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Is space a Global Common? - How declining international acceptance of the commons narrative applied to space limits its utility in the development of global space governance

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The notion of space as some sort of global common has been around since before the dawn of the Space Age and this notion has continued to be asserted by various commentators from time to time, most recently often in the context of space resource utilization. But, *is* space really a “global common” that “belongs” to all of humanity? This article discusses the concept of global commons as traditionally defined, understood, and applied on Earth. Then we review the evolution of commons-type language in multilateral documents and transpose the concept of the commons to the space domain, arguing that, while the freedom to engage in the activity of access and use outer space is a right held by all states under international space law, the domains of space themselves are not global commons or other such social constructs. Indeed, such constructs are mutable and not always correlated with peaceful, sustainable or prosperous uses of shared resources across history.

KEYWORDS

commons, global commons, outer space treaty, space governance, space resources, sustainable development

1 Introduction: why this topic matters

The idea of space as a global common predates the beginning of the Space Age. In 1952, in a remarkably prescient analysis of the legal problems posed by space activities, Oscar Schachter, an American professor of international law, discussed the exercise of State sovereignty in space and on celestial bodies and concluded that “... we would apply a system similar to the high seas; outer space and the celestial bodies would be the common property of all mankind, over which no nation would be permitted to exercise domination.” (Schachter, 1952) The concept evolved over time, and its fullest codified expression in international law appears in the Moon Agreement of 1979, which asserts that “*The Moon and its natural resources are the common heritage of mankind ...*”. However, in recent decades, as space has become more congested and contested, the assertion that “space is a global common” is being questioned more and more often. The rapid commercialization of space and growing interest in space resources of different types (e.g., preferred orbits or preferred locations on celestial bodies for access to sunlight, water and other resources) have intensified debates about the interpretation and application of the global commons concept to the space domain.

Phrases such as “the commons”, “the global commons”, “common heritage”, and other similar phrases are used loosely and often across the space community. Outer space, international airspace, the high seas, the oceans’ water columns, and the deep seabed are all areas beyond national territorial boundaries and are primarily regulated by international law. Thus, how they are defined in international discourse has consequences for how states and corporations will behave in these areas, including how they will interact with others.

With its broad principles and general obligations, rights, and prohibitions, international space law dictates how states regulate their own activity, rather than establishing a comprehensive regime regulating or defining the space domain itself. Article 1 of the 1967 Outer Space Treaty, which is the foundational treaty upon which the rest of international space law is built, creates the right whereby all states may lawfully access and explore outer space—including the Moon and other celestial bodies—equally and without discrimination. Article 2 of the Treaty stipulates that “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.” (UNOOSA, 2017).

And that’s it—there’s nothing further in the Treaty that ascribes any sort of special status to the domain itself. If outer space, including the Moon, subparts of the Moon, and even tangible resources such as lunar water ice, rare earth elements, and other natural resources found there, are widely considered as commons, or global commons, or related phrases such as the common heritage of all humankind, then any one state or commercial actor’s use of resources found in space might be called into question, as somehow removing something which ‘belongs to all’ and to which everyone has a real, vested, and legally-cognizable interest, including a financial one. Consequently, debating whether outer space is ‘a common’ is not a theoretical exercise for philosophers, legal theorists, and space ethicists alone. This discussion has tangible, real-world implications for how states will perceive the actions of others, and how they will understand and frame their own rights to use outer space and the resources in space.

2 What is a global common? Can the concept be extended to outer space?

Global commons are shared resources or areas that lie outside of national jurisdictions and are accessible to and/or used by actors from all nations. Examples on Earth include the atmosphere, high seas, and Antarctica. The stability of these areas is crucial for maintaining societal stability and peace on the planet. But, do the characteristics of commons on Earth extend to space? One might start with the simple observation that the concept of a “global common” applies by definition to the terrestrial globe, and space is not part of the globe. Nevertheless, if one takes the position that the concept does apply to outer space, how does this hold up against the *de facto* political and legal support for the concept?

Given the growing commercial interests in space, it is instructive to consider the concept of a common from an economics perspective. Economists define four types of goods: private goods, public goods, common-pool resources, and club goods. *Rivalry* and *excludability* are the key characteristics economists use to classify

these goods. *Rivalry* means that one person’s use diminishes another’s, while *excludability* means that others can be prevented from using a good. Private goods (like food or shelter) are both rivalrous and excludable, public goods (like GPS, public radio) are neither rivalrous nor excludable, common-pool resources (like fish stocks or groundwater) are rivalrous but non-excludable, and club goods (like video streaming subscriptions) are excludable but non-rivalrous.

One can apply the criteria of rivalry and excludability to various “space goods” (or subdomains) such as Earth orbits, celestial bodies and interplanetary space. The Earth’s orbits and lunar surface meet the criteria of rivalry and excludability: 1. they are rivalrous since only one spacecraft can occupy a given orbital slot or position on the lunar surface at any given time; and 2. they are also non-excludable as Article 1 of the 1967 Outer Space Treaty provides that

“Outer space, including the Moon and other celestial bodies, shall be free for exploration and use by all States without discrimination of any kind, on a basis of equality and in accordance with international law, and there shall be free access to all areas of celestial bodies.”

Proponents of space as a global common often refer to space as though it were a single domain, but the diversity of contexts in which space is used exposes problems with this simple characterization. Governmental and private sector space actors use orbits, celestial bodies, and cislunar and interplanetary space in very different ways. Attempting to ascribe the attributes of rivalrous and excludable to these space goods reveals that they do not exist in a simple binary form, but rather as a mixture of these two qualities in varying degrees. Two domains may both be rivalrous or excludable to different degrees.

3 Evolution of commons concepts applied to outer space from a legal and political perspective

It is instructive to trace the evolution of commons concepts applied to space in various multilateral documents as a sort of indicator of the degree of consensus on the acceptance of these concepts in the space context. The leading multilateral body responsible for the progressive development and codification of space law and norms for behaviour in space is the United Nations Committee on the Peaceful Uses of Outer Space (UN COPUOS). This was the body that developed the five outer space treaties that form the basic framework of international space governance (UNOOSA, 2017).

None of the five outer space treaties use the words “global common” even once (UNOOSA, 2017). The word does not appear in key relevant consensus documents of COPUOS on space environment management, such as the 2019 Guidelines for the long-term sustainability of outer space activities (UN Office for Outer Space Affairs, 2019) or the 2010 Space debris mitigation guidelines (UNOOSA, 2010). Neither does the term appear in the 1999 Vienna Declaration on Space and Human Development (UNOOSA, 1999), or the 1996 Space Benefits Declaration (United Nations General Assembly Resolution 51/122, 1996). This latter declaration, while reiterating the ideal of space activities benefiting

all countries, essentially acknowledged the disparity between that stated ideal and the reality of space activities as they are conducted in practice. Since COPUOS adopts reports and documents by consensus, the absence of a single reference to space as a global common in these key COPUOS documents clearly indicates a lack of consensus on this issue.

To find such references, one must look outside of UN COPUOS. The 1987 *Report of the World Commission on Environment and Development* (United Nations, 1987), refers to space as one of the ‘global commons’ and dedicated an entire section of the report to this topic. “*This Commission, in view of these developments, considers space as a global commons and part of the common heritage of mankind.*” The reference to “common heritage of mankind” is language from Article 11 of the Moon Agreement, which entered into force in 1984, the same year that the World Commission on Environment and Development held its inaugural meeting. This is the only place in this space treaty where this phrase is used. Paragraph 5 of Article 11 of the Moon Agreement further specifies that: “*States Parties to this Agreement hereby undertake to establish an international regime, including appropriate procedures, to govern the exploitation of the natural resources of the Moon as such exploitation is about to become feasible.*” (UNOOSA, 2017) This has never happened, and the Moon Agreement remains the least ratified of all the space treaties, by a wide margin.

To date, only 18 States have ratified the Moon Agreement. None of the leading space powers, such as the US, Russia and China, have ratified it, and most of its parties do not actively promote its norms and principles in their bilateral agreements. Saudi Arabia withdrew from the Agreement in 2024, bringing the number of ratifying countries back down to 17. The Artemis Accords explicitly mention and endorse all the UN space treaties, with the exception of the Moon Agreement. The Moon Agreement is the closest that international law space has come to codifying space commons type language and it clearly has very limited support.

The other frequently encountered commons-related phrases applied to space are:

- a. Province of (hu) mankind
- b. Common interest of (hu) mankind

These phrases have their origins in the Outer Space Treaty, but the treaty itself, and its precursor principles upon which the treaty is based, very clearly stipulate that it is the *exploration and use* of outer space that are the province of all mankind, not outer space itself. Likewise, common interest relates to the *exploration and use* of outer space, not that all humankind has an interest (i.e., a stake) in space itself.

This steady erosion of references to space as a global common, from the time of its mention in the 1987 *Report of the World Commission on Environment and Development* (United Nations, 1987) to today, is illustrated by the outcomes document of the United Nations’ 2024 Summit of the Future, *The Pact for the Future* (United Nations, 2024), which refers to outer space governance challenges in its Action 56, but it does not contain even a single reference to the word “commons” or “common heritage” anywhere in that 56-page document.

From a political perspective, support for the concept of space as a global common has waxed and waned over time. The concept emerged in the early days of the space age when it was not clear which of the two

Cold War superpowers would win the space race. The initial support for the global common framing was driven by a desire for peaceful exploration, scientific advancement, and the avoidance of conflicts in space. As space activities started to become more pervasive, the global common framing was less often repeated, especially by nations with strong space capabilities, and this challenge to the commons narrative has been accentuated over the past two decades as the space arena has come to be dominated by commercial actors. In recent years, the major space powers have tended to be silent on this issue and have not used the term in bilateral or multilateral instruments. Pic et al. (2023) have studied the use of commons-related language in space cooperation agreements of a large number of countries and found a clear negative correlation between reference to commons-related principles and gross domestic product (GDP) *per capita*. In other words, the wealthiest, most space-capable countries have tended to shy away from this concept, and there is a growing body of literature by authors from those countries repudiating the application of the commons concept to outer space. The clearest and most prominent political repudiation of the idea of space as a global common was Executive Order 13914 - Encouraging International Support for the Recovery and Use of Space Resources, issued by U.S. President Donald Trump on 6 April 2020, which asserts that “... the United States does not view [outer space] as a global commons”. To sum up, clearly there is no global political consensus on space as a global common, and a significant pulling back by the major space powers from socializing this concept among the community of nations.

4 Counterargument: why space is not a global common

From the above, we see that there is simply no widely-adopted international legal instrument which declares that outer space is a global common. More fundamentally, there is no such internationally-negotiated legal definition of a “common” or a “global common”. But, could there be a reading of international law that provides a legal counterargument for why space is *not* a global common?

The legal philosophy of logical positivism stresses that the law, as enacted, is separate and distinct from what subjects of the law wished the law to be or what commentators see is morally required. As such, we should look only to valid sources of law to shore up any argument that outer space is a global common. We find none.

In truth, global commons and commons-related language are simply not legal terms. Neither the Outer Space Treaty, as the framework treaty on principles governing the activities of states in outer space, nor any of the subsequent UN space treaties, define or establish outer space in these terms. Rather, Article II of the Outer Space Treaty establishes a principle on the impossibility of national territorial annexation of outer space, including the Moon and other celestial bodies. Article II is referred to as the non-appropriation principle (rather than a prohibition) because it enshrines and codifies a foundational principle of international space law; that of the legal impossibility of national appropriation of outer space, including the Moon and other celestial bodies.

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.

Rather than prohibiting a physical act, this article makes impossible a legal or political act. Here, no action—whether a claim of sovereignty, a use, an occupation of outer space, or indeed any means—will constitute, justify, concretize, or otherwise perfect or make final an expansion of terrestrial national territory into the space domain or over a celestial body. Thus, rather than outer space becoming *by writ* the common property of any state, group of states, or of the entire international community as a whole, Article II instead declares that outer space *is not* and *cannot* be owned, as the common property, heritage, patrimony, or inheritance of humanity, by any states, groups of states, or by other organization of peoples.

Taking a step back, it would indeed be the height of hubris to look into space, to see other planets and celestial bodies, and to declare that they somehow belong as property to humankind. Such anthropocentric ambition would be the height of not just colonialism and a colonial mindset, but of imperialism on a scale hitherto unsurpassed. Thankfully, the drafters of Article II of the Outer Space Treaty avoided this level of absurdity with their drafting of Article II and its framing of the non-appropriation principle. Rather, Article I of the Outer Space Treaty establishes as a freedom, the activities of exploration and use of outer space, a right to which all states parties of the Outer Space Treaty can avail themselves. In sum, outer space and the planets are not the property and territory of humanity, and Article I clarifies an understanding whereby states parties mutually agree that all states parties are permitted to access, explore, and even use outer space.

For the minority (and dwindling) number of states which are party to the 1979 Moon Agreement, the story is completely different. There, the Moon Agreement's Article 11 completely reverses the non-appropriation principle, and boldly declares that outer space, including the Moon and other celestial bodies, does indeed belong to humanity as some type of common property.

The Moon and its natural resources are the common heritage of mankind, which finds its expression in the provisions of this Agreement, in particular in paragraph 5 of this article.

It is difficult to read this as anything but the most ambitious collective seizure of the natural world ever condensed to paper, reflecting a culmination of a western-influenced ownership of nature by humankind, rather than an understanding that *humankind exists as a part of nature*. Finally, and perhaps glibly, a global common should by definition be located somewhere on the globe. A casual inspection of the nearest terrestrial globe will confirm that outer space and other celestial bodies are absent from such spheres which map Earth's continents and oceans.

5 Conclusion

So, is space a global common? Our analysis suggests that this is not a useful characterization to make. The notion of a common does not correspond to an objective, physical reality. Rather, it is a social construct that derives its legitimacy from being held by a community, in this case the community of nations. In the case of outer space, we have shown that there is neither a *de jure* nor *de facto* acceptance of the notion of space as a global common by the community of nations and it is therefore of limited practical value for ensuring the peaceful and sustainable exploration and use of outer space and other celestial bodies.

Additionally, space is composed of various subdomains (such as LEO, GEO, cislunar, asteroids and other planets, along with various planetary orbits and trajectories), and therefore any all-encompassing term is largely inappropriate. Finally, the Outer Space Treaty makes national territorial annexation impossible through the non-appropriation principle of Article II, but the Treaty does not consequently thereby assign property rights to the international community. In fact, Article I—rather than granting collective ownership rights to the international community—instead codifies freedoms of access, exploration and use, as rights held and enjoyed *individually* by state parties to the treaty.

Perhaps instead of arguing over whether space is or is not a global common, it might be more productive to focus on developing a shared understanding of what constitutes responsible behaviour in space that speaks to the principles of due regard, cooperation, non-interference, information sharing, and consultation in the Outer Space Treaty.

In the final analysis, the question of whether or not space is a global common may not be the most appropriate way to advance the peaceful, equitable and sustainable exploration and uses of outer space, because, after all, what is it that is to be accomplished by making such a characterization? If the intention is to safeguard the principles enshrined in the Outer Space Treaty, then perhaps the question of whether or not space is a global common may not be the most appropriate way to achieve this, and it might be more productive to focus on how we implement those principles in the changing context of space activities, rather than to try to ascribe some sort of special status to outer space and celestial bodies.

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