The Dawn of an International Regime for Space Resources

Multilateral Perspectives

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Abstract

The present paper presents the case in favor of strengthening multilateral efforts towards the provision of a clear, effective legal framework applicable to space resources, in accordance with International Law. Thus, current initiatives on that regard will be appraised, with particular attention to the Hague Space Resources Governance Working Group.

The dawn of a new era for Space Law is upon us. The exploration and exploitation of space resources is currently becoming more feasible by the day. Private companies have identified the economic potential of such endeavors, pressing States to clarify the applicable legal framework. Current developments in the Americas, with the recently approved US Commercial Space Law Competitiveness Act, and in Europe, specifically in Luxemburg, denounces the recognition, at the governmental level, that the time has come to devote attention to such a complex issue.

As technology inevitably advances, so shall the Law. The *corpus iuris* related to space activities revolves around core principles conceived almost half a century ago. The exploitation and exploration of space resources, including mining of celestial bodies, may justify the development of a new international legal regime, designed to answer unavoidable demands of the international community.

Multilateralism is a necessity in our world of today. The coordination of international relations between three or more States, through *ad hoc* arrangements or institutions, constitutes the foundation for global governance. Indeed, interests of countries and nations are becoming increasingly intertwined, as recent economic and political crises so clearly certified.

Therefore, it is important to acknowledge present and future multilateral initiatives devoted to the study of international rules applicable to space resources. Legal systems shall reflect social needs and aspirations, for the benefit of all; as far as International Law is concerned, the stakes are arguably higher, since universal legal regimes may constitute the last bastion against dangerous international disputes.

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I. Space Resources

The unstoppable evolution of technology, and the growing general dependability on space-based systems inflict constant challenges to the international community, in search of sustainable uses of outer space.
Space Law's legal framework emerged around half a century ago, reflecting the fears and interests of nations during a particular difficult period of the Cold War.[1] Many features of the international agreements concluded back then expose concerns of those times, with a State-centred focus and a constant attention to strategic imperatives, connected to aerospace technology and activities.
The Outer Space Treaty, of 1967, the undisputed Magna Carta of Space Law,[2] although constituting an impressive structure of fundamental principles still observed today,[3] could not possibly anticipate all current worries of the international community, including space debris, large satellites constellations and the exploitation of space resources.
As explained by Ingo BAUMANN:

> "The law has to keep pace with technological, economic and political developments, which may change quite substantially within short periods of time. International treaties usually need years to be adopted and subsequently to enter into force, and they already may be outdated at the time."[4]

Generally, treaties face difficulties when dealing with the time factor. In some ways, they represent "pictures" of a certain moment in international relations, reflecting aspirations and apprehensions of States at that age.
Throughout the years, interpretation of even core treaty provisions cannot, and in fact should not, be avoided. More an art then a science, interpretation of international instruments is a common practice among diplomats, government officials and international lawyers. Anthony AUST clarifies:

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1 Frans Von der Dunk and Fabio Tronchetti (ed.). *Handbook of Space Law*. Cheltenham, UK: Edward Elgar, 2015. p. 35/41.

2 "The Outer Space Treaty is the cardinal instrument regulating activities in outer space. It provides guidance and direction to human operations in the space environment and constitutes the basis for all legal documents, negotiated at both the international and national level, addressing outer space issues." Fabio Tronchetti. Fundamentals of Space Law and Policy. New York, USA: Springer, 2013. p. 7/8.

3 "The 1967 Space Treaty provides a legal framework for man's exploration and use of outer space and, in doing so, transforms into binding legal obligations the various principles first enunciated in resolution 1962 (XVIII), whilst adding others." Bin Cheng. *Studies in International Space Law*. Oxford, UK: Clarendon Press, 1997. p. 156.

4 Ingo Baumann. "Diversification of Space Law", *in* Marietta Benkö and Kai-Uwe Schrogl (ed.) *Space Law: Current Problems and Perspectives for Future Regulation*. Utrecht, The Netherlands: Eleven, 2005. p. 72.

> "Despite the care lavished on drafting, and accumulated experience, there is no treaty which cannot raise some question of interpretation."[5]

As the economic potential of space activities looms large on the horizon, attracting the attention of a private sector benefiting from a decrease of costs and a wider access to space technology, Space Law's legal framework suffers multiple challenges to keep its relevance. Predictably, dissents of opinion in relation to important treaty provisions tends to increase in the near future.
Not even fundamental principles of the Outer Space Treaty are immune from discussions. For instance, Article 1 solemnly states, in its first paragraph, that

> "the exploration and use of outer space, including the Moon and other celestial bodies, shall be carried out for the benefit and in the interests of all countries, irrespective of their degree of economic or scientific development, and shall be the province of all mankind".

Later, the following paragraph of the same article introduces an additional perspective, when it declares 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."
Considering those provisions, one may very well wonder: is there a disconnection between contemplating outer space as the province of mankind while, at the same time, assuring the freedom of exploration and use by every nation?
In the respected opinion of C. Wilfred JENKS, "the principle of the common interest of mankind in space defines the perspective in which the problems of space law are to be resolved; while in itself so general as to lack any clearly defined content, it is important precisely because it is so general."[6]
Accordingly, to JENKS, the more specific principles of Space Law, including the freedom of exploration and use, derive from the principle of common interest of mankind.[7]
Article 2 of the Outer Space provides possibly one of the most important principle of Space Law:

> "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."

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5 Anthony Aust. *Modern Treaty Law and Practice*. 2. ed. Cambridge, UK: Cambridge University Press, 2007. p. 230.
6 C. Wilfred Jenks. *Space Law*. New York, USA: Preaeger, 1965. p. 193.
7 C. Wilfred Jenks. *Space Law*. New York, USA: Preaeger, 1965. p. 193.

Therefore, it is clear that State sovereignty is not applicable to outer space, an international territory *per se*. I. H. Ph. DIEDERIKS-VERSCHOOR affirms that "the ban on sovereignty remains dearly expressed as a fundamental factor in space law, and it must be seen as constituting an absolute legal barrier in the realization of every kind of space activity."[8]
Anyway, the definition and delimitation of the frontier between air space, subjected to the authority of the respective territorial State, and outer space, free from national appropriation, is still to be provided multilaterally.[9]
Furthermore, could it be possible to argue that the sensing, extraction, exploitation and commercialization of natural space resources, contained in celestial bodies, implies an illegitimate exercise of sovereign power? Or should we veer in another direction, by distinguishing mining (also mentioned as "harvesting") of asteroids from any form of effective national appropriation?
Philip de MAN has reviewed the debates among publicists on this matter and observed:

> "A great deal has been written about the applicability of article II OST to natural resources and scholars appears deeply divided over the subject."[10]

As the economic potential of space resources draws increasingly more attention, it seems reasonable to anticipate an increase of conflicting interpretations concerning said norms, ranging from the concept of space resources *vis-à-vis* the one of celestial bodies, up to the applicability of Article II of the Outer Space Treaty to the utilisation of asteroids' natural riches.
Idiosyncrasies identified in particular features of current treaty framework, as far as space resources are concerned, arguably authorize States, via domestic

8 I. H. Ph. Diederiks-Verschoor. *An Introduction to Space Law*. 2. edition. The Hague, The Netherlands: Kluwer, 1999. p. 28.

9 "The differences between the legal regimes applicable to air space and outer space are of a fundamental order: while Air Law is based on considerations of sovereignty, Space Law overtly forbids any form of national appropriation. Widely accepted treaties provided those rules, which can even be recognized as of a fundamental character to Air Law and Space Law. Therefore, the different standards contributed to the creation of two immiscible legal systems, which arguably succeed each other above the surface of the Earth, at a still to be determined altitude." Olavo de O. Bittencourt Neto. *Defining the Limits of Outer Space for Regulatory Purposes*. New York, USA: Springer, 2015. p. 5.

10 Continuing: "Some authors categorically deny the right of States to appropriate any form of space resources, as the general and encompassing wording of Article II OST does not allow differentiating between outer space, including celestial bodies, and the natural resources thereof. A second school of authors renders the applicability of the non-appropriation principle dependent on the type of resources concerned." Philip de Man. "The Commercial Exploitation of Outer Space and Celestial Bodies", *in* Mark J. Sundahl and V. Gopalakrishnan (ed.). *New Perspectives on Space Law*. Paris, France: International Institute of Space Law, 2011. p. 44.

legislation, to regulate this novel space activity, in an effort to guarantee a reasonable legal certainty for public and private operators.

The US Commercial Space Launch Competitiveness Act, of 2015 (H.R. 2262),[11] has been receiving overwhelming examination and being subjected to heated debates for stating that American citizens, engaged in commercial recovery of an asteroid resource or a space resource, "shall be entitled to any asteroid resource or space resource obtained, including to possess, own, transport, use and sell the asteroid resource or space resource obtained in accordance with applicable law, including the international obligations of the United States" (§ 51303).

To deny any sort of infringement to the no-appropriation rule of the Outer Space Treaty, Section 403 of said Act stablishes that the United States does not assert sovereignty or sovereign or exclusive rights or jurisdiction over, or the ownership of, any celestial body. Additionally, license to those activities must be obtained, from local authorities, "in accordance with applicable law, including the international obligations of the United States."

The referred American legislation brought to the spotlight the varying degrees of interpretation that major principles of the Outer Space Treaty may be submitted nowadays, as the unavoidable evolution of technology may lead to somehow different interests and perspectives than the ones identified by international legislators during the late 1960s.

The international community reacted at once to that new development. Recently, the International Institute of Space Law (IISL) presented a careful position paper on Space Resources mining. The study concluded that one could consider the referred US legislation as a valid interpretation of the Outer Space Treaty, since the latter does not provide a clear prohibition to the extraction of natural resources from celestial bodies.

Nevertheless, the last paragraph of the IISL study addresses possible future assessments:

> "Whether the United States' interpretation of Art. II of the Outer Space Treaty is followed by other states will be central to the future understanding and development of the non-appropriation principle. It can be a starting point for the development of international rules to be evaluated by means of an international dialogue in order to coordinate the free exploration and use of outer space, including resource extraction, for the benefit and in the interests of all countries."[12]

In 2016, at the Legal Subcommittee of the United Nations Committee on the Peaceful Uses of Outer Space (UNCOPUOS), after a lively exchange of views

11 Available at: <https://www.congress.gov/bill/114th-congress/house-bill/2262/text>, assessed on 03 August 2016.

12 Available at: <http://www.iislweb.org/docs/SpaceResourceMining.pdf>, assessed on 03 August 2016.

regarding the US Commercial Space Launch Competitiveness Act, it was agreed a new agenda item should be introduced, titled "general exchange of views on potential legal models for activities in the exploration, exploitation and utilization of space resources". Following a Belgium initiative, the proposal received express support from the delegations of the Russian Federation, Greece, Mexico, Austria, Netherlands, Belgium, USA and Iran.[13]
The use and exploration of outer space, for the benefit of all mankind, requires coordination and cooperation among the members of the international community. Article 9 of the Outer Space Treaty makes this commitment crystal clear, irrespective of possible conflicting interpretations of other provisions.[14]
For what it is worth, space resource activities may very well ignite a new era for Space Law. Since other States are increasingly more interested in developing national legislation to authorize and license the mining of celestial bodies, as is the case of Luxemburg,[15] the importance of developing a multilateral effort to clarify the applicable international rules cannot be taken for granted.

II. Multilateralism

Unilateral perspectives in relation to space resource activities, applied through domestic legislation, inevitably must reflect domestic interests. Economic aspects, encompassing preoccupations of the private sector, will

13 A/AC.105/1113.

14 "In the exploration and use of outer space, including the Moon and other celestial bodies, States Parties to the Treaty shall be guided by the principle of cooperation and mutual assistance and shall conduct all their activities in outer space, including the Moon and other celestial bodies, with due regard to the corresponding interests of all other States Parties to the Treaty. States Parties to the Treaty shall pursue studies of outer space, including the Moon and other celestial bodies, and conduct exploration of them so as to avoid their harmful contamination and also adverse changes in the environment of the Earth resulting from the introduction of extra-terrestrial matter and, where necessary, shall adopt appropriate measures for this purpose. If a State Party to the Treaty has reason to believe that an activity or experiment planned by it or its nationals in outer space, including the Moon and other celestial bodies, would cause potentially harmful interference with activities of other States Parties in the peaceful exploration and use of outer space, including the Moon and other celestial bodies, it shall undertake appropriate international consultations before proceeding with any such activity or experiment. A State Party to the Treaty which has reason to believe that an activity or experiment planned by another State Party in outer space, including the Moon and other celestial bodies, would cause potentially harmful interference with activities in the peaceful exploration and use of outer space, including the Moon and other celestial bodies, may request consultation concerning the activity or experiment."

15 For instance, Luxemburg. See: <http://www.spaceresources.public.lu/en/index.html>, assessed on 03 August 2016.

most likely be addressed during drafting. Strategic considerations, based on national defence and security, may also shape and mould those rules.
Nonetheless, as discussed above, outer space remains the province of mankind, to be freely used and explored in accordance with a particular international legal framework, however broad or elusive its major principles may seem.
That is why multilateral negotiations should be considered fundamental to assure that space activities are conducted in a peaceful and coordinated way, addressing the concerns of the international community in general, and of non-space faring nations in particular.
As a matter of fact, the eventual commercialization of natural resources, extracted from celestial bodies, is capable of producing an enormous impact on international trade, affecting first and foremost the economies of the "global South", usually very dependable on export of mineral commodities. Those nations may have to wait a long time before they can actually engage in space resource activities, but they will probably be the ones feeling earliest their global impact.
The relevance of multilateralism in the global arena must not be minimized. Defined by Mônica HERZ and Andrea Ribeiro HOFFMAN as the coordination of relations among three or more States in accordance with a set of principles,[16] one may suggest that multilateralism is a fundamental feature of international organizations nowadays.
In similar terms, Robert KEOHANE affirms that "multilateralism can be defined as the practice of co-ordinating national policies in groups of three or more states, through ad hoc arrangements or by means of institutions".[17]
Three major perspectives compose multilateralism, in accordance with John RUGGIE:

(i) principles lead the coordination among States;
(ii) due to their indivisibility, those principles are applied to all, without distinction; and, finally,
(iii) diffuse reciprocity is favoured, in a broader perspective than mutual exchanges.[18]

James CAPORASO explains such particular qualities:

> "Indivisibility can be thought of as the scope (both geographic and functional) over which costs and benefits are spread. (...) Generalized principles of conduct

16 Mônica Herz and Andrea Ribeiro Hoffmann. *Organizações Internacionais: História e Práticas*. Rio de Janeiro, Brazil: Elsevier, 2004. p. 19. Also: Robert Keohane and Joseph S. Nye Jr. *Power and Interdependence*. 4. ed. Londres, Inglaterra: Longman, 2011.
17 Robert Keohane. "Multilateralism: an Agenda for Research". *International* Journal, 45, 8, 1990, p. 731.
18 John Ruggie. *Winning the Peace: America and World Order in the New Era*. Columbia, USA: Columbia University Press, 1998.

> usually come in the form of norms exhorting general, if not universal, modes of relating to other states, (…) Diffuse reciprocity adjusts the utilitarian lenses for the long view, emphasizing that actors expect to benefit in the long run and over many issues, rather than every time on every issue."[19]

Multilateralism allows States, in international relations, to reduce coordination costs, while achieving greater legitimacy – indeed a major concern for democratic States –, thus supporting global governance.[20]
Nowadays, the difficulties certain international intergovernmental organizations are facing, in our multipolar and fragmented world, may very well be considered by some as denouncing a crisis in multilateralism. In accordance to such reasoning, the development of multiple *ad hoc* arrangements to address significant areas of concern would, as a matter of fact, prove that point.
Such logic should be taken with a grain of salt. Indeed, multilateralism is not permanently linked to international institutions, perhaps being even more effective in smaller, more harmonious groupings. After all, multilateralism is not a synonym of universalism.
Michael G. SCHECHTER explains that the recent criticism regarding multilateralism is, in fact, connected to the crisis unfortunately experienced by certain intergovernmental organisations, which have had to readapt themselves to major changes in the political landscape since the end of the Cold War:

> "Bilateralism and multilateral negotiations are not a thing of the past. Indeed, (…) some governments prefer negotiating outside formal intergovernmental organizations; this includes some smaller and weaker states, those traditionally expected to be the biggest supporters of formal intergovernmental organizations, where the options for coalition building are omnipresent".[21]

As well mentioned by Shepard FORMAN, one thing is for certain in this day and age: "multilateralism is no longer a choice. It is a matter of necessity, and of fact."[22]

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19 James Caporaso. "International Relations Theory and Multilateralism: The Search for Foundations", *in* John Ruggie (ed.). *Multilateralism Matters: The Theory and Praxis of an Institutional Form*. New York, USA: Columbia University Press, 1993. p. 53/54.

20 In accordance with James Rosenau: "Governance (...) is a more encompassing phenomenon than government. It embraces governmental institutions, but it also subsumes informal, non-governmental mechanisms whereby those persons and organizations within its purview move ahead, satisfy their needs, and fulfil their wants." *Governance without Government: Order and Change in World Policts*. Cambridge, UK: Cambridge University Press, 1992. p. 4.

21 Michael G. Schechter, "Systemic Change, International Organizations and the Evolution of Multilateralism", *in* James P. Muldoon *et al. The New Dynamics of Multilateralism*. Philadelphia, USA: Westview Press, 2011. p. 39.

22 Shepard Forman. *Multilateralism and US Foreign Policy: Ambivalent Engagement*. London, UK: Lynne Rienner, 2002. p. 439.

The case in favour of multilateralism in the era of globalisation, where communities and nations are closely interconnected, is stronger than ever, as recent economic and political emergencies so clearly certified.
To keep everything in perspective is always advisable. A new pattern of multilateralism may very well be emerging, more informal and more functional, concerned with practical mechanisms to tackle pressing issues of our times.
That emerging trend incorporates the greater part played by other actors, not only States and intergovernmental organizations, in relation to pressing issues. Venues for participation of the so-called "global civil society" have already been opened, with profound impact on traditional diplomacy.
In accordance with John KEANE, the term global civil society "refers to a vast, sprawling non-governmental constellation of many institutionalized structures, associations and networks, within which individuals and group actors are interrelated and functionally interdependent." As such, he continues, "global civil society is a highly complex ensemble of different sized, overlapping forms of structures of social action."[23]
In my opinion, the international regulation of space resource activities vindicates the surfacing of such a new pattern of multilateralism.

III. The Hague Space Resources Governance Working Group

Ad hoc multilateral arrangements may provide interesting venues for international negotiations, including those devoted to the study and development of an effective legal framework applicable to space activities, in parallel and in partnership with formal international intergovernmental organizations, such as the United Nations.
The Hague Space Resources Governance Working Group was constituted in 2015 with a clear purpose: to verify the need for a regulatory framework regarding space resource activities and, subsequently, to discuss the details of a specific set of rules capable of safeguarding public and private interesting, for the benefit of the international community as a whole.
Its origins can be traced back to a round table on the Governance of Space Resources, convened by The Hague Institute for Global Justice, on 1 December 2014:

> "The round table was attended by industrial leaders, scientists, diplomats as well as political and legal experts from across the globe and served as a forum to discuss and propose solutions for the current lack of a legal framework for the use of space resources found on asteroids and other celestial bodies. The Hague Space Resources Governance Working Group has been established to support

23 John Keane. *Global Civil Society?* Cambridge, UK: Cambridge University Press, 2003. p. 11.

> this process and promote its advancement, within a reasonable time frame and in accordance with international law".[24]

The project involves governments and members of the mentioned global civil society in a qualified open debate towards consideration of key regulatory aspects applicable to the use, exploration and exploitation of space resources.
In view of current initiatives, mainly from the private sector, to search, recover, extract and trade natural resources obtained from celestial bodies, with particular focus on minerals and water, no further justification of a cooperative endeavour of this nature should be required.
Since the current legal framework seems rather insufficient to address novel legal concerns of all the parties involved, a broader perspective should be allowed, as well as diffuse interests be included in the equation.
The Hague Space Resources Governance Working Group intends to identify and, eventually, propose applicable regulation, while providing recommendations for implementation strategies and forum negotiations.
Particular features of the international instrument to be chosen to address such a compelling issue will also be assessed, whether binding or not. It is expected that, through a series of meetings and deliberations, a path forward may finally be realized.
Acting as a consortium of organisations of each continent, the Hague Working Group has, as leading partner, the Institute of Air and Space Law of Leiden University, from the Netherlands. Other stakeholders include the Catholic University of Santos, from Brazil, the University of Melbourne, from Australia, the Padjadjaran University, from Indonesia, the University of Cape Town, from South Africa and the Secure World Foundation, from the USA.[25]
Periodic reunions, conducted through teleconferences and face-to-face meetings, welcome all members, ranging from governments, industry, universities and research centers. Observers directly involved with space resources may also be accepted to attend the face-to-face meetings, the first of which happened on April 18-19 2016 at the Observatory of Leiden University.
The Hague Space Resources Governance Working Group plans to conclude its mandate by the end of 2017. Until then, many interesting dialogues will be conducted, echoing multiple perspectives and concerns, with the purpose of multilaterally assessing the regulatory needs involved with space resource activities.
The mission guiding the members of the Hague Space Resources Governance Working Group is to offer a valuable contribution to the international community on its subject matter.

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24 A/AC.105/C.2/2016/CRP.17.

25 For more information: <http://law.leiden.edu/organisation/publiclaw/iiasl/working-group/the-hague-space-resources-governance-working-group.html>, assessed on 27 September 2016.

V. Concluding Remarks

As technology inevitably advances, so shall the Law. The current legal framework, regarding space resources, is insufficient at best to meet the challenges of today. Different interpretations of core principles of the Outer Space Treaty, by scholars and governments, testify that a new round of international negotiations should be implemented.

Faced with increasing private interest over the riches contained in specific near-Earth asteroids, some States have begun to conceive domestic legislation designed to assure the feasibility and legality of those activities.

Nevertheless, since outer space remains an international territory, free from any form of national appropriation, the natural resources of celestial bodies shall be used, explored and eventually traded in accordance with International Law.

Joint dialogues are required, to identify the applicable legal rules, thus diminishing the likelihood of dangerous conflicts in the near future.

Multilateralism is a necessity of our times, and should be conducted beyond State-centered restrictions. Deliberations will benefit from the participation of not only governments and intergovernmental organizations, but also of members of the "global civil society". Indeed, the industry, universities and research centers can provide fascinating perspectives, interconnected to governmental concerns and instrumental to furtherance of Space Law.

By understanding the different interests on the table, it may be possible to conceive an innovative international legal regime, capable of assuring a sustainable access to the vast natural treasures of the Cosmos, for the benefit of all mankind.