

Policy and Legal Processes and Precedent for Space Mining

10th SRR-PT – Colorado School of Mines

Morgan D. Bazilian

Director, Payne Institute for Public Policy

Korey Christensen

Senior Associate, Hogan Lovells US LLP

The
Payne Institute
for Public Policy

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Foundations

- At the international level, space law (and policy) begins with the United Nations Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies, which was adopted in 1967 and signed by the United States and 104 other countries.
 - It states that the Moon and celestial bodies are not subject to national appropriation by claims of sovereignty.
 - Yet it also states that those same celestial bodies are free for exploration and use by all nations.
 - A perceived tension exists between these statements where space mining is concerned, as such activity requires some possession right (not necessarily permanent) to regions in space.



Precedent

- Luxembourg has formed a Space Resources initiative focused on attracting “space companies from all over the world which see Luxembourg as the European hub in the exploration and use of space resources.” Toward this goal, the country has already established what it calls a “unique legal, regulatory and business environment enabling private investors and companies to explore and use space resources.”
- The Hague Working Group has proposed an incremental approach to policy development based on technological progress, suggesting that it should be “Guided by the principle of adaptive governance... space resource activities should be incrementally addressed at the appropriate time on the basis of contemporary technology/ and practices.”
- *Coordination of principles to inform domestic law.* As multiple countries consider and implement domestic policy for space resources, there is need for some level of coordination. Mineral economics and access have historically been a flashpoint of conflict, and the potential of disparate domestic regimes would raise the potential of regulatory forum-shopping and trade and policy tensions.



US activity

- The current US administration has enacted regulatory reform to support and enable commercial space development as a key initiative.
- And in April 2018, the House of Representatives passed the American Space Commerce Free Enterprise Act, which provides a regulatory framework to support nontraditional commercial space activities, including space resources development.



Analogies

- Law of the Sea
- Shared Commons
- Methane hydrates
- Deep sea mining
- Space solar beaming power



Introduction to relevant legal framework



- Mining projects are subject to a long ROI curve.
- Need certainty of tenure.
- Terrestrial mining framework:
 - Sovereign grants property right to resource in place; or
 - Sovereign grants right to extract resource and own the extracted product.
- But no one “owns” outer space.
 - How to grant property rights?
 - How to avoid tragedy of the commons?

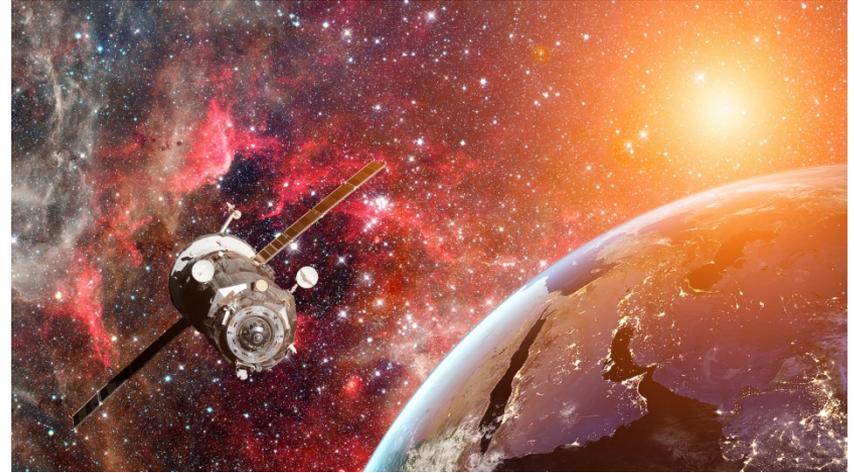
Addressing analogous property rights issues on Earth

- UN Convention on the Law of the Sea (1982)
 - Art. 87: Preserves “freedom of the high seas”
 - “[O]pen to all states”
 - “[S]hall be reserved for peaceful purposes”
 - Not subject to claims of sovereignty by any state
 - Deep sea bed is categorized as the “**common heritage of mankind**”, administered by International Seabed Authority (ISA)
 - ISA charged with managing resources “as to foster healthy development of the world economy and balanced growth of international trade, and to promote international cooperation of the overall development **of all countries, especially developing states**” (Art. 150)
 - Payments similar to royalties req’d to be made to ISA

Existing international law re: space resource development.

- Outer Space Treaty (effective 1967)

- Formally, the “Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies”



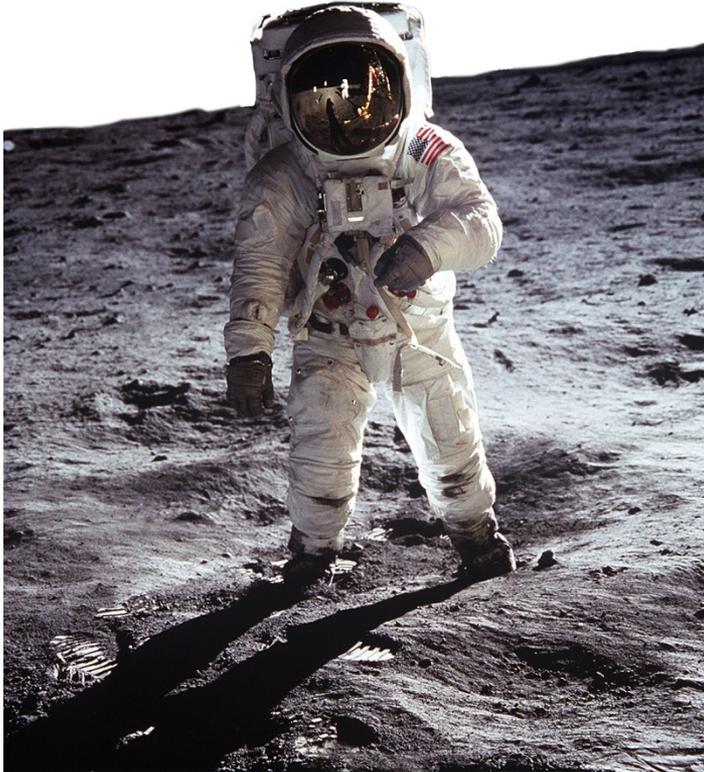
- Key concepts:

- Art. I: “The ***exploration and use of outer space***, including the moon and other celestial bodies, shall be carried out ***for the benefit and in the interests of all countries***, irrespective of their degree of economic or scientific development, and shall be ***the province of all mankind***.”
- Art. 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.”

Existing international law re: space resource development.

- Outer Space Treaty – key concepts (cont'd):
 - Art. IV requires that space activities of non-governmental entities be subject to “authorization and continuing supervision.”
 - Art. IX: State parties “shall conduct all their activities in outer space . . . with ***due regard to the corresponding interests*** of all other States Parties to the Treaty.”

Existing international law re: space resource development.



- Moon Treaty (effective 1984)
 - Formally, the “Agreement Governing the Activities of States on the Moon and Other Celestial Bodies”
 - Not widely adopted.
- Key concepts:
 - Not just the moon. Covers other celestial bodies within solar system.
 - Art. 4: “The exploration and use of the moon shall be the ***province of all mankind*** and shall be carried out for the benefit and in the interests ***of all countries, irrespective of their degree of economic or scientific development.***”

Existing international law re: space resource development.

- Moon Treaty – Article 11:
 - “The moon and its natural resources are the **common heritage of mankind**”
 - “The moon is **not subject to national appropriation** by any claim of sovereignty, **by means of use or occupation**, or by any other means.”
 - “Neither the surface nor the subsurface of the moon, nor any part thereof or natural resources in place, shall become property” of any state, entity, or person.
 - State parties will establish an “international regime” to govern resource exploitation and encourage an “equitable sharing”.

Existing international law re: space resource development.

- Rescue Agreement (effective 1968)
 - Requires signatories to assist personnel of spacecraft in distress and return them to country of origin.
- Space Liability Convention (effective 1972)
 - Sets rules for liability for space objects launched from within a nation's territory.
 - Only one claim ever adjudicated.
- Registration Convention (effective 1976)
 - Administers an international register of launches.

Summary of domestic legal regimes - US

- US: Commercial Space Launch Competitiveness Act of 2015

Title IV (Space Resource Exploration and Utilization Act of 2015) (codified at 51 USC § 51303):

“A United States citizen engaged in commercial recovery of an asteroid resources or a space resource ***shall be entitled to any asteroid resource or space resource obtained***, including to possess, own, transport, use, and sell the asteroid resource or space resource obtained in accordance with applicable law, including the international obligations of the United States.”



- Perceived tension with Outer Space Treaty?
- Requires government to spur space resource development.

Summary of domestic legal regimes - Luxembourg

- Like US, Luxembourg recognizes private ownership rights in extracted space resources.
 - Art. 1: “***Space resources are capable of being appropriated.***”
- Creates mission authorization regime.
 - Must have registered office and central administration (administrative and accounting) in Luxembourg.
- Strict liability for all damages caused.
- Luxembourg offers financial incentives for private sector companies pursuing space mining opportunities.

Where might things be headed next?



- Hague International Space Resources Governance Working Group – Building Blocks
- Key concepts:
 - International responsibility for space resource activities
 - Access to space resources—priority right to explore/mine limited in time and area
 - Utilization—property rights in extracted resources
 - Due regard for interests of all countries/humankind
 - Benefit sharing—monetary sharing not required
 - On-going monitoring and review of the framework