



We stand at the threshold of a new phase in our course to the space age. Our present-day technological capabilities allow a much broader and intense utilization of the space potential. It has become possible for private enterprises to launch their satellites with confidence of success. The rise of the private sector is matched by the withdrawal of the public sector; the shift of emphasis to commercial usage of space has left a void in the legislative framework.

Gone are the days when governments would directly compete with one another in the race to conquer space and so is the funding that such an endeavor requires. Although this could be seen as a setback for space activities, it is in essence a great opportunity for private enterprise. Now we can have a level playing field where risk is rewarded, innovation is spurred, and that puts us back on track in aiming for the sky.

Governments around the world have come to terms with the emergence of private enterprise as a major player in space endeavors. Whether it be the United States, the European Union or Japan, all have adopted legislation to support their national space industries. But that support has been incomplete: it has focused on space applications

and satellites, but it falls short of opening up space beyond the limit of Earth's orbits.

We are going to the Moon, Mars and other celestial bodies. We will establish bases on their surface. We need to do this if we are going to explore the universe. Human development should not be stunted because of governmental inability to finance these operations. The necessary resources, innovative skills and vision are all there, but what is lacking is a stable legal environment providing the fullest amount of incentives.

Regardless of the reasons why, we do not have such a legal framework yet; we do know the shape such a framework must take: private ownership of territory on celestial bodies. I will propose an alternative interpretation of the legislation currently covering the Moon and other celestial bodies, enabling such an approach. We must start with the treaty responsible for the legal uncertainty followed by the treaty providing the generally accepted principles of outer space activities.

The Moon treaty

The aim of the Moon Treaty was to provide a special regime for the exploration and use of the Moon and its

resources. Although the treaty itself said nothing about the specific rules of the legal regime, they named it the "Common Heritage of Mankind." Such a regime had been made applicable to the deep seabed and it basically means that the proceeds from exploiting the riches of such places are to be shared on an equitable basis with countries that are not able to exploit the riches (typically because of a lack of technical know-how). Equitable does mean that the actual excavators get reward for their work, but not nearly as much as they would have under a free-for-all regime.

The treaty has attracted only a bare minimum of support and both in its written form or as a component of customary law it has had little impact on the real world of space exploration. The United States has not ratified it, is not bound by it, and this leaves the possibility open to come up with an alternative legal regime, one that does take into consideration what the effect is on the incentives companies face. No matter how worthy the pursuit to bridge the gap between developed and developing states is, if the result is that nothing happens, it is not a good regime.

It is clear that private enterprises will be the main actors in the settlement of the Moon and Mars. All major spacefar-ing nations are currently reorganizing their space policies to facilitate commercialization. Not only do governments lack the financial resources to run large projects, but also to get political support for projects is a quest on its own. An even more important argument in this case is the fact that the private sector has a better chance of

accomplishing this feat more efficiently than governments would, especially if a form of competition is present. Thus, private enterprise seems to be the best and least burdensome way of settling the Moon.

The main object of legislation facilitating this development is simply to provide the optimum level of incentives.

Needless to say, the incentive level needs to be very high due to the

risky nature of the operation. The current regime for the Moon has failed to provide incentives and even a regime that unquestionably allows the appropriation of minerals and other resources like H<sub>3</sub> gas and water will

not result in a sufficient stimulus due to the enormous overhead costs. Ownership of large amounts of territory could tilt the balance.

The point here is that this approach is possible under international law. It had always been assumed that a change towards private endeavors would require a change of international law, which would be immensely difficult and burdensome, not to mention time consuming. However, a simple reinterpretation of the current legal principles would suffice to make this opportunity possible.

### **The outer space treaty**

How? A valid question.

Since the Moon Treaty is now irrelevant, the Outer Space Treaty provides the main legal regime for the outer space activities. The phrase "for the benefit and in the interest of all mankind<sup>2</sup>," mentioned in the first paragraph of article 1, has traditionally been interpreted as the sharing of either profits or scientific discoveries and advances.

Such interpretation still neglects the fact that all initial scientific advancements and discoveries benefit mankind as a whole, simply because the advancement or discovery was made. However, it is only an interpretation and not literally the text. Although not many people would object to the lofty goal of sharing, we have to accept that the dominant paradigm on the field of economy is that of the free market. We need to reinterpret this phrase so as to

include the generation of knowledge per se as benefiting mankind as well. We can then still provide benefits for countries not able to go into space yet, but by other means than heavily taxing companies that undertake the space venture.

The second paragraph of article 1 states the regime that is applicable to the whole of outer space, including, by default, the Moon and other

celestial bodies, due to the failed Moon Treaty. This regime is the same regime as the freedom of the high sea<sup>3</sup>, emphasizing the freedom of all states to explore and use such an area without being

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able to exclude another state. All nations are free to harvest and use the resources of these areas, as the resources are owned by none. This regime could be used to govern the use of the Moon, but this leads to the situation we face now, which is that the incentives to harvest these resources are too small.

his must not come as a surprise. Under this regime claim can be laid only to the resources themselves, but not to the territory in which they are found. The cost of sending a vessel to the Moon to harvest resources is immense, the cost of building a settlement on the Moon to aid the harvesting might reduce the long-run costs of exploiting lunar resources, but the short-term costs of building a base are so prohibitively high.

Having established that this regime cannot possibly provide the proper environment for the exploitation of lunar resources, we have to come up with a more appropriate regime. Such a regime would have to include the possibility of acquiring ownership of the territory itself. This is the only way to increase the available level of incentives. This would limit the freedom of states to have access to all areas of the Moon, but this would not necessarily be any different from situations resulting from a regime such as Common heritage of Mankind. Here, in order to ensure orderly exploitation, we would find the use of claims predominant. In reality the practical difference between a claim of ownership and a claim to a particular area recognized by other nations without owning it, is very small. The essence of the "freedom of the high sea" regime here is to prevent nations from appropriating vast tracks of land disadvantaging other nations just because they were not in the position to act fast enough. The form of appropriation proposed here will not infringe upon this principle. Its nature is too limited and temporary to pose a threat.

Article 2 of the treaty: "Outer space, including the Moon and other celestial bodies, is not subject to national appropriation by claim of sovereignty, by means of use of occupation, or by any other means," needs to be interpreted in a restrictive, literal meaning, namely as just the prohibition of national appropriation. This interpretation would allow other entities like private companies and non-governmental organizations to appropriate territory. The legislation we propose entails ownership of territory by these entities subject to the right of expropriation by the international community after due process and compensation. This is inherent in the limited duration of the ownership by non-state entities, whereby the territory would return to the international community after a hundred years if a new property rights formula had not been negotiated before then. There is no permanent sell-out of lunar territory; this draft legislation is merely an attempt to kick-start human settlement of the Moon, Mars and other celestial bodies, simply by providing the maximum amount of incentives without cost to the U.S. government.



It becomes increasingly more necessary for legislators world wide to incorporate NGOs and corporations into the regulatory framework because of the ever increasing complexity of the environment in which they operate. We are evolving into a world where non-state actors play an increasingly more important *de facto* role in everyday life and it is time to reinstate the *de jure* role they have played some centuries ago. Before the emergence of the nation-state it was both normal and self-explanatory for non-state actors to own territory. Contemporary emphasis on the state as sole organizer and regulator of both domestic and world affairs ignores the enormous potential of non-state actors to efficiently organize affairs up to a certain point. As stated above, our draft legislation avoids the question by

the recognition of the superstructure, but in the area of space activities non-state actors have and will have an important part to play and traditional attitudes might very well be inappropriate for such an untraditional playing field.

This being said, we can point at another interesting feature of the Outer Space Treaty: it concerns only obligations and rights of states. The link between states and non-state actors comes in the form of the principle of responsibility. States would be, as they are now, responsible for activities of their nationals or companies founded under its law. It would be simple for the U.S. to insert rules of behavior into licenses required by companies before they can venture into space. The Outer Space Treaty thus allows without difficulty the reinterpretation of all its articles, allowing the shift of focus from states to non-state actors in operational matters.

The deadlock can be broken with some creativity and willpower, thus enabling humanity to expand beyond the Earth."

1. Alan Wasser proposed the idea. I thank him for his encouragement and even more for his patience.
2. *Article 1, first and second paragraph of the Outer Space Treaty*: The exploration and use of outer space, including the moon and other celestial bodies, shall be carried out for the benefit and in the interest of all countries, irrespective of their degree of economic or scientific development, and shall be the province of mankind.  
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.
3. High seas as opposed to the deep seabed, two different areas each with their own legal regime.

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