



**Frameworks & Strategy for Space Sustainability: Defining Sustainable Use of Space
Workshop Summary
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Introduction

On Monday, April 30, 2012, Secure World Foundation (SWF) hosted an all-day, invite-only workshop entitled “Defining Sustainable Use of Space.” It was the second workshop in SWF’s Frameworks and Strategy for Space Sustainability (FSSS) program. The FSSS program examines existing theoretical frameworks for sustainable governance and how these might contribute to the ongoing debate about space sustainability with the ultimate goal of producing practical guidance for policy makers.

Background and Workshop Objective

The first FSSS workshop, held in September 2011, brought together a small group of experts to explore the applicability of Nobel Laureate Elinor Ostrom’s principles for sustainable commons governance to the space environment, issues with terminology, and the sufficiency of current space governance mechanisms.

Major conclusions from this initial workshop informed the design of the second workshop held in April 2012. First, it was agreed that while Ostrom’s framework provided a good conceptual foundation for discussing the gaps in space governance, it needed to be translated into practical steps for policy makers. The “Defining Sustainable Use of Space” workshop, therefore, looked at both theory and real-life initiatives.

Second, the first workshop concluded that all relevant stakeholders need to be present for future discussions of this nature. As a result, the “Defining Sustainable Use of Space” workshop featured international participants from five continents and 11 countries, representing military, civil, commercial, and intergovernmental space actors.

Third, the first workshop’s participants emphasized working within and improving extant international fora and processes, rather than trying to start something new. The “Defining Sustainable Use of Space” workshop utilized lessons from the first workshop and from its own discussion to evaluate three existing international initiatives¹: the draft International Code of Conduct for Outer Space Activities, the United Nations (UN) Committee on the Peaceful Uses of Outer Space (COPUOS)’s Long-term Sustainability of Space Activities (LTSSA) Working Group, and the Group of Governmental Experts (GGE) tasked by the UN Secretary-General to examine Transparency and Confidence-Building Measures (TCBMs) in Outer Space Activities.

Last, the first workshop recommended that SWF identify its ideal end state before developing and recommending practical steps to get there. It was necessary to define the meaning of sustainability from the diverse perspectives of the range of users and stakeholders in space. Hence, the second workshop

¹ Secure World Foundation fact sheets on each of these current international initiatives can be found here: <http://swfound.org/news/all-news/swf-publishes-three-new-fact-sheets-on-space-sustainability-initiatives>.

gathered together a sampling of stakeholders to discuss what sustainable use of space means to each of them and to the sectors or groups they informally represented. In doing so, SWF hoped to flesh out generally agreed upon priorities for current and future space sustainability initiatives.

Both workshops were held under Chatham House rules. The discussions have been used to author public workshop reports and summaries, as well as to inform future SWF programming, but no single speaker is attributed.

A Philosophical Icebreaker: “Comparing Two Extremes”

To initiate the discussion, SWF posed a theoretical question about the current state of space governance and regulation. Where does the current state stand on a spectrum of governance, with complete freedom of action on one end and complete regulation on the other? It was observed that space governance at the international level is primarily loose and unenforceable, making it lean toward the freedom of action end of the spectrum. Domestic governance, on the other hand, can be quite regulated and restrictive, locating it on the opposite end of the spectrum. Additionally, domestic laws and regulations are significantly more enforceable, typically couched in a system with defined liability, precedents, and a judicial process through which to seek indemnity.

After much discussion and a variety of responses, it was concluded that the answer to where current space governance is situated on the aforementioned spectrum will ultimately depend on who you ask. Some felt that space activities were heavily regulated, perhaps even too much. This response largely came from U.S. and European commercial participants, reflecting the complex regulatory frameworks present in those domestic environments. The commercial participants also pointed out that there is a divide between the restrictions placed on the private sector versus the near-freedom of action given to government or military space actors in a domestic regulatory framework. Others felt that space still exhibited many characteristics of a new frontier, or “Wild West.” Participants from emerging spacefaring nations and non-private sector voiced this perspective most and were, in large part, referring to the international regime for space (e.g. International Telecommunications Union Radio Regulations, Outer Space Treaty of 1967, and so forth). Those from emerging nations emphasized their belief that they should enjoy the same kind of freedom of action given to established space powers at the onset of the space age.

The discussion turned to the purpose and value of greater regulation or governance. It was agreed that regulations should not be instituted simply for the sake of regulating. Instead, a relevant problem should be identified first and then regulation crafted to solve that specific problem. This explains why regulation can often be reactive instead of proactive. Regulation is written and enforced in response to a particular incident or accident that demonstrates the need for more rules. Another source of regulation comes from industry best practices. The private sector operates out of a need for self-preservation. Voluntary norms or best practices are regularly developed by private entities out of self-interest. At times, these norms have become codified or used as a basis for enforceable regulations because they represent functional solutions to real problems faced by actual operators in the field. Ostrom terms this congruence, when rules or norms are fitted to specific needs in a commons, rather than ill-fitting rules being forced onto a commons, often by outsiders.

One particular problem mentioned during this workshop was scarcity. When actors realize they are using a scarce resource, they are often motivated to act by developing and implementing governance mechanisms. While some high-use orbits suffer from scarcity, there is not yet a consensus on this way of thinking about space resources, which explains the lack of motivation amongst some to act.

The ultimate goal for any new norm, rule, or regulation governing space is legitimacy. Legitimacy is achieved when a given rule is seen as practical, feasible, reasonable, and credibly enforced. The debate over binding treaties versus non-binding norms becomes a moot point then. It is more constructive to discern what type of norm, rule, or regulation will be most legitimate for a particular goal. Creating legitimacy can be done through a variety of means. For example, the United Nations (UN) process is time-consuming and tedious, but robust. By virtue of its inclusiveness and comprehensiveness, the UN process endows a given product with a level of legitimacy that other international processes cannot. Regional mechanisms or institutions may provide another legitimate forum for discussing these issues, but with less of the delay and challenges associated with a UN process. However, these processes will presumably only carry legitimacy with the regional players directly involved.

It is important to remember, though, that legitimacy is not always related to quantity; meaning a process is more legitimate if it involves more actors. Rather, quality can be of equal importance; meaning that certain critical actors must be engaged in a process to deem it legitimate. If these few, important actors are not involved, but all others are, the process will still lack legitimacy. Therefore, space governance initiatives need both critical mass and critical actors.

Fleshing Out Priorities: “Identifying an Ideal End State”

The second thematic discussion of the day sought to determine space sustainability priorities for each set of stakeholders represented, as well as understand how these may overlap with and differ from each other. One major conclusion from this session was that, in working toward sustainable use of space, decision makers must balance many differing priorities and needs including, but not limited to, sensitive national security interests, equitable access to the space domain for emerging States, and protecting the space environment. It was agreed that flexibility is key to effectively balancing all of these elements. This idea of flexibility is theoretically captured in Ostrom’s concept of adaptive governance.

As with legitimacy, flexibility can be achieved through a variety of means. One way of introducing flexibility to space governance is by having one sector, such as industry, adhere officially to a given set of rules while certain other sectors, such as military, observe the same rules in a manner of “due regard.” For example, the idea was floated about whether or not the core principle of air traffic management, that the “rules” apply to non-State aircraft and State aircraft only need to operate with “due regard,” should be a core principle of space traffic management “rules.” This sparked a debate, with pushback from those who felt it might create two separate legal regimes, one for State satellites and one for commercial satellites. Others pointed out that the dual or multi-use nature of many satellites makes it hard to separate out State satellites from others. What was suggested instead was one agreement or regime that applies to all space objects, but with governments having some discretion on how to implement at the State level. Additionally, a more useful distinction is likely that between “public” and “secret” satellites instead of State and non-State.

Another example of flexibility is through what Ostrom calls nested enterprises. At a universally-applicable level, the regime may be more flexible and rules vaguer. However, at the national level, where implementation takes place, the rules become more defined and rigid in response to individual, national needs. Finally, flexibility can be achieved by accepting less than universal representation in a given multilateral governance regime and building toward full inclusion later.

The participants from emerging space powers and developing countries discussed some of the challenges they have in their own countries, particularly in participating as equals with established space powers. Some are waiting to see what gets put on the table; others are debating whether or not to take the initiative. Others are holding back, sensing that they need to get their own house in order (referring to their national policies and regulations) before they can participate at the international level.

The Space Data Association (SDA) was cited as an example of flexible, private sector problem-solving in response to industry's own priorities and needs. The SDA is a private sector initiative that tackles SSA data sharing and collision avoidance for assets in geosynchronous orbit (GEO). Similar to the example of flexibility mentioned above, the SDA started with a few, motivated commercial satellite owner-operators and has grown to include many more. The three biggest satellite companies, Intelsat, Inmarsat, and SES created the SDA, collaborating on a practical solution informed by their best practices. Over time, SDA membership has grown considerably, now covering the majority of active satellites in GEO. Although the SDA was initially a private sector venture, it is open to membership from any interested party and now counts government agencies as members. This demonstrates another means of flexibility as described above; governance first applying to one sector and later expanding to include others.

Back to Reality: "Evaluating Current International Initiatives"

The last discussion of the day focused on real-life space sustainability initiatives currently taking place in the international community: the Long-term Sustainability of Space Activities (LTSSA) Working Group out of the UN Committee on the Peaceful Uses of Outer Space (UNCOPUOS), the proposed International Code of Conduct for space, and the UN Group of Governmental Experts (GGE) on Transparency and Confidence-building Measures (TCBMs) in Space Activities. The major conclusion out of this session was that space sustainability will not be accomplished by 2014 though all three initiatives are expected to conclude that year. It was pointed out that implementation of solutions will not begin till after the processes conclude. Moreover, it may take some time before improvements are seen. The workshop's participants unanimously agreed that there was value in all three international initiatives, however, and that it was unlikely any significant new initiatives would be started while these three were underway.

The rest of the discussion focused on how to make these initiatives as meaningful and successful as possible. The need for educating and informing various groups was a central theme. All countries need to be informed of these ongoing efforts so that they can be involved as early as possible. The European Union-led Code of Conduct process demonstrated how failure to do this can alienate important States. It exemplified how necessary it is to educate and inform developing or emerging space States. These countries face considerable barriers to successful implementation of international law and regulations purely based on a lack of resources, capacity, or prior experience. There is also a need to educate and inform the wider international community and public about the importance of space and space activities and, consequently, of these international efforts. Even if the international space community can reach consensus on these three initiatives, final decisions about implementation will be made in a much broader geopolitical context. The world's decision makers need to understand the value of space so that subsequent, related policies are as effective as possible.

The session concluded with a discussion about coordination among the three concurrent initiatives. It was agreed that they represented different problem-solving approaches. For example, the LTSSA Working Group is largely seen as a bottom-up approach, while the Code of Conduct a top-down one. The workshop participants agreed that this diversity was a positive thing. Furthermore, each initiative tackles slightly different problems. The GGE, for example, is examining different issues than the Code of Conduct and LTSSA Working Group and should not try to accomplish the same objectives as these other, complementary efforts. The participants noted that it is the overlap of individuals among all three initiatives that is more important, and interesting, than greater formal coordination.

It was also noted that what will be lacking in 2014 when the LTSSA and GGE initiatives conclude is a wide spread political consensus on what the problem is, especially if they reach different conclusions. Space will not be sustainable in 2014 and there will be a need to implement suggestions from the three

initiatives in a broader political context. In communicating to the public, there will need to be a transition from why space is important to what the world agrees should not happen with regard to space sustainability.

Conclusion

The second FSSS workshop, “Defining Sustainable Use of Space,” successfully convened a small sampling of prominent, international thinkers representative of the various stakeholders in space to discuss what space sustainability means to them and what they would like to see emerge from current international initiatives.

The entire day’s discussion was framed by Ostrom’s work on sustainable governance of common-pool resources. It was clear throughout the conversation that Ostrom’s principles are very applicable to space and need only to be translated into practical lessons for these ongoing initiatives. For example, decision makers must develop new norms or rules for space in response to specific needs. They must be legitimate and flexible. Ostrom calls this congruence and adaptive governance. Moreover, these initiatives need to be inclusive and represent those who have a stake in space; what Ostrom captures in her collective-choice arrangement principle.

A major takeaway from this workshop was the importance of continued dialogue and information-provision. Regardless of whether or not the products from these three international initiatives perfectly solve the problems of space sustainability, it is crucial that these discussions continue to take place and their outcomes evaluated. Further, all relevant stakeholders must be informed about and empowered to play their appropriate role in these discussions. A significant remaining challenge is whether the space community will be able to agree on a unified answer to what the basic risks and goals are that can be pushed to a larger policy agenda. In the meantime, there is still a need for capacity building across all countries. There needs to be a common understanding of responsibilities and cross-talk between technical, law, and policy fields. There also needs to be a cultivation of space experts that can communicate space issues to non-space players to gain the support of key policy actors in each country and influence high-level decision makers. Fostering national space policies can also serve as continuity amidst political change.