

The Next Fifty Years of the Outer Space Treaty

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Good afternoon. I am delighted to take part in this year's Galloway Symposium commemorating the fiftieth anniversary of the Outer Space Treaty. There is much to commemorate. The Treaty is the cornerstone of an international legal framework for outer space that has enabled the exploration and use of space by an increasingly diverse range of actors, serving a growing set of vital needs on Earth. You don't need me to tell you this: the International Institute of Space Law (IISL) – and Eilene Galloway – were present at the creation of the Outer Space Treaty and helped to write much of the history of its first half century.

This is a fitting juncture to offer some observations on how the Outer Space Treaty is guiding the United States' planning and preparation for the future. As we speak, the public and private sectors are making investments in capabilities to advance our understanding of our solar system and unlock new space applications. I am confident that as the world grows increasingly reliant upon space, as more States and actors within States become active in space, the Outer Space Treaty and the fundamental legal principles it embodies will be even more vital in 2067 than they were in 1967.

Let me begin briefly by looking back six decades or so, before the international law of outer space had really emerged. In 1958, less than a year after Sputnik's launch, Professors Myers McDougal and Leon Lipson published *Perspectives for a Law of Outer Space* in the American Journal of International Law. These scholars did not attempt to predict the precise space capabilities or activities of the coming decades, and they viewed attempts to regulate such unknowns as not being either politically possible or desirable. In their view, the establishment of legal standards for outer space would be a slow and deliberative process, guided by time, experience, and repeated interactions among nation states.

Yet Professors McDougal and Lipson and their peers also understood that certain fundamental legal questions about this new domain would need to be answered on the front end. For example, does territorial sovereignty extend

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into outer space? May States assert sovereign rights in celestial bodies? Which States are legally responsible for the conduct and consequences of objects placed in outer space?

These basic questions about the legal character of this new domain were addressed by the entire international community of States in the United Nations General Assembly's 1963 Declaration of Legal Principles Governing the Activities of States in the Exploration and Use of Outer Space. The basic principles from that Declaration were embodied in the Outer Space Treaty, and they were further elaborated in the Rescue and Return Agreement, the Liability Convention, and the Registration Convention. That these instruments do not speak to any particular space activity in detail is key to their continued relevance today, and will be key to their enduring importance fifty years from now.

Today it may be easy to take the ubiquity and vibrancy of non-governmental space activities for granted. But as the international legal framework for space took shape, this future was far from certain. In the negotiations leading to the General Assembly Declaration, the Soviet Union pressed to restrict space activities to governments. In the United States, the private sector already had plans for privately operated telecom satellites. Our government thus advocated for a formulation that would preserve the possibility of non-governmental space activities. Under Article VI of the resulting Outer Space Treaty, non-governmental activities are permitted, but States Parties are responsible for such activities and have an affirmative legal obligation to supervise them and ensure their conformity with the Treaty. Thus, under the Treaty, States Parties ensure that all actors in space, governmental and non-governmental, operate according to a common legal framework.

The steady growth in commercial activities in outer space is one of the major success stories of the Outer Space Treaty's first half century. Today, roughly half of all satellites in outer space are private. Commercial activities account for a considerable share of the space applications on which we rely. There is every indication that this trend will continue into the future.

Among newly contemplated commercial space activities, none have captured the interest of the legal community more than the prospect of utilizing space resources. As humans press deeper into space and explore the habitability of other planets in our solar system, missions will be less reliant upon support from Earth and increasingly reliant on resources in outer space. Government space agencies are not alone in contemplating the utilization of resources found in celestial bodies to support deep space missions. Private firms have announced ambitious plans to develop parts of a deep space infrastructure to utilize space resources – water and minerals, for example – by converting them into fuel, and even manufacturing spacecraft in space.

Whether in the press, academic literature, or the United Nations, legal discussions about space resource utilization are often accompanied by

spirited debate about the consistency of these activities with the Outer Space Treaty. In an effort to offer legal certainty to U.S. firms that may invest in space resource utilization activities, Congress enacted the Space Resource Exploration and Utilization Act of 2015. This law seems to have generated some confusion and controversy, and I would like to clarify what it does and does not do.

We have heard concerns from some foreign partners, for example, that the law attempts to abrogate the United States' obligations under the Outer Space Treaty. In fact, it is just the opposite. Rather than abrogating the United States' international obligations, the Space Resource Utilization Act affirms that space resource utilization activities are subject to the United States' international obligations. By its terms, the Act sanctions space resource utilization only "in manners consistent with the international obligations of the United States." Similarly, the Act only recognizes rights in resources "obtained in accordance with applicable law, including the international obligations of the United States." The Act also recognizes that non-governmental space resource utilization activities are "subject to authorization and continuing supervision by the Federal Government."

The Act is also consistent with the United States' longstanding position that the Outer Space Treaty shapes the manner in which space resource utilization activities may be carried out, but does not broadly preclude such activities.

The United States' position on the issue of space resource utilization dates back several decades. For example, in 1979, Secretary of State Cyrus Vance articulated what was already at that point a longstanding U.S. interpretation of Articles I and II of the Treaty. Secretary Vance told members of the Senate Foreign Relations Committee that, under Article II of the Treaty, "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." He went on to explain that "this 'non-appropriation' principle applies to the natural resources of celestial bodies only when such resources are 'in place.'" The prohibition on national appropriation does not, however, limit "ownership to be exercised by States or private entities over those natural resources which have been removed from their 'place' on or below the surface of the moon or other celestial bodies." Such removal, Secretary Vance further explained, is permitted by Article I of the Outer Space Treaty, which provides that "outer space, including the moon and other celestial bodies, shall be free for exploration and use by all States..."

In 1980 testimony before the Senate, State Department Legal Adviser Roberts Owen reiterated that "the United States has long taken the position that Article I of the Treaty... recognizes the right of exploitation." He acknowledged that this view is not shared by all States or commentators, and this remains true today. Notwithstanding the variety of States' political

positions on space resource utilization, the United States remains confident that its interpretation of Articles I and II over many decades and many administrations represents the better reading of the Treaty.

The Outer Space Treaty does shape the manner in which space utilization activities may be conducted. For example, space resource utilization activities may not be structured around rights in celestial bodies or their resources in place, since Article II of the Treaty prohibits the creation of any such rights. On the other hand, Article VIII clarifies that launching an object into outer space, including to the Moon and other celestial bodies, does not affect that object's ownership. Entities engaged in space resource utilization activities will therefore retain ownership interests in their equipment, including whatever non-interference rights flow from those ownership interests, even though they will not acquire ownership interests in the ground beneath their equipment.

To say that the Treaty does not preclude private ownership of resources extracted from a celestial body is not to suggest that the Treaty provides a comprehensive international regime for space resource utilization activities. At this stage, we see neither a need nor a practical basis to create such a regime. For one thing, initial technology demonstration missions will be required long before widespread space resource utilization activities occur. The four core space treaties provide a basic legal framework within which interested States can assure their interests are protected for such initial missions.

In sum, passage of the Space Resource Utilization Act has not altered the United States' consistent approach to the Outer Space Treaty for the past half-century. That said, as the Statement of Administration Policy observed, more remains to be done. Notably, the Act does not provide a means for the U.S. Government to implement Article VI of the Outer Space Treaty in relation to commercial space resource utilization and other newly contemplated commercial space activities. In the next few minutes, I'll tell you a bit more about the current status of our efforts to fill this gap.

Article VI is at the center of an active dialog here in Washington about the optimal approach to authorizing and supervising future ground-breaking commercial space activities. The conversation about what Article VI requires can be heard within the Executive Branch, on Capitol Hill, and in meetings of commercial space industry groups and among other interested lawyers.

As I mentioned earlier, Article VI provides that States "shall bear international responsibility for national activities in outer space" carried on by both governmental and non-governmental entities, and shall "assur[e] that national activities are carried out in conformity with the provisions" of the Treaty. Importantly, under Article VI, "[t]he 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.”

In recent years, it has become apparent that the United States’ existing licensing frameworks for non-governmental space activities would not, by themselves, enable the United States to fulfill its Article VI obligations in relation to the full spectrum of the newly contemplated commercial space activities. This revelation became most concrete in 2014, when a U.S. company requested a Payload Review of a proposed manned lunar habitat that, once viable, would serve a wide range of functions over a projected twenty-year lifespan. In accordance with the Federal regulations currently governing the Payload Review process, the State Department was asked to advise whether the launch of the proposed payload would present any issues affecting U.S. foreign policy or our international obligations. The State Department ultimately advised that the United States could not, at that time, authorize the launch of the proposed payload consistent with our Article VI obligations. This was not because the Outer Space Treaty *categorically* prohibits any of the proposed activities; the consistency of those activities with the Treaty depends on the manner in which they are carried out. The problem was the absence of a mechanism for the U.S. Government to ensure that the proposed activities would be carried out in conformity with the Treaty. At that time, the State Department indicated that we would work with other Executive agencies, with industry, and with Congress to find a solution.

Following two years of work and productive dialog with interested parties, the Administration transmitted a report to Congress in April 2016 outlining the need for a new authorization framework and proposing legislation to address this need. The proposed legislation would establish a “Mission Authorization” framework for those non-governmental space activities for which the existing licensing frameworks for launch, communications, and remote sensing are not sufficient for full implementation of our Article VI obligations.

At its most recent meeting, the Commercial Space Transportation Advisory Committee adopted a finding that the absence of a clear mechanism for implementing the United States’ Article VI obligations “has resulted in a lack of stability, predictability, transparency and efficiency, which has and will continue to hinder the development of U.S. commercial space activities.” The Administration’s proposal for a Mission Authorization framework to provide such a mechanism has been generally well received by industry stakeholders as an efficient, narrowly tailored solution that provides the necessary predictability for investments in path-breaking space activities.

Representative Bridenstine, who you heard from this morning, has also shown leadership through his own legislative proposal to enhance the existing Payload Review process by enabling the U.S. Government to

prescribe conditions necessary to ensure conformity with our international obligations. Like the Administration's proposal, Representative Bridenstine's proposal offers another potential common sense solution to the fundamental problem we confronted in the Payload Review for the proposed lunar habitat in 2014: the Government could say "yes" or "no" to the proposed payload, but we lacked a mechanism for issuing a conditional "yes" – to provide authorization subject to conditions that would ensure conformity with our obligations under the Outer Space Treaty.

One basic question that has arisen in discussions of these legislative proposals is the meaning of the term "continuing supervision" in Article VI. What does it mean for a State to *supervise* non-governmental activities in outer space? What space activities must States supervise?

The answer, in the United States' view, is in fact fairly straightforward. The meaning of the term "continuing supervision" in the second sentence of Article VI can be found in the first sentence, which creates the obligation to *ensure conformity* of all national activities, whether governmental or non-governmental, with the Treaty. The supervision required for any given activity will depend on the provisions of the Treaty it implicates. "Continuing supervision" means a legal link between government and operator sufficient to ensure the activity is carried out in conformity with the Treaty.

In reviewing proposals to date, the State Department has applied a fact-specific, two-part inquiry to ascertain whether existing U.S. Government oversight mechanisms are sufficient for compliance with the United States' Article VI obligations. First, we examine which provisions of the Outer Space Treaty are potentially implicated by the proposed activity. Second, we work with other parts of our government to analyze whether the applicable governmental oversight arrangements are sufficient to ensure conformity with these provisions.

Our handling of a more recent Payload Review request illustrates this approach. The request involved a proposed technology demonstration of a small, commercial lunar lander. Compared to the proposed lunar habitat that was the subject of the 2014 Payload Review request, this proposed mission was relatively limited in scope and short in duration – under the best of circumstances, the lander's batteries were not expected to survive the lunar night, or two weeks in Earth time.

On these facts, the State Department concluded that the limited scope of the proposed activities and their short duration did not implicate some provisions of the Outer Space Treaty that might be implicated by more extensive lunar activities. The proposal would, however, implicate the harmful contamination obligation contained in Article IX. This provision requires that States Parties "conduct exploration" of the Moon and other celestial bodies "so as to avoid their harmful contamination" and also requires States "where necessary... [to] adopt appropriate measures for this purpose."

This raises an obvious question: What are “appropriate measures” to avoid the “harmful contamination” of celestial bodies? Over the Outer Space Treaty’s first fifty years, national space agencies – the only entities to visit other planets to date – have generally planned and executed planetary missions in accordance with planetary protection guidelines adopted by COSPAR – the Committee on Space Research, part of the International Council of Science. To simplify greatly, the COSPAR guidelines are designed to avoid introducing biological material from Earth that could contaminate the search for life forms on other planets. The guidelines vary by planet, and even by regions of a planet, as in the case of Mars.

In the case of the lunar lander Payload Review, the company voluntarily committed, in writing, to comply with applicable COSPAR planetary protection guidelines for lunar missions. Though voluntary, these planetary protection representations by the company are enforceable by the Federal Aviation Administration. In analyzing this particular proposal, the State Department determined that the company’s enforceable commitment to comply with the applicable COSPAR planetary protection guidelines would ensure U.S. compliance with Article IX, and that the enforceability of the commitment constitutes a sufficient legal link, on these unique facts, to meet the United States’ Article VI obligations. The State Department was thus able to advise in this situation that launch of this proposed payload would not contravene the United States’ obligations under the Outer Space Treaty. At the same time, even this relatively limited proposed lunar mission stretched the existing Payload Review process close to its limit. Our ability to authorize more extensive missions will depend on a more robust authorization framework – such as those proposed by the Administration and by Representative Bridenstine – to enable conditional approval where necessary. I will conclude with one forward-looking observation about Article IX’s obligation to avoid “harmful contamination.” The international community’s approach to “harmful contamination” of celestial bodies may not be the same in the second 50 years of the Treaty’s existence as its first. In other words, as our relationship with celestial bodies evolves – from sampling scientific specimens to building habitats that sustain human life – our approach to “harmful contamination” under Article IX may shift as well. The open-textured formulation of the Treaty’s basic principles accommodates such developments, and will allow the legal framework to evolve over time in light of changing circumstances and capabilities. Had the Treaty’s negotiators attempted to codify a precise definition of “harmful contamination” in 1966, we might now be faced with a treaty obligation that is unworkable in view of the global community’s needs and capabilities. The same would be true if we attempted to articulate a precise definition of this concept today.

Eilene Galloway was prescient about this need for flexibility in anticipation of unforeseen – and unforeseeable – developments. In a paper she delivered in

the Hague in 1958, she cautioned that unless we study legal problems “in conjunction with the developing facts of science and technology ... our interplanetary thinking will be earthbound by tradition and precedent at a time when creative predictions should enable us to keep international law in pace with scientific achievement.”

Consistent with this objective, the Outer Space Treaty serves a constitutional role in the international legal framework for outer space. It does not attempt to answer every legal question directly, or speak to any activity specifically. Instead it has served, for half a century, as the framework within which States have cooperated to address new capabilities and activities in outer space, and the legal questions such activities inevitably generate. If the preparations for future space activities underway in the United States and other nations are any indication, the Treaty will serve this function well into its second half century and beyond.