addressing them in relation to space.³⁸ Some would argue that this justifies the negotiation of a new treaty that better protects the space environment.

While these arguments can be compelling, they fall short of being realistic, primarily due to state reluctance to adopt new space law.³⁹ The last space treaty, the Moon Agreement, was adopted in 1979 and has only 13 States Parties.⁴⁰ States seem to be uninterested in negotiating new law, and the idea of renegotiating the principle document is outside the realm of current possibility. More substantively, renegotiating the Outer Space Treaty would most likely only result in a different treaty that has many of the same flaws. No treaty completely covers all possible scenarios, thus no treaty is ever complete. To this end the Outer Space Treaty actually has great advantages. It holds very few hard prescriptive articles, and instead regulates with open language that requires states to communicate in order to avoid conflicts. This tactic also allows that treaty to develop via state practice, which adds to its adaptability.

The Outer Space Treaty sets out core values and aspirations that are still at the heart of international space law, many of which may have solidified into custom. These core concepts though must be able to adapt to the actual experience of space actors. As a result, the treaty must be remapped onto the new architecture. This remapping is happening through a variety of mechanisms that are helping to protect state interests as well as increase the regulability of space.

35. See generally Li Juqian, *Legality and Legitimacy: China's ASAT Test*, 5 CHINA SECURITY 43 (2009); Eugene Marder, *CPR for the OST: How China's Anti-Satellite Weapon Test Can Breathe New Life into Article IX of the Outer Space Treaty*, Center for Defense Information, <http://www.cdi.org/pdfs/ChineseASATtest.pdf> (2008); Michael C. Mineiro, *FY-1C and USA-193 ASAT Intercepts: An Assessment of Legal Obligations under Article 9 of the Outer Space Treaty*, 34 J. SPACE L. 321 (2008).

36. Marder, *supra* note 35; Mineiro, *supra* note 35.

37. Marder, *supra* note 35, at 1-2, 11.

38. Arguably, this is by design since Article IV of the Treaty specifically bans weapons of mass destruction from space and celestial bodies and specifically bans conventional weapons from celestial bodies, but fails to mention conventional weapons in relation to space. Outer Space Treaty, *supra* note 3, Art. IV.

39. For a history of International space law regulation see Sergio Marchisio, *The Evolutionary Stages of the Legal Subcommittee of the United Nations Committee on the Peaceful Uses of Outer Space (COPUOS)*, 31 J. SPACE L. 219 (2005).

40. Agreement Governing the Activities of States on the Moon and Other Celestial Bodies, *opened for signature* Dec. 18, 1979, 1363 U.N.T.S. 21 [hereinafter Moon Agreement].

Soft Law

Soft Law mechanisms are becoming a more prevalent aspect of international law. States seek legal order in order to create orderly relations among themselves, but hard law obligations “[entail] significant costs: hard law restricts actors’ behavior and even their sovereignty.”⁴¹ Soft law comes in many forms and is difficult to define. Abbot and Snidal argue that “[t]he realm of ‘soft law’ begins once legal arrangements are weakened along one or more of the dimensions of obligation, precision, and delegation” with the “softening . . . occur[ing] in varying degrees along each dimension and in different combinations across dimensions.”⁴² Essentially, soft law occurs on a spectrum, and “the choice between hard law and soft law is not a binary one.”⁴³ Due to their nonbinding nature these mechanisms can help states to maximize the goals being sought while minimizing the risk taken.⁴⁴ As a result soft law agreements are “often easier to achieve than hard legalization.”⁴⁵ This allows states to creatively tackle international problems for which they are unwilling to make sacrifices of their own sovereignty.

Space law is no stranger to the concept. In fact it can be argued that much of space law is built on soft law ideas. This is because a great deal of the Outer Space Treaty uses ambiguous language and creates obligations that lack in precision or obligation and are open to interpretation by states. For instance, Article IX of the Outer Space Treaty states that:

In the exploration and use of outer space, including the moon and other celestial bodies, States Parties to the Treaty shall be guided by the principle of co-operation and mutual assistance and shall conduct all their activities in outer space, including the moon and other celestial bodies, with due regard to the corresponding interests of all other States Parties to the Treaty. States Parties to the Treaty shall pursue studies of outer space, including the moon and other celestial bodies, and conduct exploration of them so as to avoid their harmful contamination and also adverse changes in the environment of the Earth resulting from the introduction of extraterrestrial matter and,

41. Kenneth W. Abbott & Duncan Snidal, *Hard and Soft Law in International Governance*, 54/3 INTERNATIONAL ORGANIZATIONS 421, 422 (2000).

42. *Id.* They use the term “soft law” to “distinguish this broad class of deviations from hard law — and, at the other extreme, from purely political arrangements in which legalization is largely absent.” *Id.*

43. *Id.*

44. *Id.* at 423 (“Soft law offers many of the advantages of hard law, avoids some of the costs of hard law, and has certain independent advantages of its own.”).

45. *Id.*

where necessary, shall adopt appropriate measures for this purpose. If a State Party to the Treaty has reason to believe that an activity or experiment planned by it or its nationals in outer space, including the moon and other celestial bodies, would cause potentially harmful interference with activities of other States Parties in the peaceful exploration and use of outer space, including the moon and other celestial bodies, it shall undertake appropriate international consultations before proceeding with any such activity or experiment. A State Party to the Treaty which has reason to believe that an activity or experiment planned by another State Party in outer space, including the moon and other celestial bodies, would cause potentially harmful interference with activities in the peaceful exploration and use of outer space, including the moon and other celestial bodies, may request consultation concerning the activity or experiment.⁴⁶

The obligations contained in this section are generally “soft” in nature. The “hardest” obligation is the requirement that states seek consultations if they think they may cause “harmful interference,” which does not actually include harmful interference. The other obligations are extremely soft in nature and place few limits on the actions of states. States have rarely (if ever) sought such consultations, and indeed the idea of a consultation in no way precludes a state from taking a specific action. Instead it only gives other states the ability to weigh in to the activity. An example can be seen in the aforementioned Chinese ASAT test. China did not seek a consultation, and more importantly, no state, save Japan,⁴⁷ invoked Article IX, despite the fact that there was evidence that the United States knew about the test beforehand.⁴⁸ Additionally, the United States decided that it fell outside Article IX when it conducted an ASAT intercept the following year.⁴⁹ This is because both states were free to interpret Article IX as they saw fit due to the lack of precision in the Article. Article IX creates obligations, but they are soft obligations with a low level of precision and a low level of enforceability.⁵⁰ These types of provisions are

46. Outer Space Treaty, *supra* note 3, Art. IX.

47. Marder, *supra* note 35, at 11.

48. JOHNSON-FREESE, *supra* note 13, at 12.

49. DoD News Briefing with Deputy National Security Advisor Jeffrey, Gen. Cartwright and NASA Administrator Griffin, in USA-193: SELECTED DOCUMENTS 51, 52 (P.J. Blount & Joanne Irene Gabrynowicz eds., 2009) (“While we do not believe that we meet the standard of Article IX of that treaty that says we would have to consult in the case of generating potentially harmful interference with other activities in space, we do believe that it is important to keep other countries informed of what is happening.”).

50. See HARRISON, *supra* note 23, at 8-9. “Even in areas of Treaty-imposed constraint that were remained [sic] pertinent,” particularly the prohibitions against “interfering with

common in space law, because they serve state interests. As a result, while there is a core of hard provision, space law was developed as a flexible regime that can be re-envisioned with changes in its underlying architecture. The values that it supports still serve as important end goals, but the application of the law can change to best achieve these goals in any given set of circumstances.

Adapting the Hard Law

If, as argued, the Outer Space Treaty is the proper mechanism to be regulating space activities in space, and this Treaty consists to a large extent of soft obligations, then through what mechanisms is this law to be adapted to new circumstances? This is essentially the same question that is faced when approaching domestic issues and constitutional interpretation in light of situations not envisioned by the framers, especially in light of technological advances. When such questions arise domestically, competing interpretations vie for prominence, until an official ruling by an ultimate court gives a (hopefully) definitive answer to the question. In much the same way, the Outer Space Treaty, the “constitution” for space, has similar problems. The drafters, taking into account the geopolitical architecture of the time, were often ambiguous as to meaning. In order to serve state interests, and as technology and the geopolitical architecture have changed, the meaning of the Outer Space Treaty’s clauses has gradually become more contested. Unfortunately, there is no “Space Supreme Court” to give definitive interpretations of what passages require in light of new developments. International law does present a tool to help elucidate these meanings.

The Vienna Convention on the Law of Treaties gives a rubric for treaty interpretation. It starts with the idea that the ordinary meaning of words within the purpose and scope of a treaty should be used to interpret the treaty text.⁵¹ It also allows, as a tenet of treaty interpretation, interpreters to take into account state practice in relation to a treaty to determine the meaning of the text.⁵² This can be a powerful tool when looking at soft terms in a treaty.

Returning to the ASAT example and Article IX, we can see how such interpretation works. In the case of the Chinese ASAT test and

other states’ space-related activities” and “damaging the space environment,” the OST had less than decisive impact – not because of an inability to verify, but an unwillingness to enforce. This unwillingness apparently stems from concern about disclosing sources and methods, and a reluctance to contribute to the establishment of norms that might limit freedom of action. *Id.*

51. Vienna Convention on the Law of Treaties art. 31(1), May 23, 1969, 1155 U.N.T.S. 331 (1969).

52. *Id.* art. 31(3b).

the U.S. intercept of USA-193, the author has previously argued that state practice points to a *de minimis* standard of information sharing to fulfill Article IX requirements.⁵³ Both states engaged in similar activity, however, the United States did so with a great deal of transparency and explicitly acknowledged its Article IX obligations. China on the other hand acted without transparency. China's test was condemned diplomatically by the international community and the United States' was not. From these incidents the contours of the content of Article IX can begin to be derived. Interestingly, the adoption of soft law agreements (discussed below) to facilitate more robust standards could lead in the future to a shift in the meaning of Article IX to require more than the most basic of information. Widespread adoption of soft law mechanisms can feasibly transform via wide state practice to treaty practice.

Extending the Law

It is clear that states are reluctant to adopt new treaties relating to space activities. One of the major factors for this is that states, particularly the United States, prioritize national security and are reluctant to undertake any obligation that would limit activities in pursuit of such goals. This is best highlighted by the former United States space policy, which stated that "[t]he United States will oppose the development of new legal regimes or other restrictions that seek to prohibit or limit U.S. access to or use of space."⁵⁴ States will preserve their interests in a strategic manner, and not subsume them to new law unless there is an equally strong advantage. Another issue that stands in the way of new legal instruments is that of verification. Verification of compliance with treaties in Outer Space can be technically difficult, and as a result "[n]o major space actor is likely to accept meaningful constraints on its freedom of action in space unless it can verify independently the compliance of others."⁵⁵ States enter treaties when it is in their best interest, and unverifiable treaties unavoidably create risks of noncompliance. As a result, states are reluctant to bind themselves in ways which they see as strategically limiting. Without new international agreements states are left to rely on the Outer Space Treaty and its progeny to regulate space. However, these agreements have proved to have weaknesses that can be exploited. This has been illustrated by China's ASAT test as well as North Korea's attempted space launch, which looked suspiciously like an ICBM test.

53. Blount, *supra* note 22, at 33-35.

54. US National Space Policy, <http://www.fas.org/irp/offdocs/nspd/space.html> (Aug. 31, 2006).

55. HARRISON, *supra* note 23, at 2.

Despite the unlikelihood of a new treaty that helps to ensure the future security of space, states have sought other innovative solutions. These solutions have come in the form of soft law agreements. Instruments such as the IADC Space Debris Mitigation Guidelines⁵⁶ as well as the European Union's Draft Code of Conduct for Space Activities⁵⁷ seek to address the changed geopolitical architecture with instruments to which states can accede without being bound by international law. These agreements weaken the obligation element so as to allow states to comfortably pursue goals without the risk of binding themselves. These types of agreements have advantages for states. They serve to build confidence among states and help to foster cooperation.⁵⁸ Also, they can be used as regulation labs, by allowing states to try out certain regulatory mechanisms with reduced risk if the mechanisms are not effective.⁵⁹ Furthermore, these types of agreements also can help to fill a void. Whereas before, there was a lack of dialogue on new agreements, now there is open debate and interaction among states on these important questions. These agreements will be analogous to the idea of *lex mercatoria*, wherein business actors agree on best practices and follow these practices out of utility and efficiency. Soft law mechanisms for space activities seek to bring space actors to the table and facilitate dialogue on ways in which their own self interests can be fulfilled via more efficient mechanisms.

One of the major components going forward with such mechanisms will be the exchange of information. Space is becoming increasingly congested and a higher risk area in which to operate. States, however, use space as a crucial component of both commercial infrastructure and national security infrastructure. The ability to operate in space is critical. In order to do that effectively states must have information about the environment in which they are operating. This was highlighted recently when a telecommunications satellite collided on orbit with a defunct Russian governmental satellite.⁶⁰ Information exchange has been entrenched in the space law regime from the very beginning, but it has never been clear how much information has been required to be shared. While data exchange will be important in the emerging soft law regimes, it is important to note that

56. IADC Space Debris Mitigation Guidelines, IADC-02-01 (Sept. 2007).

57. Council of the European Union, Council Conclusions concerning the revised draft Code of Conduct for Outer Space Activities, Council Doc. 14455/10 (Oct. 10, 2010).

58. Abbott & Snidal, *supra* note 41, at 423 ("soft law facilitates compromise, and thus mutually beneficial cooperation, between actors with different interests and values, different time horizons and discount rates, and different degrees of power.").

59. *Id.* ("It offers more effective ways to deal with uncertainty, especially when it initiates processes that allow actors to learn about the impact of agreements over time.").

60. AGI Media Center, *Iridium 33 and Cosmos 2251 Satellite Collision*, Feb. 12, 2009, <http://www.stk.com/corporate/mediaCenter/news/iridium-cosmos/>.

nongovernmental space actors are also seeking to gain access to more information about the space environment. INTELSAT has spearheaded a movement wherein commercial actors will exchange information about the space environment in order that they may all operate more efficiently creating another layer of soft obligations.⁶¹ These satellite operators will engage in this effort despite the fact that they are competitors. This sort of cooperation highlights an important point about soft law mechanisms. First is that soft law need not be among states, in fact as non-state actors pursue the exploitation of space they will develop standards that become a form of "law." Soft law is about increasing efficiency and guaranteeing operability. To this end, all the players, not just states will have important input, and such mechanisms will be adopted at a variety of levels.

Designing New Rooms in the Architecture

Article VI of the Outer Space Treaty is an extraordinary clause in international law. It is one of the rare instances recognized in the Draft Articles on State Responsibility wherein states have opted to adopt more responsibility for the actions of their nongovernmental actors than attributed by customary international law. Article VI states that:

States Parties to the Treaty 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, and for assuring that national activities are carried out in conformity with the provisions set forth in the present Treaty. The activities of non-governmental entities in outer space, including the moon and other celestial bodies, shall require authorization and continuing supervision by the appropriate State Party to the Treaty. When activities are carried on in outer space, including the moon and other celestial bodies, by an international organization, responsibility for compliance with this Treaty shall be borne both by the international organization and by the States Parties to the Treaty participating in such organization.

While there is much debate as to the exact content of Article VI, one must appreciate the burden and risk that this places on states. By creating an affirmative obligation to authorize and supervise non-governmental actors in space in addition to making states responsible for the activities of these entities, Article VI makes it a high risk

61. See Richard Dalbello, *Data Sharing for Space Situational Awareness: Government Responsibility under Article VI of the Outer Space Treaty*, <http://www.iislweb.org/docs/2008-3rd-galloway-dalbello.pdf> (Dec. 11, 2008).

activity for a state to allow commercial actors to operate in the space environment. In the past legislation has been written so as to help states effectively fulfill Article VI obligations. Traditionally this has been through licensing regimes for nongovernmental actors. These regulations are the feedback loop that helps to inform the international community what constitutes the proper measures for compliance with Article VI. Again, this is an area where state action can influence the interpretation of the Treaty's clause.

As the importance of a healthy commercial space sector has grown, legislation has begun to increasingly have a different set of goals underlying it. In general these goals are meant to incentivize doing business in the space sector. The most prominent example is the oft-discussed Federal Aviation Administration's Human Spaceflight Requirements.⁶² These United States regulations seek to encourage private human space flight by, among other things, requiring space flight providers to give informed consent to space flight participants in order to reduce possible claims against the space transportation provider in the case of an accident.⁶³ These innovative regulations seek to encourage the industry by reducing the risk of doing business and thereby increasing the commercial viability of such operations. Other regulatory regimes have followed suit and attempted to offer other financial incentives to space actors.⁶⁴

This trend is one that will continue as the commercialization of space continues. It is important to note though, that these are domestic rules, therefore states must be cautious that they still fulfill their obligations under the Outer Space Treaty, specifically Article VI. The interplay between domestic legislation and international law will become an increasingly important theme in the development of international space law. This is especially true if the number of commercial actors proliferates as predicted. It should also be noted that as domestic law develops and defines items such as best practices for space flight providers, these developments can have influence at the international level and on the development of soft law mechanisms. For instance, the FAA regulations seek to not adopt safety guidelines and standards at a time when it may be too preliminary to know what those standards should be. This leaves the door open for the industry itself to adopt these standards for efficiency, creating soft law at the industry

62. Human Spaceflight Requirements, 14 C.F.R. 460 (2011).

63. 14 C.F.R. 460.45. See also Tracey Knutson, *What is "Informed Consent" for Space-Flight Participants in the Soon-To-Launch Space Tourism Industry?*, 33 J. SPACE L. 105 (2007).

64. See generally P.J. Blount, *If You Legislate It They Will Come: Using Incentive Based Legislation to Attract the Commercial Space Industry*, *Air & Space Lawyer*, v. 22/3 (2009).

level. The United States can then, as the industry develops, adopt regulations that solidify these practices. This adoption can be influential at the international level as states seek to define how to engage in space activities in a responsible manner. Mechanisms, whether hard or soft, that increase safety will be beneficial to commercial actors, since the perceived safety of the industry will affect all the entities involved. States will in turn though have to close the loop in order to ensure that adopted industry practices comport with international obligations. As this is done, those mechanisms can become the mechanisms that build consensus in the international community via nontraditional law-making routes.

CONCLUSION

Laws, like buildings, sometimes need renovations and updates, especially when the architecture beneath them has changed. International space law was mapped onto a geopolitical structure that no longer controls the dynamics of space activities. It is important that the law adapt to the changed circumstances. Luckily, international space law is not in a state of decrepitude wherein it must be torn down. Instead it can be renovated to work with the new, updated architecture.

This paper has sought to illustrate the likely path that the development of international space law will take in the future. This path will be mix of regulatory mechanisms that empower states to best maintain the domestic advantages they receive from space as well as the freedom of access and exploration by all states. Importantly, non-state actors are rising in prominence which leads to particular problems for international regulations. States will seek to foster these industries, but at the same time, must fulfill their international obligations. Though controversial, soft law obligations are the most likely route for states to take in relation to space activities. This sort of "legal" mechanism creates favorable situations for states to engage in the international discourse as well as preserve their own interests.



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