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Panel 4: The Next Frontier: Space and Beyond

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Synopsis: Enterprise Rights and the Legal Regime for Exploitation of Outer Space Resources

The commercial development of outer space resources must be conducted in compliance with the *corpus juris spatialis*. A cornerstone principle of space law is the non-appropriation doctrine, which prohibits national appropriation of outer space, including the moon, and other celestial bodies. Although the private sector has a recognized role in the use of space, neither the Outer Space Treaty nor any other extant instrument contains detailed rules specifically directed toward regulating the commercial exploitation of space. The absence of detailed regulation leaves the application and implications of some of the most basic concepts of space law to controversy and dispute. Notably, various forms of property ownership rights are being proposed and claimed over areas and resources of the moon and other celestial bodies, which disregard or seek to evade the application of the non-appropriation doctrine. It is submitted that the focus on traditional ownership property rights to outer space resources is misplaced, and that the interests of the private sector are more appropriately directed to the rights to utilize outer space resources, that is enterprise rights. It further is submitted that the law of outer space, in particular the Outer Space Treaty, contains essential and fundamental provisions which have established the foundation for the private and commercial use of extraterrestrial resources, including the non-appropriation doctrine.

Symposium on
"The Promise and Perils of an International Law of Property"
6 March 2015, Pacific McGeorge School of Law

Enterprise Rights and the Legal Regime for Exploitation of Outer Space Resources

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Symposium on "The Promise and Perils of an International Law of Property"
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Enterprise Rights and the Legal Regime for Exploitation of Outer Space Resources Leslie I. Tennen

- Space is unique
 - requires a unique approach
 - not burdened with the historical shackles of terrain based legal regimes
- able to protect interests of all parties concerned with use and exploration of space
- will develop its own frame of reference and specialized terminology, in physical and legal concepts
- fundamental parameters established by the extant space treaties
- additional components provided by domestic law
- provide predictability, transparency and enforceability

Symposium on "The Promise and Perils of an International Law of Property"
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- Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies
 - Primary international legal instrument to govern activities of mankind in space
 - Developed through UN Committee on Peaceful Uses of Outer Space
 - Entered into force 1967
 - 125 + nations signed/ratified

Symposium on "The Promise and Perils of an International Law of Property"
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- OST Article II:
"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"

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- prohibition on national appropriation was among earliest declarations of General Assembly at the beginning of space age
- substance of article II of OST was reaffirmed in article 11.2 of the Moon Agreement
- non-appropriation doctrine has received widespread acceptance and represents state practice for more than fifty years
- non-appropriation principle has become part of customary international law, and as such, is binding on states independently of the OST and Moon Agreement

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- Treaty terminology "outer space, including the Moon and other celestial bodies"
 - What is a celestial body?
 - Not defined in treaties
 - International Astronomical Union definitions of celestial bodies 2006
 - within the solar system and its environs
 - the Sun
 - the planets including Earth
 - the Moon and the moons of other planets
 - NEO's
 - dwarf planets
 - trans-Neptunian objects
 - asteroids, comets, and Kuiper belt objects

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- Utilization of extraterrestrial resources
 - considerable amount of controversy
 - consensus of opinion is lacking
 - assertion of traditional forms of "property rights" or beyond the grasp of the private sector, that is, *res extra commercium*
- fundamental elements of foundation for commercialization
 - articulated in treaties and international instruments
 - supplemented by domestic laws and licensing regimes

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- Fasan: focus on use of resources
- right of present use should be clearly permitted
- exclusion for later access and use prohibited
- recognizes that in accordance with article II, there is no right to exclusive occupation of an area of space or celestial bodies in perpetuity
- Enterprise rights

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- specific limits on the use of extraterrestrial resources must be left to future development
- Pop spatialist v functionalist, places or movables
- Jenks: much will be dependent upon the particular circumstances of the resources
 - intended use
 - relative abundance or scarcity
 - location
- no single model of regulation will be appropriate or effective for all locations in all circumstances

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- Historic claims to newly discovered territory
 - physical presence
 - planting the flag
 - other rituals
- enforced and recognized on the basis of military power
- Sputnik I demonstrated profound national security implications
- The global community faced two choices:
 - concede claims to space by technologically superior nations
 - or prohibit such claims in the first instance

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- Primary attribute of space law is the maintenance of outer space for peaceful purposes
- produced an environment for activities by both public and private sectors to be conducted without necessity for military defenses or fortifications
- alternative to this **tangible benefit of space law** would be an atmosphere of insecurity
- cost of conducting missions would increase in direct proportion to the defensive planning, armaments and weaponry for protection of personnel and spacecraft

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- Outer Space Treaty established as matter of positive international law that non-governmental entities may conduct activities in space
- law of outer space advances and enhances commercial opportunities for the private sector by establishing the basic parameters of the legal regulatory regime applicable to private entities in space
- activities in space must be conducted in conformity with international law

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- article II Outer Space Treaty applies to private entities
- States responsible for national activities per art. IV
- by definition includes all activities, whether conducted by governmental or non-governmental entities
- IISL Statements of IISL Board of Directors
- States unable to license national entities to violate international law

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- non-governmental entities are subject to authorization and continuing supervision by appropriate state of nationality
- OST does not designate any specific form of legal regime to be adopted by states for the purpose of providing authorization and continuing supervision
- States can adopt form of domestic regulatory oversight as they deem appropriate
 - consistent with national interests and policies
 - subject to international treaty obligations
 - liability and insurance concerns
- at least fifteen nations have enacted legislation for the licensing of private activities in space

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- Article VIII OST state on whose registry an object launched into outer space is carried retains jurisdiction and control over such object and any personnel thereof while in space, or on a celestial body
- objects launched into space, and astronauts and other personnel of a spacecraft, remain subject to the jurisdiction and laws of the registry state
- extension of domestic laws to space
 - intellectual property created in space
 - chain of command of personnel of a spacecraft

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- suggested states unilaterally establish a domestic registry to documenting claims of their nationals to space resources
- purportedly consistent with the non-appropriation principle
- artifice of proclaiming this registration scheme "not to be appropriation"
- one group of proponents asserted that "[i]n doing so, the nation could make it clear that it was not claiming sovereignty over such resources, but simply recognizing the claims of its citizens"
- this is a distinction without a difference

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- recognition of claims is only one side of the equation, other side is the exclusion or rejection of any competing or conflicting claims
- *de facto* exclusion by its very nature would constitute a form of national appropriation
- state recognition of claims to extraterrestrial property by its nationals is national appropriation "by any other means" prohibited by article II, no matter what euphemistic label is employed to mask the obvious

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Should the Non-Appropriation Doctrine be Abrogated?

- abrogation would permit claims of national sovereignty technologically advanced nations
- United States and Russia
- claims would include various orbits, the Moon, and other areas where the claimant had any basis for asserting was first to "discover"
 - exploration, use, landing, imaging, mapping, or surveying, telepresence
- Russians would have the historic justification for claiming vast reaches of near-Earth space
- other nations anticipated to lay claim to space "properties"

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- enforcement of conflicting and overlapping claims ultimately would depend on military means
- significant risk of exporting armed conflict into space
- states claiming an area could imposing substantial tribute in the form of taxes, royalties, duties, auction fees or other charges
- even where claims overlap
- "private appropriation" would convolute even more
- ability of all states to explore and utilize celestial bodies no longer would be a right per article I of the Outer Space Treaty, but a commodity available only to the highest bidder

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- various proposals designed to grant, regulate, enforce, protect and/or create markets in space resources
- some urge the extension of terrestrial property laws to space facilities
- others envision a modification of basic principles of property law when applied to non-terrestrial venues
- still others create various bureaucratic institutions in lieu of or as an alternative to the international regime of the Moon Agreement

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- first use of extraterrestrial materials late 1960's
 - United States and the Soviet Union returned lunar rocks and other samples
- Gal: no objection to the "ownership" by collecting state
- presumed right of collecting state to possess
- limited experience not sufficient to give rise to custom

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- Moon Agreement recognizes the right of states to collect and remove samples from the surface and subsurface, and to utilize such materials for scientific purposes in support of the mission
- Moon Agreement further provides that states "shall have regard to the desirability of making a portion of such samples available to other interested States Parties and the international scientific community for scientific investigation" article 6.

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- Larson: mere occupation or use of resources approximates appropriation, as others are precluded from occupying or using same location or resources
- Goh: clearly prohibits use
- Kerrest: only the international community can authorize the occupation of a celestial body or the use of extraterrestrial resources

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- This interpretation is too restrictive
- considers only the non-appropriation provision in isolation
 - Outer Space Treaty article IV, right of states to establish facilities, stations and other installations in the exploration of space and celestial bodies
 - Moon Agreement article 6.2, right of states to collect and remove samples, and to utilize minerals and other substances in support of missions
- neither Outer Space Treaty nor Moon Agreement simultaneously authorize and prohibit the same activity
- mere establishment of a facility pursuant to article IV of the Outer Space Treaty and 6.2 of the Moon Agreement does not approximate or constitute appropriation in and of itself

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- utilization of extracted resources presents a more difficult issue
- Outer Space Treaty recognizes the right to establish facilities in the **exploration** of outer space, including celestial bodies
- but does not expressly extend that same right to the **use** of outer space, including the Moon and other celestial bodies
- similarly, Moon Agreement limits collection of samples and use of resources in support of scientific investigations
- question is whether a mixed use facility could utilize resources, or whether a mission must have a designated percentage of scientific functions to qualify for the use of extraterrestrial resources

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- Moon Agreement contains numerous provisions which are broadly termed and include missions conducted for other than purely scientific investigations
- Outer Space Treaty and Moon Agreement repeat broad terms which may not have significant substantive differences in different contexts
- "equipment or any facility necessary"
- as compared to "equipment," "facilities," "stations" and "installations."
- certain treaty provisions may contain an express reference only to "explorations" or "use" but context makes it clear that the operative substance is to apply to all missions

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Moon Agreement, article 11, and the international regime

- declares that the Moon and its resources are the common heritage of mankind
- provides that no part of the Moon, its surface or subsurface, nor resources in place, shall become property of any governmental or non-governmental entity, including natural persons
- specification of natural resources "**in place**" indicates that resources which are extracted may be utilized for purposes not restricted to purely scientific investigations
- use of such extracted resources subject to international law
- applies to celestial bodies in addition to the Moon

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- does not expressly impose moratorium on use of lunar resources pending establishment of the international regime
- Moon Agreement does not obligate states to establish the international regime, but only to undertake to establish the international regime
- possible that such an undertaking, even in good faith, may fail to result in the establishment of an international regime
- unless it is concluded that the Moon Agreement imposes a complete moratorium on all activities by all non-governmental entities of both states party and non-party thereto pending the establishment of an international regime, does not prevent all use of extracted resources by non-governmental entities
- limits of such use, however, are yet to be established

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- Some commentators assert virtually no limits
- traditional forms of terran property rights exported to space
- White: article II should just be interpreted to read "Outer space, including the moon and other celestial bodies, is not subject to national **excluding private** appropriation, by claim of **territorial and not functional** sovereignty, by means of use or occupation, or by any other means."
- Weidaw: permit nations and private entities to claim some ownership of areas and resources to provide an economic incentive to commercial development, and modify article II to utilize an international licensing authority
- Questioned whether article II is self-executing

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- national acts which have implemented the Outer Space Treaty have established procedures for the authorization and continuing supervision of entities subject to their jurisdiction, and concerned matters of state responsibility and liability
- enabling acts have supplied procedures and processes under local law for states to meet their international obligations as pursuant to article VI
- national acts do not trigger or invoke the state's obligations in article VI
- binding on the states when they become party to the Treaty as a matter of international law

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- Moon Agreement article 11: States Parties "undertake to establish an international regime, including appropriate procedures, to govern the exploitation of the natural resources of the Moon. . . ."
- Moon Agreement identifies the "main purposes" of the international regime to include
 - orderly and safe development of the natural resources of the Moon
 - rational management of those resources
 - expansion of opportunities in the use of those resources
 - these purposes, in the abstract, are neither unreasonable nor controversial

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- additional purposes:
 - means for the registration of claims
 - establish priorities
 - adjudicate disputes
 - provide appropriate notice to and among entities conducting activities

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- Prof. Wassenbergh would add:
 - ensure licensing and authorization of private entities
 - recognition of civil space objects and spacecraft
 - give traffic 'rules of outer space'
 - ensure security of space activities
 - provide the needed infrastructure
 - guaranty fair competition internationally
 - arrange for standardization of licensing and registration
 - protection of the environment
- Amb. Cocca elaborating on Szalóky:
 - assure exploration and use will serve common interests of mankind
 - contribute to development of science
 - development of economical and social circumstances of present and future generations
 - improvement of mutual understanding, and
 - strengthening amicable connections between states and peoples

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- Moon Agreement has one additional main purpose for the international regime:

An equitable sharing by all States Parties in the benefits derived from those resources, whereby the interests and needs of the developing countries which have contributed either directly or indirectly to the exploration of the moon, shall be given special consideration

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- Doyle: "gobbledygook"
- von der Dunk:
 - sharing of benefits limited to states party
 - Moon Agreement imposes a moratorium on use of lunar resources pending establishment of the international regime
- Wassenbergh:
 - agrees the Moon Agreement imposes a moratorium
 - most appropriate method for benefit sharing is "cross-border cooperative arrangements"

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- White: sharing of benefits satisfied by advanced states making obsolete facilities available for purchase by non-launching states
- O'Donnell:
 - sharing of benefits is a *treaty burden* which must be endured
 - has offered a formula for dedicating and transferring 50% of resources to a legal authority for "public benefit sharing property"
- Cramer: countries not engaged in lunar activity have no reason to be involved in the regulatory body

Allocation of enterprise rights

- states have found a previously untapped source of revenue by auctioning frequency spectrum and charging fees for orbital slots
- Ospina: auctions and fees may give rise to expectations of property rights in such intangible resources
 - continuation of these practices could lead to concentration of resources in "mega" corporations

- Almond: beneficiaries will be corporations of developed countries, not the developing countries
 - counterproductive in relation to the apparent policies and purposes of the common heritage of mankind principle
- Kosuge: windfall gains to those lucky enough to be allocated scarce licenses, at the cost of the community as a whole
 - no guarantee that the most valued and efficient uses will be accommodated
 - favor auctions if market forces can be introduced into spectrum management

Elements of Commercial Regime

- Authorization and Continuing Supervision on non-governmental entities
- requirement of state authorization and continuing supervision of the private sector affords a significant measure of protection for commercial space
- protection from *in situ* interference by other entities
 - state which granted the authority to the private entity
 - other entities authorized by that state
 - other states or their nationals
 - rogue entities

- space activities are difficult, costly, and fraught with risk
- unlikely that state which granted authorization to a private entity purposely would interfere with the activities of that authorized entity
- state has broad array of means and mechanisms to limit or restrict the activities of the private entity
 - much less costly and considerably more efficient than launching a mission to conduct interference with activities *in situ*
 - include the revocation of authorizations, restriction of communications, issuance of injunctions, attachment of property, and/or the utilization of a number of provisional or other remedies under domestic law

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- also is unlikely for interference by another entity granted authority by the same state
- request for authorization with clear intention to cause physical interference would have little chance of obtaining approval
- state itself would object to such a purpose
- operator of the licensed facility, or members of the public, may have an opportunity to object pursuant to domestic licensing or judicial procedures

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- possible for second entity to be granted authority to operate a facility near a previously authorized facility
- potential for claims such as infringement of intellectual property rights and unfair competition
- these types of claims are raised on a daily basis, and resolved on a daily basis, according to extant law

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- interference from other states or their nationals subject to the Outer Space Treaty
- state to initiate consultations where its activities may cause interference
- state may request consultations where other state may cause interference
- state to initiate consultation re potential interference may affect many states

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- request for consultations initially bilateral but others states may join request
- should interference occur, liability could be imposed pursuant to the provisions of the Outer Space Treaty, and where applicable, the Liability Convention
- courts or administrative proceedings for domestic disputes, and diplomatic or other mechanisms for controversies involving two or more states, would be employed on Earth to seek to diffuse and resolve any conflict
- more detail and procedures to be developed
 - 2014 ASTEROID Bill
 - Bigelow request

Right of Visitation

- important means for first hand observation by representatives of states
- assist states in determining whether the activities of a facility are in compliance with international law
- right of visitation is subject to a "basis of reciprocity" in Outer Space Treaty but not Moon Agreement

Duty of Disclosure

- Moon Agreement article 4: Secretary-General of the United Nations shall be informed of the nature, conduct, locations and results of activities in space, and information to disseminated to the public
- compare with Registration Convention disclose specific but limited information concerning the location, function, and where applicable, basic orbital parameters, of objects launched into space

● OST article IX

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, where necessary, shall adopt appropriate measures for this purpose

● Moon Agreement article 7

- Affirmative obligation of states to take measures to prevent the disruption of the existing balance of environment whether by
 - introducing adverse changes in such environment
 - Its harmful contamination through the introduction of extra-environmental matter
 - or otherwise

- Moon Agreement establishes that states shall report concerning areas of the Moon having special scientific interest in order that consideration may be given to their designation as "international scientific preserves"
 - special protective arrangements are to be agreed
 - without prejudice to the rights of other states parties to the treaty

- planetary protection policy creates "special regions"
 - areas where it is believed that H₂O, in the form of surface or subsurface ice, may be present
 - landing craft must achieve Viking level sterility, even where the craft is not intended to conduct life detection experiments
- keep out zones
- planetary parks

- Law of the Sea Convention demonstrates promotion and protection of commercial interests is compatible with the common heritage of mankind principle
- position of the United States is that "the Agreement, by restructuring the seabed mining regime along free market lines, endorses the consistent view of the United States that the common heritage principle fully comports with private economic activity in accordance with market principles"
 - U.S. Senate, 103rd Cong., 2nd Sess., United Nations Convention on the Law of the Sea, with Annexes, and the Agreement Relating to the Implementation of Part XI of the United Nations Convention on the Law of the Sea, With Annex, Treaty Document 103-39, at 61 (1994).

- emphasis on opportunity was a central theme of *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*
 - Declaration focused on the promotion and fostering of international cooperation on an equitable and mutually acceptable basis
 - cooperation should be conducted in the modes that are considered most effective and appropriate by the countries concerned

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- dispute resolution process of the World Trade Organization was substantially revised in 1994
- revisions "reflect a fundamental shift in the nature of international trade dispute settlement from a political, consensus-based process to a more legalistic system"
- accentuated the rule of law
- enhances the predictability and institutional neutrality of the WTO

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- common heritage of mankind principle does not impose an insurmountable burden to the private sector
- movement toward the rule of law as a basis of dispute resolution rather than purely political and other considerations enhances the opportunities for the private sector
- relationship between an international regime and domestic regimes must await future determination, including the extent to which the international regime will harmonize national licensing procedures and processes
- whether an international regime is established pursuant to the Moon Agreement or otherwise, particular emphasis should be placed on the promotion of opportunity, as well as the rule of law, in the creation of any regulatory structure

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- emphasis should be placed on market principles
- a flexible and evolutionary approach should be adopted
- limited bureaucratic structure
- international cooperation must be promoted
- equality of opportunity preserved
- appropriate representation of states must be provided commensurate with their interests
- juridical regime must be a neutral arbiter
- regime must not engage in unfair competition with private entities subject to its regulatory authority

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Thank You

Wayne White, President & CEO, SpaceBooster, LLC.

Synopsis

For many years, space lawyers have debated the meaning of Article II of the Outer Space Treaty. In particular, space lawyers have disagreed as to whether this provision prohibits ownership of real property rights. Various authors have also discussed whether entities can own and sell extracted resources. Wayne White analyzes these issues and offers his opinions on the legality of such activities under the terms of the Outer Space Treaty.

INTERPRETING ARTICLE II OF THE OUTER SPACE TREATY

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The International Law of Property
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SPACE LAW: An Overview

- **Most nations are party to the 1967 Outer Space Treaty (OST). This Treaty:**
 - Prohibits territorial sovereignty
 - Nations cannot make territorial claims in space or on celestial bodies, and
 - Nations cannot grant or recognize private territorial claims
 - Requires parties to regulate national entities' activities
 - Holds nations liable for damage caused by their entities in transit through airspace and in outer space

SPACE LAW: An Overview

- **The Outer Space Treaty:**
 - Gives parties jurisdiction over their citizens, and space objects on their registry
 - Ownership of space objects is not affected by the objects' presence in outer space (includes facilities constructed in outer space)
 - Ownership of personal property is not affected by its presence in outer space
 - Parties can enact national laws consistent with the Treaty and international law
 - Parties can enact a form of real property rights based on jurisdiction, even though territorial sovereignty is prohibited

A Legal Regime for Private Space Activities: General Approach

- **In Situ Resource Utilization (ISRU)** will permit space-farers to “live off the land,” greatly reducing the risk and cost of space activities
- **Over the long term, access to the resources of near-Earth space, Mars, and the asteroids is a matter of strategic concern for all nations**

A Legal Regime for Private Space Activities: General Approach

- The OST not only permits, but in some cases requires the United States to enact laws that are consistent with the OST, the U.N. Charter, and other principles of international law
- National legislation allows greater consistency between space law and terrestrial laws

A Legal Regime for Private Space Activities: General Approach

- Property and mining laws can be based in part on existing U.S. Code statutes: the Deep Seabed Hard Mineral Resource Act, and the General Mining Act of 1872.

Elements of Prospective US Legislation: Property Law

- Enact a form of real property rights without territorial sovereignty
 - This approach follows the precedent set by the 1980 Deep Seabed Hard Mineral Resources Act
- Outer Space Treaty and other international laws provide bundle of rights analogous to property rights
- Legislation formally defines and protects these rights

Elements of Prospective US Legislation: Property Law

- Invalidate prior real property claims not based on jurisdiction over space objects and personnel (e.g. “Moon Deeds”)
- Private entities must file preliminary claims which identify the location of their space activities
- Entities may only claim the area encompassed by their space objects and ongoing activities, plus a safety zone

Elements of Prospective US Legislation: Property Law

- Claimants may perfect their claims and obtain deed after 1 year
- Deeds may be transferred in the same manner as terrestrial deeds
- “Use it or lose it” regime – property rights terminate when there is no longer a presence

Elements of Prospective US Legislation: Property Law

- Protect areas of historical, scientific and aesthetic interest on celestial bodies (*e.g.* Apollo 11 landing site)
- Include reciprocity provisions recognizing other countries’ claims, if their laws are substantially the same as the U.S. law (see Deep Seabed Hard Mineral Resources Act)

Elements of Prospective US Legislation: Mining Law

- Clarify that public and private entities can own extracted resources – this is consistent with the majority opinion in the international space law community
- Outer space, including the Moon and other celestial bodies, shall be free for exploration and *use* by all States (OST Article 1, emphasis added)

Elements of Prospective US Legislation: Mining Law

- Protect mining investments – encourage prospecting and mining by recognizing mining claims in a manner similar to the US General Mining Law
 - Prospectors who obtain non-public information regarding mineral resources may file provisional claims
 - Remote sensing and telepossession may provide basis for preliminary claim
 - Ice is a mineral
 - Prospectors may perfect claim and obtain deed once they begin mining operations

International Cooperation and Collaboration

- Consult like-minded nations regarding prospective U.S. legislation, evaluate input, and revise U.S. legislation as necessary.
- Encourage like-minded nations to enact similar laws that include reciprocity provisions.

