



SPACE GENERATION
ADVISORY COUNCIL

Space as a Global Commons

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**In support of the United Nations
Programme on Space Applications**

Is space a global commons?



- Proper management of outer space is critical for continued use of the domain
 - Risks of Kessler Syndrome and lunar or planetary resource monopolies
- There is not a consensus on the status of space as a commons

Reasons for Disagreement



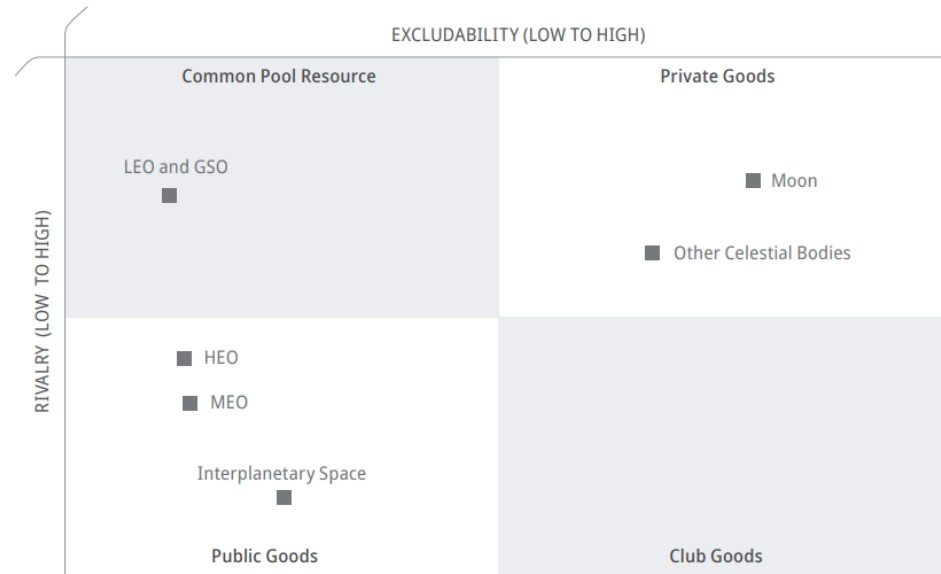
- Some stakeholders have incentives to manage space as a private resource
- Space is often treated as a single domain instead of separated into categories (Earth orbit, celestial bodies, and interplanetary space)
- Traditional understanding of the commons sees criteria as two binary attributes: rivalrous and non-excludable

Economic Goods as a Matrix



	NON-EXCLUDABLE	EXCLUDABLE
RIVALROUS	Common Pool Resources "the Commons" <ul style="list-style-type: none">• Fish stocks; the atmosphere	Private Goods <ul style="list-style-type: none">• Personal goods and property
NON-RIVALROUS	Public Goods <ul style="list-style-type: none">• Roads• Parks• Radio stations	Club Goods <ul style="list-style-type: none">• Country clubs• Gyms• Subscription media services

Economic Goods as a Continua



Analogous Domains



- Antarctica – Antarctic Treaty
- The Oceans – Various agreements and treaties including the UN Convention on the Law of the Sea
- The Atmosphere – Various agreements and treaties including the Kyoto Protocol, Paris Agreement, and Montreal Protocol

- Widely adopted agreements – Outer Space Treaty, Rescue Agreement, Liability Convention, and Registration Convention
- Not widely adopted – Moon Agreement, Bogota Declaration

- Ostrom's eight design principles for institutional analysis
 - Clearly defined boundaries
 - Congruence between appropriation and provision rules and local conditions
 - Collective-choice arrangements
 - Monitoring
 - Graduated Sanctions
 - Conflict-resolution mechanisms
 - Minimal recognition of rights to organize
 - Nested enterprises (for common pool resources that are parts of larger systems)

Institutional Analysis of Space



▼ SITE	Clear boundaries & memberships	Congruent rules	Collective-choice arenas	Monitoring	Graduated sanctions	Conflict-resolution mechanisms	Recognized rights to organize	Nested units	Institutional performance
EARTH ORBIT	Yes	Yes	Yes	Yes	Weak	Weak	Yes	No	Fragile
CELESTIAL BODIES	Weak	Weak	Yes	Weak	No	No	Weak	No	Likely to Fail
INTERPLANETARY SPACE	Yes	Yes	Yes	Yes	Weak	Weak	Yes	No	Likely to Fail

- Management gaps in sanctions, conflict-resolution mechanisms, and nested units
- Celestial bodies have the highest risk of management failure

Conclusion



- Space is not a uniform domain
- Current management strategies do not appear to be robust enough to withstand the expected changes in use of outer space/space economy
- Terrestrial domains can be a helpful guidebook for shaping commons management strategies

THANK YOU

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