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UNISPACE +50: Time for the Moon Treaty

Dennis C. O'Brien

The Space Treaty Project, 1201 Parducci Road, Ukiah, California, United States 95482
dennisobrien@spacetreaty.org

Abstract

The UNISPACE process has failed in its efforts to create an international framework of laws to guide humanity's departure from the home planet. But there is still a need for a regime of laws that will provide certainty and predictability for businesses and investors while protecting public policy interests. It now appears that the Moon Treaty is the best hope for doing so and moving humanity forward. An Implementation Agreement like the one used for the Convention on the Law of the Seas would address the concerns of private enterprise and others, including property rights for space resources, protection of intellectual property, funding, settlements, and individual rights. Benefits from adopting the Treaty would include tapping the creativity, talent, and resources of free enterprise; the sharing of information; access to technology; mutual assistance at times of need; the protection of the celestial environment (including historical/cultural legacy sites); the sharing of benefits with all nations; and a decision-making process that addresses public policy concerns while providing a sustainable legal framework for space commerce. Perhaps more importantly, such co-operation will contribute to the development of mutual understanding and the strengthening of friendly relations between states and peoples, i.e., to world peace. It will provide an alternative to militant nationalism and restore hope to individuals at a time when war, violence, and neglect are causing despair. The current Member States of the Moon Treaty should immediately start the process of drafting the Implementation Agreement and creating an international framework of laws, inviting other countries to join rather than being left behind, without a seat at the table, as humanity begins its journey from the home planet.

1. Introduction

The organizer of this colloquium, the International Institute of Space Law (IISL), has asked contributors to reflect on UNISPACE – the United Nations Conference on the Exploration and Peaceful Uses of Outer Space - on its 50th anniversary (UNISPACE +50). Alas, it appears that the process has failed in its efforts to create an international framework of laws to guide humanity's departure from the home planet. The Moon Treaty now appears to be the best hope for moving humanity forward.

In June of this year, the United Nations Committee on the Peaceful Uses of Outer Space (COPUOS) held a high-level meeting that tried to produce a consensus on a framework of laws for the sustainable exploration and development of outer space. According to its own report, it failed to do so.

> 4. The Committee agreed that the long-term sustainability of outer space activities was an important topic, noting that the international space community was looking for leadership in this area. . . .
>
> 7. The Committee noted that the Working Group had undertaken eight years of substantial work and expressed its appreciation for the time and energy invested by the Working Group members. . . .
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> 12. The Committee noted that the Working Group had discussed various options for continuing work related to the topic of the long-term sustainability of outer space activities, including extending the current Working Group by one year with a mandate to carry out specific tasks and creating a new working group on safety and transparency in space activities. *However, at the present session, the Working Group had not been able to reach a consensus on the details of any proposal*. . . .
>
> 14. The Committee noted that at the present session, the Working Group had discussed its report, that the Chair had produced working papers containing drafts of the final Working Group report [citations] but that *the Working Group had been unable to reach consensus on the text of its final report.*
>
> 15. The Committee noted that *the Working Group* had discussed, but *had not been able to reach consensus on how to refer the preamble and guidelines on the long-term sustainability of outer space activities to the General Assembly*. (emphasis added) [1]

COPUOS and its Working Group may have been doomed to failure from the start due to its limited portfolio. As one reporter explained, COPUOS is not a rule-making agency and has no inherent power or process for doing so:

> Nevertheless, it must be remembered that the COPUOS is not a legislative, executive, governing or even regulatory body. The Committee cannot make law, nor can it enforce laws that currently exist. Decisions are made by consensus, not vote, so any one nation may prevent the Committee from making even unenforceable recommendations. [2]

But space governance remains one of the United Nations' thematic priorities for a sustainable future. And despite the failure to achieve consensus, the efforts of COPUOS and others over the years have succeeded in revealing and analyzing the concerns of the interested parties. The challenge now is to address those concerns and create a framework of laws that will benefit both commerce and humanity as a whole.

2. Background

In 1979, when the Moon Treaty was first proposed by the United Nations, space commerce was essentially a component of national government space programs. During the Cold War between capitalism and communism, some argued that private enterprise could have no independent role in the exploration and use of outer space. Even the United States required all payloads to be launched on the Space Shuttle, as the government needed the launch fees to make the Shuttle program economically sustainable. [3]

That decision - and that political philosophy - were wrong. Forty years later, experience has shown us that, if an activity in space is commercially viable, private industry should be allowed and even encouraged to do it. Not only does such a policy free up the creativity, talent, and resources of free enterprise, it also allows governments to concentrate on exploration and other missions that serve public policy interests.

The Moon Treaty acknowledges a role for private enterprise as "non-governmental" entities. Although it requires all private activities in space to be under the "supervision and control" of their country of origin, it does not specify any further regulations. Rather, it leaves it up to the "Member States" – those nations who have adopted the Treaty – to create a framework of laws to facilitate the "safe and orderly" commercial use of space resources, at such time when such regulations become necessary:

> *Bearing in mind* the benefits which may be derived from the exploitation of the natural resources of the moon and other celestial bodies . . . (Moon Treaty, Preamble)
>
> 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. (Article 11.5)
>
> The main purposes of the international regime to be established shall include:
>
> (a) The orderly and safe development of the natural resources of the moon;
>
> (b) The rational management of those resources;
>
> (c) The expansion of opportunities in the use of those resources;
>
> (d) An equitable sharing by all States Parties in the benefits derived from those resources . . . (Article 11.7) [4]

It is worth repeating that the Moon Treaty does not mandate any specific regulation for space commerce but does require countries to create such regulations as the need arises. It now appears that the need has arisen, as evidenced by two general trends. One is the explosion of commercial space startups, many of which are targeting the Moon and other space resources. The other is the heightened focus by national and international organizations on the issue of space governance. Some countries have passed their own national laws concerning space commerce, while more international conferences are putting space law on their agendas or even devoting entire conferences to it. Space commerce is taking off, both literally and figuratively, and the laws of outer space need to keep up.

3. The Concerns of Private Enterprise and Others

Article 11 of the Moon Treaty requires and empowers the Member States to create an international framework of laws ("regime") to regulate space commerce. As with all such regulatory efforts, private enterprise has serious concerns which can be summarized as follows:

1. Inadequate or nonexistent private property rights (space as the "common heritage of mankind");
2. An "enterprise", i.e. a government-owned corporation that would exploit space resources (similar to the one detailed in the Law of the Seas treaty);
3. Lack of protection for intellectual property;
4. Regulations that would burden free enterprise with public policy concerns:
5. Possible payment of fees, royalties, and/or taxes.
6. An inadequate decision-making process for determining future regulations, procedures, and funding.

Three additional concerns have been raised by other non-governmental organizations and private individuals:

7. A lack of provisions for establishing residences/settlements on the Moon and other celestial bodies;

8. An apparent ban on terraforming;
9. Lack of protection for individual rights.

Every one of these concerns can be addressed by a proper interpretation of the Moon Treaty through the use of an Implementation Agreement (IA), as was done with the Law of the Seas treaty in the 1990's.

4. Interlude: The Law of the Seas and the Use of an Implementation Agreement

At this point it will be helpful to review how the use of an implementation agreement revived a similar effort to establish another international framework of laws, the Law of the Seas.

Many critics have compared the Moon Treaty with the United Nations' Convention on the Law of the Seas (CLOS), claiming that the latter is a failed treaty that has prevented the development of undersea resources and fearing that the former would do likewise. They are especially critical of the creation of an "enterprise", a government-owned entity that would use the development of undersea resources to assist countries that were adversely affected by undersea development.

> If the international regime envisioned by the Moon Treaty takes a form similar to that of the Enterprise, developed nations would be required to relinquish a portion of the resources extracted from the Moon and other celestial bodies. [5]

Such concerns were very reasonable in the 1980's. At that time, many were insistent that governments should own and operate large industries rather relying on capitalism and private enterprise. Even the United States was requiring almost all satellites to be launched on the government-owned Space Shuttle.

All of that has changed, beginning with the Shuttle Challenger explosion in 1986. By 1989 the Soviet Union had ceased to exist and there was no longer a "cold war" battle between capitalist and communist philosophies. The United Nations increased its efforts to broaden support for the CLOS, resulting in the Implementation Agreement in the early 1990's. The CLOS and its IA came into effect in 1994, one year after Guyana became the 60th country to adopt it. It has now been adopted by 157 countries (see map). Even the United States almost adopted it. The CLOS had received bipartisan support in the Senate Foreign Relations Committee, but in 2012 34 senators signed a letter saying they would not vote for it (passage requires two-thirds support of the 100-member Senate). [6]

There are now 29 entities who have signed contracts with the newly-created International Seabed Authority for exploration and possible development of seabed resources. [7] A treaty that was once thought dead was given new life through the use of an Implementation Agreement to address unresolved concerns.

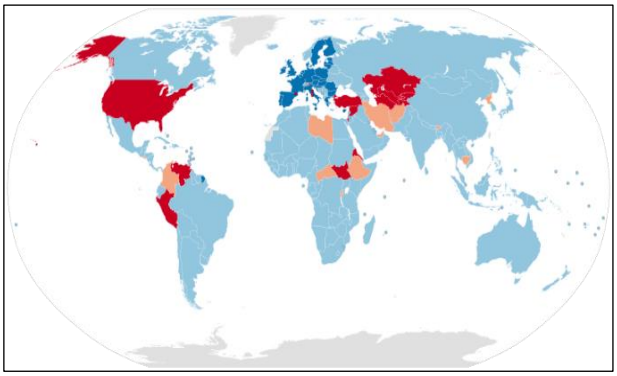

Fig. 1. Map of countries (in light/dark blue) that have adopted the U.N. Convention on the Law of the Seas. [8]

The strategy of using of an additional document to make the five space treaties more universal gained support in the COPUOS legal subcommittee at the June conference:

> 13. The view was expressed that the universality of the five United Nations treaties on outer space should be strongly supported and promoted, and that effective implementation of the treaties required broad adherence due to the increasing number of parties holding a stake in outer space activities.
>
> 14. Some delegations expressed the view that the *guidance document* envisioned under thematic priority 2 of UNISPACE+50 (Legal regime of outer space and global governance: current and future perspectives) and developed within the Working Group on the Status and Application of the Five United Nations Treaties on Outer Space, *could offer valuable guidance to States wishing to become a party to the five United Nations treaties* on outer space and could thus help to promote the universality of those treaties, greater adherence to them and the progressive development of international space law. (emphasis added) [9]

The Implementation Agreement for the Moon Treaty can be that guidance document. Of course, the devil is in the details. But there can also be many angels there, angels which address the concerns of all stakeholders while maintaining a process that promotes public policy principles. A review of the nine concerns through the filter of a potential Implementation Agreement will reveal some of those angels.

5. Concern: Commercial Property Rights

Article 11.3 of the Moon Treaty states:

> Neither the surface nor the subsurface of the moon, nor any part thereof or natural resources in place, shall become property of any State, international intergovernmental or non- governmental organization, national organization or non-governmental entity or of any natural person. [5]

Article 11 implicitly recognizes the existence or creation of personal property rights by authorizing laws to govern the commercial use/exploitation of space resources. Without such rights there would be no commerce and no need for an international "regime" of laws. This interpretation is bolstered by the qualifier "natural resources *in place*" in 11.3 above. Once resources are no longer *in situ*, they become the personal property of whatever entity or person that removed them. [10]

Of course, this begs the question of how someone gets permission to remove the "natural resources in place". That would be the role of the agency/authority that administers the international framework of laws concerning the "orderly and safe development of the natural resources" that is mandated by 11.7. Such authorizations could be in the form of "priority rights", as recently proposed by The Hague Space Resources Governance Working Group:

> 6. Access to space resources
> 6.1 The international framework should enable the unrestricted search for space resources.
> 6.2 The international framework should enable the attribution of *priority rights* to an operator to search and/or recover space resources in situ for a maximum period of time and a maximum area upon registration in an international registry, and provide for the international recognition of such priority rights. The attribution, duration and the area of the priority right should be determined on the basis of the specific circumstances of a proposed space resource activity. (emphasis added) [11]

An Implementation Agreement for the Moon Treaty should confirm that the implementing authority can grant such priority rights to those engaging in space commerce.

6. Concern: A Government-Owned "Enterprise"

The Convention on the Law of the Seas originally called for an "enterprise" that would be owned by the international authority. It would have operated like a private company, with proceeds being distributed to less developed countries. It relied on the declaration that ocean resources were the "common heritage of mankind". Although the Moon Treaty does not expressly describe such an "enterprise", it likewise declares that outer space is the "common heritage of mankind" and implies that there will be some agency or authority to administer the international framework of laws that the Treaty requires. Many have concluded that the Treaty thus envisions a government-run "enterprise" for outer space and have criticized it for doing so.

As noted above, such concerns were reasonable at a time when the U.S. government required all commercial satellites to be launched by the Space Shuttle. But in January 1986, the Shuttle Challenger exploded. After an extensive review, the government decided that one of the causes was the push to fly too quickly and too often in order to keep up with the demands of the private satellite industry. NASA began to allow more launches on expendable launch vehicles, mostly Boeing's Delta and Lockheed-Martin's Atlas rockets. In 2006, after the 2003 explosion of another shuttle, Columbia, those companies combined their launch services to form the United Launch Alliance, which became the workhorse for launching private U.S. satellites.

If a company believes it can make money from an activity in space, it should be permitted to make the attempt, so long as other public policy concerns are satisfied. That statement of policy should be part of the Implementation Agreement, along with the declaration that creating a government-owned "enterprise" will not be within the portfolio of any agency that administers the international framework of laws.

7. Concern: Status of Intellectual Property Rights

The Moon Treaty's use of the "common heritage of mankind" has also raised concerns about the status of intellectual property rights.

> They [developed countries] would also be required to surrender technology developed by private industries under their jurisdiction for extracting extraterrestrial resources so that developing nations could participate in the activity of acquiring those resources as well. This implies that the Moon Treaty's common heritage view applies not only to extraterrestrial real property and resources but to intellectual property rights as well. [5]

This concern can also be addressed by the Implementation Agreement for the Moon Treaty, based on the language in the IA for the CLOS:

> Section 5: Transfer of Technology

> (a) The Enterprise, and developing States wishing to obtain deep seabed mining technology, shall seek to obtain such technology on fair and reasonable commercial terms and conditions on the open market, or through joint-venture arrangements;
> (b) . . . States Parties undertake to cooperate fully and effectively with the Authority for this purpose and to ensure that contractors sponsored by them also cooperate fully with the Authority;
> (c) As a general rule, States Parties shall promote international technical and scientific cooperation with regard to activities in the Area either between the parties concerned or by developing training, technical assistance and scientific cooperation programmes . . . [12]

Although such a provision would require private companies to share technology, it would also mandate that they are paid a fair and reasonable amount for its use. An exception would need to be made to the "general rule" for technologies that have been barred from export for national security reasons. The provision would thus protect private economic interests and national security interests while ensuring that less-developed nations have the technical capacity to share in the development of space resources.

8. Concern: Public Policy Regulations

Those who engage in free enterprise would like to be free from all government regulation. They argue that society would be best served if everyone acted in their own enlightened self-interest. The "invisible hand" of distributive economics, as popularized by Adam Smith, would be all the guidance that was needed. Those who make business decisions will do so in the public interest because what's good for the public is good for business.

> There are few metaphors that have captured the American economic psyche as powerfully as the "invisible hand" of the market. The term, first coined by Adam Smith in 1759, is used to describe how the self-interested behavior of people in a marketplace leads to the greater good for all. No need to rely on concerted efforts of government or the church to direct commercial activity. If the proper economic and legal institutions are set up, we can all be made better if simply left to our own devices. [13]

Alas, this theory does not work in practice. A prime example is the ever-growing amount of space debris in low Earth orbit. Even now satellites are being placed in orbit without de-orbit thrusters that would get them out of the way at the end of their usefulness. In business, the desire to save money in the short term is always stronger than long-term public policy concerns. Paying more to build a satellite with a de-orbit thruster would put a company at a competitive disadvantage to a company that did not. That's why it takes laws to get private enterprise to attend to such concerns. In addition to serving public policy, such laws prevent any company from gaining an unfair competitive advantage over another.

What are the public policy concerns that private enterprise would need to honor? Article 11.7 of the Moon Treaty describes the international framework of laws concerning space commerce, stating that their purpose is (a) the orderly and safe development of the natural resources of the moon; (b) the rational management of those resources; (c) the expansion of opportunities in the use of those resources; (d) an equitable sharing by all States Parties in the benefits derived from those resources. Any regulations established to further these public policies would need to be honored by private enterprise.

The Treaty also describes several obligations concerning "national activities" that can be applied private enterprise as well as governments. Such obligations would include:

1. Using space resources exclusively for peaceful purposes (Art. 3.1);
2. Providing co-operation and mutual assistance (4.2);
3. Informing the public of activities (5.1);
4. Informing the public of "any phenomena . . . which could endanger human life or health, as well as of any indication of organic life" (5.3);
5. Protecting the environment (7.1) (this could also include protecting historical legacies, such as early Moon landing sites);
6. Reporting any significant discoveries (7.3);
7. Not impeding free access to all areas by other parties (9.2);
8. Honoring the Rescue Treaty (10.1).

An Implementation Agreement for the Moon Treaty would specify the extent to which the obligations of Member States would also apply to private enterprise. As it currently stands, the Treaty appears to apply such obligations to all "national" activities, which would include private enterprise. This interpretation is bolstered by a bill recently passed by the U.S. House of Representatives that seeks to unilaterally exempt nongovernmental entities (NGO's) from such obligations. [14]

Rather than viewing such obligations as burdens, commercial interests should embrace them as a way to fulfill their overall obligation to share the benefits of space commerce with all countries. To the extent that they require the sharing of "proprietary" information,

e.g., the discovery of a mineral deposit, they might even be a deductible expense under a company's national tax laws. Indeed, all money spent meeting public policy obligations would be considered a necessary business expense, whereas without the legal obligation to do so they might not be.

8. Concern: Assessment of Fees, Royalties, and/or Taxes

Although the assessment of a payment for use/exploitation of space resources is not specified in the Moon Treaty, the declaration that such resources are the "common heritage of mankind" implies the authority of any implementing agency to do so. Such is the case with the Convention on the Law of the Seas, which also uses the CHM concept. In the CLOS, governments, NGO's, or individuals can contract with the international authority to explore certain areas of the seabed and exploit the resources found there. The fees that they pay are used to support the administrative work of the agency.

> The Authority shall have its own budget. Until the end of the year following the year during which this Agreement enters into force, the administrative expenses of the Authority shall be met through the budget of the United Nations. Thereafter, the administrative expenses of the Authority shall be met by assessed contributions of its members, including any members on a provisional basis, . . . until the Authority has sufficient funds from other sources to meet those expenses.
> - Agreement Relating to the Implementation of Part XI Of The Convention [on the Law of the Seas], Section 1.14 [12]

This arrangement was set forth in the Implementation Agreement that was worked out for the CLOS, just as it can be included in an IA for the Moon Treaty. For those who are concerned about a bloated administrative agency [15], the CLOS IA even provides an efficiency clause that could be adopted for the Moon Treaty IA:

> Annex Section 1.2: In order to minimize costs to States Parties, all organs and subsidiary bodies to be established under the Convention and this Agreement shall be cost-effective. This principle shall also apply to the frequency, duration and scheduling of meetings. [12]

The payment of fees and royalties for the use of public lands is common on Earth. Although it is the mission of corporations to avoid costs and increase profits, it is too much to assume that there will be no cost for the exploitation of outer space resources. Whether such payments would be used for purposes other than administrative costs would be up to the Member States, using their decision-making process.

9. Concern: Inadequate Decision-Making Process

The above analysis and proposals only work if there is a decision-making process in place to determine regulations, potential fees, and the use of proceeds. Alas, the Moon Treaty is silent on how such a process should be structured. Once again, the Convention on the Law of the Seas and its Implementation Agreement offer a way forward.

That Agreement establishes an entity separate from the United Nations, composed of an Assembly made up of all Member States and an executive Council made up of 36 states who are chosen by the Assembly. Membership on the Council consists of five sub-groups to assure that all interests and interested parties are served. For example, one group is made up of countries who each generate more than 2% of the world's GDP. Although consensus is preferred, it is possible to make decisions in both the Assembly and the Council by a simple majority for procedural matters and by two-thirds majority for substantive matters. In addition, all decisions on financial matters, including the charging of any fees, the administrative budget, and the use of any income must first be made by a 15-member Finance Committee that is chosen by the Executive Council. Decisions of the Finance Committee must be by consensus. [12]

How would this apply to the Moon Treaty? A good example is finances. The Implementation Agreement should specify that the implementing agency has the authority to collect fees for exploration/exploitation permits that are sufficient to cover its administrative costs. It should then state that any additional collection of revenues, and how such revenues are used, will be determined by the Assembly and/or Executive Council after recommendation by the Finance Committee.

This proposal would "kick the can down the road" when it comes to the issue of using revenues to "share the benefits" of space exploitation with all nations. But it would establish a process for making such decisions. Meanwhile, humanity would benefit from other types of sharing (see Public Policy Regulations, above) while building confidence in the process for making more difficult decisions.

10. Concern: Settlements

When the Moon Treaty was first proposed, some individuals and NGO's, led by the L5 Society (now merged with the National Space Society), opposed it because there were no provisions for establishing private settlements. [16] They pointed to the language of Article 11.3:

> Neither the surface nor the subsurface of the moon, nor any part thereof or natural resources in place, shall become property of any State, international intergovernmental or non-governmental organization, national organization or non-governmental entity or of any natural person.

As with issues of commerce, it is possible to address these concerns through an Implementation Agreement. The IA should declare that the establishment of contained human habitats/settlements will not be considered either adverse or harmful per se (see Terraforming, below), though they might be subject to limitations (e.g., not too close to scientific or commercial installations). Under that scenario, use of the Moon or other celestial bodies for habitation would be considered an "exploitation of resources" under Article 11 and regulated in the same manner as commercial activities, though with its own set of protocols.

Those protocols should establish a "priority of usage" that is very close to "ownership" of property as generally understood on Earth. Keep in mind that even traditional "ownership" of property is not absolute: an owner of private property on Earth is subject to zoning and other regulations, cannot do things that would adversely affect others, and can have the property taken (for reasonable compensation) via public domain. Most owners of residential property do not even control the mineral rights. Those who are granted priority usage of celestial property for habitation would face similar limitations but would otherwise have freedom of use comparable to a property owner on Earth.

For those who wish to establish independent, sovereign nations on the Moon or other celestial bodies, the Moon Treaty is actually helpful. The prohibition against countries establishing sovereign claims to territory applies only to those Member States who have signed the Treaty; it stops them from establishing colonies. It does not apply to a new nation that is applying for recognition through the protocols already established under international law. At the time of its establishment, the new nation would negotiate its borders - the extent of its own sovereignty - before adopting the Moon Treaty and agreeing not to extend its sovereignty by occupation, use, etc. Once established, if the new nation wanted to re-define the ownership of "private" property within its boundaries, it could choose to do so.

The prohibition against extending sovereignty that is in the Moon Treaty and the Outer Space Treaty encourages the formation of new nations. Without the prohibition, the space-faring nations of Earth would establish colonies that were an extension of their own sovereignty. Human history has shown that such colonies rarely become independent without violent revolution. The Moon Treaty would allow NGO's and individuals to establish their own settlements, then peacefully join the family of independent nations as they naturally evolve.

11. Concern: Terraforming

The concept of terraforming is as old as science fiction. It has recently been popularized by SpaceX as part of its plans to transport large numbers of people to Mars. Those considering doing so are concerned with the apparent ban on terraforming contained in Article 7.1:

> In exploring and using the moon, States Parties shall take measures to prevent the disruption of the existing balance of its environment, whether by introducing adverse changes in that environment, by its harmful contamination through the introduction of extra-environmental matter or otherwise.

Such an extreme act as terraforming would likely be considered "the disruption of the existing balance of its [celestial body's] environment". Although the approval of contained settlements by the international authority would likely be considered a ministerial act, the terraforming of an entire planet has such extensive, long-term consequences that it must be considered a discretionary act, subject to extensive consultation and discussion. As such, it would need to be approved by the Member States using the process adopted for making such decisions (e.g., a two-thirds vote of the Assembly, as with the CLOS). Considering the impact that terraforming would have on the subject planet and on others, no single organization, group, or country can be given that authority. With all due respect to those brave enough and resourceful enough to attempt terraforming, they cannot do so on their own authority.

12. Concern: Protection of Individual Rights

The Moon Treaty and the Outer Space Treaty contain certain provisions that seem to diminish individual rights:

> States Parties shall retain jurisdiction and control over their personnel, vehicles, equipment, facilities, stations and installations on the moon.
> - Moon Treaty, Article 12.1

> A State Party to the Treaty on whose registry an object launched into outer space is carried shall retain jurisdiction and control over such object, and over any personnel thereof, while in outer space or on a celestial body.
> - Outer Space Treaty, Article 8

What if someone in outer space sought asylum in another country's facility? Do the treaties require the person to be returned? This would conflict with the Universal Declaration of Human Rights, which states in Article 14.1 that "Everyone has the right to seek and enjoy in other countries asylum from persecution." The statement that a State Party "controls" its personnel while in outer space opens a can of worms of possible restrictions on individual liberty. [17]

The solution, again, is to use the Implementation Agreement to protect such rights by clarifying that the Treaty does not mean to weaken them. Indeed, the IA could incorporate the UDHR by reference. For example: "Nothing in the Treaty or this Agreement shall be construed to overrule any provision of the Universal Declaration of Human Rights." This may sound too sweeping to some, but it is better to start from this point and identify exceptions rather than to try to itemize individual rights in the Agreement.

To summarize: the right to create contained human settlements can be granted through the ministerial process of Article 11; sovereign off-Earth nations can be recognized through existing protocols; terraforming must be subject to the approval of the Member States; and individual rights will be protected by the incorporation of the Universal Declaration of Human Rights. All of these should be memorialized in the Implementation Agreement.

13. The Benefits for Humanity

The above discussion has revealed several benefits that the Moon Treaty and its Implementation Agreement would provide to humanity as a whole, even if there was no direct transfer of wealth from successful enterprises to less developed nations. Such benefits would include the free access to outer space by any nation, organization, or individual; the peaceful use of outer space by all; the creativity, talent, and resources of free enterprise; the sharing of information; access to technology; mutual assistance at times of need; the protection of the celestial environment (including historical/cultural legacy sites); the protection of individual rights; and a decision-making process that addresses public policy interests while providing a predictable and sustainable legal framework for space commerce.

But there is another, more generalized benefit to humanity that springs from an international framework of laws for the exploration and use of outer space: the bringing together of the nations and the people of the Earth. This goal is alluded to in the preamble of the Outer Space Treaty:

> *Inspired* by the great prospects opening up before mankind as a result of man's entry into outer space,
>
> *Recognizing* the common interest of all mankind in the progress of the exploration and use of outer space for peaceful purposes,
>
> *Believing* that the exploration and use of outer space should be carried on for the benefit of all peoples irrespective of the degree of their economic or scientific development,
>
> *Desiring* to contribute to broad international co-operation in the scientific as well as the legal aspects of the exploration and use of outer space for peaceful purposes,
>
> *Believing* that such co-operation will contribute to the development of mutual understanding and to the strengthening of friendly relations between States and peoples . . ."
>
> - *Preamble*, Outer Space Treaty, 1967 [5]

These principles were adopted at the beginning of the space age and have guided us ever since. Every subsequent treaty and declaration of principles by the United Nations are consistent with them. And they are even more relevant today. For, indeed, the prospects have never been greater, and recognizing the common interests of all humanity has never been more important. We have reached the moment of decision when we must dedicate the exploration and use of outer space to the benefit of all of humanity, and it can only be done through international cooperation that will develop understanding and strengthen relations.

The benefits of such cooperation are also the focus of the Preamble to the Moon Treaty:

> *Determined to promote* on the basis of equality the further development of co-operation among States in the exploration and use of the moon and other celestial bodies,
>
> *Desiring* to prevent the moon from becoming an area of international conflict,
>
> *Bearing in mind* the benefits which may be derived from the exploitation of the natural resources of the moon and other celestial bodies, . . .
>
> *Taking into account* the need to define and develop the provisions of these international instruments in relation to the moon and other celestial bodies, having regard to further progress in the exploration and use of outer space . . .
>
> - *Preamble*, Moon Treaty, 1984 [5]

The benefits of international cooperation were first realized in the Apollo-Soyuz mission of 1975 and have continued through the multi-national use of the International Space Station and other programs which

increase access to outer space by all nations and all people.

14. The Challenge of Nationalism

But such international efforts are now being threatened. The United States has already passed a law that would unilaterally grant property rights to a space resource to any U.S. entity that gets to it first. [18] The Trump administration intends to use the U.S. military to protect such economic interests. On August 9 of this year, Vice-President Pence announced the latest Space Policy Directive, calling for the creation of a "Space Force". Space is a "warfighting domain", said Pence, quoting President Trump. The nation must "prepare for the next battlefield", to "defeat a new generation of threats".

"It is not enough to merely have an American presence in space," said the Vice-President, again quoting Trump. "We must have American dominance in space." He went on to claim that our "adversaries" are "seeking to disrupt" and "challenge American supremacy" and asserted that, in space, "peace only comes through strength." [19]

Such militant nationalism has unfortunately been common throughout history. But as humanity prepares to leave its home planet, it raises new concerns. As one commentator stated:

> The fear is that rhetoric like that coming from those raising the inevitability of space war will fuel a race to the bottom, as all major (space) powers dedicate even more energy towards an arms race in space.
>
> This also gives rise to the creeping colonization of space around claims regarding resource exploitation and possible attempts by countries to establish systems to protect themselves against their vulnerabilities by denying access to space for others. [20]

This concern was also raised at the April UNCOPUOS conference:

> 29. The view was expressed that space resources were accessible to only a very limited number of States and to a handful of enterprises within those States. In that connection, the delegation expressing that view was also of the view that it would be important to assess the impact of a "first-come, first-served" doctrine on the global economy, which could create a de facto monopoly in complete contradiction to the letter and the spirit of the United Nations treaties and resolutions. [21]

These are the two futures facing humanity, a choice between international cooperation and nationalistic competition. In order to make that choice, every policy-maker and interested party must now pause and ask themselves, on the deepest level, "What is our mission?"

15. The Mission

The early 21st century is an extraordinary time. Humanity has been presented with an historic opportunity as it prepares to leave its home planet. Like those who went forward during the Age of Exploration some 500 years ago, the decisions made today will affect humanity for centuries, perhaps millennia. If ever there has been a time to determine how to implement humanity's collective vision for the future, it is now.

This paper has so far been written in legal and economic terms. It has tried to demonstrate that a comprehensive international framework of laws for the development of resources will actually help private enterprise flourish, and that the certainty of the rule of law will allow countries, businesses, non-profits and even individuals to dare to make their dreams come true. It is now time to speak of those dreams.

When Galileo looked at Jupiter the first night he used a telescope, he was pleased but not too surprised. It was the second night, when he looked again and saw that the four stars near Jupiter had all moved, that they were actually moons circling another celestial body, that he realized the universe was far different, far more fascinating and glorious, than he had ever imagined. More recently, just six decades ago, people all over the world stood outside their homes as the sun set, looking to the sky as a blinking light passed overhead, the tumbling upper stage booster of the world's first satellite, Sputnik. Because of the Cold War there was some fear, but for most the overwhelming emotions were awe and excitement. Despite all its imperfections, all its follies, and all its deadly conflicts, humanity had managed to throw off the shackles of gravity and reach the stars. All the stuff of science fiction suddenly seemed possible. And not just the stuff about technological advances; the writers, the poets, those who dared to dream of a better future saw a day when humanity could resolve its differences by peaceful means and move forward together.

This dream was enhanced in December 1968, when our view of the world literally changed. As Apollo 8 rounded the Moon, the astronauts on board were suddenly overwhelmed as humans saw the Earth rising above the lunar horizon for the first time. The picture taken at that moment showed the home planet, beautiful and fragile, hanging in the vastness of space. Humanity as a species began to realize that we are all one, living together on a fragile planet hurtling through the cosmos.

Figure 2. Earthrise as seen by Apollo 8 astronauts – December 24, 1968 [22]

But even though no borders were visible, war and suffering continued to wrack the home world. In the half-century since, people have begun to lose faith in their governments, their private institutions, even in humanity itself. Every day people wake up to the news of yet another mass killing, more terrorist attacks, the disastrous effects of climate change, and an increased threat of nuclear war. To that has now been added the threat of war in outer space. Our governments seem to care more for corporations than for people, and the corporations seem to put their bottom line above everything else. The people of Earth are beginning to despair, wondering if there is anything they can really believe in. They are losing hope, and the resulting cynicism is poisoning our politics, our relationships, even our thinking.

The mission of the 61st IISL Colloquium on the Law of Outer Space, and of all efforts to develop space law, must be nothing less than to restore that hope, to give the people of our planet a future they can believe in. To counter the despair of war and violence and neglect. This moment in time is a unique opportunity to set an example and create a new future for humanity, to build that shining city on a hill that will light the way for all.

16. Conclusion: The Time to Act

It is the duty of everyone involved with outer space to make that hope a reality. It is time for every person and organization to voice their support for the adoption of the Moon Treaty and to make every effort to persuade their respective national governments to do so. Meanwhile, the current State Parties must immediately begin the process of creating an Implementation Agreement that will address outstanding concerns and allow other nations to adopt the Treaty, while also creating the international framework of laws the Treaty requires.

It has been 500 years since the world has had such an opportunity to start anew. At that time, it chose to perpetuate slavery, military conquest, and economic exploitation, all of which caused misery and countless wars. And when the Industrial Revolution came along, it placed profits ahead of people, resulting in economic and environmental catastrophe. Much of humanity stopped believing in its ability to control its own destiny.

That can change. But doing so requires immediate action. There will be only one time when humanity leaves its home world, only one chance to create a new pattern that will lead each person, and all people, to their best destiny. That time is now. Please join in this effort to restore hope and create a better world – and a better universe – for everyone.

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