



OPEN LUNAR
FOUNDATION

NORMS OF BEHAVIOR IN SPACE WORKSHOP

SUMMARY REPORT

INTRODUCTION

The Secure World Foundation and the Open Lunar Foundation hosted a one-day, invite-only workshop to discuss norms of behavior in space. The workshop was held on December 10, 2019 in Washington DC. The purpose of the workshop was to explore the meaning, purpose, and life cycle of norms, and their use in both preserving the global commons and fostering and maintaining global public goods, especially in the context of norms for activities in the space environment.

EXECUTIVE SUMMARY

Twenty four participants from industry, government, and academia participated in the workshop about current issues impacting the sustainable and peaceful uses of the space environment. SWF Space Law Advisor Chris Johnson presented global commons and global public goods as the theoretical foundations of why norms are required by the global community, and the methods used to preserve the commons and maintain public goods. These methods are: privatizing the commons; developing international agreements; using market-based incentives; and relying on voluntary commitments and measures.

Jessy Kate Schingler, Director of Policy and Governance at the Open Lunar Foundation then presented on norms and analogs in the lunar context. This talk focused on the application of public choice theory to different types of goods in the lunar context through the design of appropriate property management regimes. Chris Johnson presented on some elements and definitional aspects of norms, which led into group discussions on elements of norms.

The workshop considered six scenarios in the Low Earth Orbit (LEO), Geostationary Earth Orbit (GEO), and lunar environments – areas where a paucity of norms and norm adherence threatens the preservation of the commons and/or the maintenance of global public goods. These scenarios had participants in groups of six discuss what norms are currently applicable, whether these norms were sufficiently well understood (socialized), and ways to further develop, cascade, and internalize norms.

The workshop closed with a group activity facilitated by Chelsea Robinson, COO and Chief of Staff at the Open Lunar Foundation. The group activity had participants express and rank what they considered to be their number one priority for civil society in the near term. According to participants, the number one near term priority for civil space society was to pressure for the adoption of no new space debris generating guidelines.

GLOBAL COMMONS, GLOBAL PUBLIC GOODS, AND THE IMPORTANCE OF NORMS

The workshop began with SWF Space Law Advisor Chris Johnson presenting on the commons, global public goods, and international measures to preserve these areas outside of state territory. The commons is an informal term for “common pool resource,” used by economists, environmentalists, social scientists, and others to refer to areas which: a) other actors cannot be excluded from using (termed “non-excludability”); and where b) one’s use of it potentially creates rivalries with another’s use (“rivalrous”). Examples of the global commons include the international climate system, the ozone layer, and other international and/or transboundary zones.

In contrast to global commons, global public goods share with the commons the element of non-excludability, but global public goods are not rivalrous – as the consumption or enjoyment of a public good by one does not reduce the quantity available to others. Examples of global public goods include a stable climate system, an unpolluted atmosphere, healthy oceans, and responses to global problems such as the eradication of smallpox, or control over Ebola outbreaks. Other examples of global public goods include desirable situations such as the conservation of biological diversity, the stability of the international financial system, and a working, global space-based position-navigation and timing (PNT) system such as GPS, Galileo, etc. The purpose of introducing the concepts of global commons and global public goods in this workshop is to stress that their continuing existence and stability require norms. Norms are both fundamental in protecting the commons, and crucial in fostering and maintaining global public goods.

LUNAR POLICY DEVELOPMENT

Jessy Kate Schingler, Director of Policy and Governance at the Open Lunar Foundation, then presented on norms and analogs in the lunar context. The field of economics is useful when discussing the meaning of norms because it provides a lens for assessing incentives and informal behavior. Norms themselves are often informal or, even when codified, they may be qualitative or approximate. Economic goods, of which there are 4 main types (public goods, private goods, common pool resources, and toll goods) are distinct from the institutions that are used to manage them. The type of a good has implications for the institutional arrangements which will be effective in managing that good, but does not dictate it per se.

Specific contexts and externalities will inform the property management regimes that are appropriate and legal for a given type of good. Understanding that property management regimes are comprised of different “bundles of rights” can help us to design nuanced management regimes that are appropriate. In the outer space domain, the Outer Space Treaty is one of these externalities. As a legal framework, Articles I and II effectively prohibit “excludability” and therefore shift our considerations towards common pool resources and public goods. We can use this observation to consider expected resource utilization activities on the Moon, and the governance and institutional frameworks that they may warrant.

Scholars use the term “subsidiarity” to refer to the principle that governance decisions should be taken at the most local level commensurate with their resolution. The principle of subsidiarity provides guidance on the question of who should “have a seat at the table” in governance design conversations (also known as “constitutional” level rights). Teasing out the specific types of resources and activities therefore helps us to understand the dynamics at play and inform the creation of effective norms among key stakeholders.

NORMS

Chris Johnson presented a short introduction to the concept of norms, including definitions of social norms and ideas on their necessary elements. Norms are generally understood to be a standard of behavior that actors are held to, and have a normative “oughtness” in their structure. Norms serve as a “principle of right action binding upon the members of a group and serving to guide, control, or regulate proper and acceptable behavior.”¹ A social norm is defined as “the expected behavior in a specific situation.”² In discussions on space activities in the near Earth environment, there is no consensus on their definition amongst stakeholders. Likewise, in the lunar environment, and especially given the limited legal framework available to early actors, norms will play an even more important role in the lunar environment.

Just because a behavior is common or prevalent (and therefore ‘normal’) its regular occurrence does not make it a ‘norm’. This confusion perhaps exists because of the misconception between the word ‘norm’ as a shortened version of ‘normal’, as opposed to ‘normative’. Additionally, there are repercussions for the non-observance or violation of a norm, such as accusations of violation and the stigmatization of violators. Also, violators of a norm routinely seek to justify their actions – usually by claiming that while the norm exists, they are not in violation of it or that their circumstances permit a suspension of the norm, rather than claims that the norm does not actually exist. Thus, even violations of a norm can sometimes entrench the norm’s existence and normative force.

Workshop participants then broke out into small groups to reflect and discuss what they considered were the characteristic elements of norms. Group discussions focused on who makes norms, how norms are the same as (or different from) laws, and whether or not there can be ‘bad’ norms.

SCENARIOS

Workshop participants then examined one of six different scenarios, including three concerning the paucity of norms for LEO activities create challenges to the peaceful and sustainable use of space, and three scenarios where the lack of norms for various near-term lunar scenarios are already foreseeable.

LOW EARTH ORBIT SCENARIOS

SCENARIO 1

SPACE DEBRIS CREATION

You are the CEO of a small satellite startup company that wants to use 800km sun synchronous orbits. However, a large foreign Earth Observation company is also using this orbit, and they are creating lots of debris by not removing their satellites. The government responsible for this company, while a party to the Outer Space Treaty, doesn’t have a national space law, doesn’t really care about debris issues, and doesn’t appear to be implementing the IADC guidelines. As CEO of your company, what can you do to ensure that you and others can continue to use this orbit?

1. Merriam-Webster Dictionary, Norm, <https://www.merriam-webster.com/dictionary/norm>
2. Yourdictionary.com, Social Norm, <https://www.yourdictionary.com/social-norm>

SCENARIO 2

COLLISION AVOIDANCE

You are the operator of a constellation of small satellites in LEO providing internet connectivity to high-end users seeking faster communication speed. However, repeated conjunction warnings with a national GPS/PNT operator triggers governmental authorities routinely demanding that you perform fuel-costly avoidance maneuvers, decreasing the lifespan and negatively impacting customer service. Your engineers inform you that many of the warnings are so low probability that they are really not worth maneuvering for.

SCENARIO 3

UNFRIENDLY BUT NOT ILLEGAL ACTS AT GEO

In recent months, your telecommunications satellite in GSO has been subjected to suspicious behavior by a smaller satellite which is performing close approaches to your satellite, without prior warning, notice, or consent. The foreign satellite is coming close enough to listen in on transmissions from the ground, but not close enough to physically threaten your satellite. Your foreign ministry first tries to communicate through backchannels to the foreign government you suspect is operating (or at least directing) the satellite, to no avail. You urge the government to go public with their concerns about the activity.

LUNAR SCENARIOS

SCENARIO 4

FREE RIDERS AND RETRO- REFLECTORS

You are the leadership team of a small lunar lander company (less than 300KG payload). NASA offers to provide retroreflectors (a device that reflects radiation useful for positioning and ranging) to all missions to the Moon for free. Adding retroreflectors increases the utility of the network and is a useful resource for all actors and all future landings – something in principle you want to support. However, it also requires a small amount of mass to carry the retroreflector, so it's not completely free. Two upcoming missions are planning to land near your intended landing site in the next three years and may also carry retroreflectors. You have the incentive to just wait for other missions to do it, and you stand to benefit from the capabilities provided by others' devices. But so do they. The other lander teams are pushing you to include the device on your payload manifest because they also want to benefit from this network.

SCENARIO 5

DUST AND DAMAGE

Congratulations! You have landed on the Moon with robotic rovers and have scientific experiments underway. Another lander with significant investment wants to land near you to develop a power utility that would be available to all actors, but due to the dust they will generate, they have asked you to move. This will be costly to your mission as you will need to go out of the way. The incoming mission is a larger vehicle, and the dust radius is wider than your own identified safety/keep-out zone of 2KM. The initial blast radius and lingering exospheric dust (which doesn't settle for weeks after each landing) could damage your rover's mechanical components. Whose responsibility is it to accommodate the other? Who is responsible if dust compromises performance of an asset, or hinders development of public goods?

SCENARIO 6

COMPETING COMPANIES

You are the lunar policy representative from the state of origin of a small lunar startup called Lil' Landers. Lil' Landers has identified minable resource deposits through remote sensing around the Moon, and asserted a priority claim on the region which your government has agreed to recognize. Another, larger aerospace corporation called Goliath, backed by billionaires, has scheduled a copy-cat mission in the same locale on the back of the findings released by Lil' Landers, and registered in a competing terrestrial jurisdiction. Goliath has 100x greater capacity to exploit this opportunity than Lil' Landers, and can get there faster to boot. Lil' Landers ask that you intervene, but since states cannot appropriate territory, they also cannot control who lands at which locations.

SCENARIOS DISCUSSION HIGHLIGHTS

For each scenario, participants were asked the following questions: How realistic is this scenario? What norms should be in place to solve this issue? Should these norms be hard or soft law? Who should develop these norms, and where should those conversations take place? If this scenario (or a more realistic one) were to take place in real life, what do you predict would actually happen? Is that a desirable outcome? If not, what needs to change?

PRIORITIES

The workshop's final session was a participatory exercise focused on the formulation and ordering of priorities. Participants were asked to write, in one sentence, what they views was the most important task for civil society to focus on in the next calendar year regarding norms for space activities. Their statements were then circulated anonymously among participants and given numerical rankings, with '1' for least important and '7' for most important. After five rounds of ranking, the suggestions were then listed from highest score (most important) downwards. The top four recommendations were:

- 1. Pressure for the adoption of guidelines to prevent the generation of new debris.**
- 2. Encourage the development of on-orbit servicing and rendezvous technologies to support responsible space operations.**
- 3. The US government needs to designate who will exercise Outer Space Treaty Art. VI authority.**
- 4. Non-traditional space voices and ideas must be included in planning for the future.**

WORKSHOP CONCLUSION AND NEXT STEPS

Pressing and emerging issues in the near-earth and lunar environments prompt concentrated analysis along the framework laid out above. As a first task, this includes characterizing these environments as a global commons & characterizing subject areas and concerns as global public goods. This will involve a clear and concise statement of a sustainable LEO environment, a sustainable GSO environment, and a sustainable lunar environment as global public goods to be fostered and maintained. Additionally, the articulation of why a 'community interest' exists for their development and maintenance.

The next task will be to assess what norms are applicable for each situation, and where those norms are within the life cycle of norms. For example, there may be norms addressing space debris, but those norms are not sufficiently adhered to or internalized to effectively preserve the global LEO commons, or to foster the global public good of a sustainable LEO environment. The notion of a community interest in having a sustainable LEO environment ought to be further propagated amongst stakeholders, as having this driving rationale will give stakeholders a justifying reason to seek cooperation, even when immediate interests may seem to conflict with each other.

Additionally, based on the workshop's group activity of articulating actions and priorities for civil society, these priorities inform the future work of Secure World Foundation and Open Lunar.

Participants are invited to stay in contact with Secure World Foundation and Open Lunar as they work on further research and development of norms for sustainable space operations.

LINKS AND REFERENCES

The PowerPoint presentation used at the event is available at:
<http://bit.ly/NormsWorkshopDec19>

A video documentary of this workshop is available at:
<https://vimeo.com/379156507/e2f96dcc39>

The Open Lunar policy analogs backgrounder and reading list is available at:
<http://bit.ly/LunarPolicyAnalog>

FURTHER READING

Edith Brown Weiss, Norms in a Kaleidoscopic World (especially Chapters IV and V), Collected Courses of the Hague Academy of International Law, Volume 396 (2016).

Martha Finnemore and Kathryn Sikkink, International Norm Dynamics and Political Change, 52 International Organization 4 (1998), pgs. 887-917, available at:
https://home.gwu.edu/~finnemor/articles/1998_norms_io.pdf

ABOUT SECURE WORLD FOUNDATION

The Secure World Foundation (SWF) is a private operating foundation dedicated to the secure and sustainable use of space for the benefit of Earth and all its peoples. SWF engages with academics, policy makers, scientists, and advocates in the space and international affairs communities to support steps that strengthen global space sustainability. It promotes the development of cooperative and effective use of space for the protection of Earth's environment and human security. <https://swfound.org>

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ABOUT OPEN LUNAR FOUNDATION

The Open Lunar Foundation is a 501(c)(3) nonprofit helping to create a peaceful, cooperative long term future on the Moon for all life. There is a renaissance of attention toward the Moon as our closest neighbor. Many are vying for the "firsts" in this expansion beyond Earth. In the next few years alone there are more than 10 different Moon landing teams plotting their courses to establish themselves as key players in the lunar future. Our global nonprofit exists to help this shared lunar future manifest with intentionality and values at the forefront. We see the Moon as part of the Earth-Moon system, rather than an escape from Earth. We want to make sure that when we all look up at the Moon we see something we're all proud of.
<https://openlunar.org>

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VOTES PRIORITIES SUBMITTED BY WORKSHOP PARTICIPANTS

- 29 Pressure adoption of no new debris generation commitments internationally.
- 26 Autonomous satellites.
- 26 The US needs to designate what agency has Article 6 authority.
- 26 Include non-traditional space voices and ideas in the planning for the future.
- 24 Look into ways / means to ensure environmental protection becomes / remains a priority in norm development.
- 23 Hard law codification of orbital debris mitigation requirements.
- 21 The US needs to determine who should exercise article VI authority over unregulated space activities.
- 21 How can we thoughtfully engage in the codesign of our future in space with diverse members of our community?
- 20 Facilitation of dialog between commercial industry across different countries with civil society for norm development.
- 19 Define space community understanding and definition of “norm,” “best practice,” “guidelines,” etc. and document this.
- 19 Fine grained understanding of the extent to which legal lacuna are actually inhibiting progress in lunar development.
- 18 Define what we mean by norms of behaviour and agree on what it means.
- 17 Develop a realistic space assessment tool for safety.
- 17 Civil and commercial implementation of existing rules, norms, and laws (space-related) and public presentation or advocacy.
- 16 Research on historic norm development and enforcement for aviation.
- 15 A collaborative space program between the US and China (small).
- 15 Map framework of commons and public goods onto space problems and then add norms and their place in the norm cycle.
- 15 How our government/governance structures may need to change in order to deliver better futures both in space and on Earth.
- 14 A full throated defense of private property rights throughout the solar system.
- 12 Press the US and other governments to negotiate new arms control agreements in space.
- 11 Liabilities for space funders internationally.
- 8 Developing extra-territorial jurisdictions (zoning) on the Moon.
- 8 The recognition and acceptance of national entities in space.
- 6 Agreement of something internationally.