

Pondering the Legitimacy of the Outer Space Treaty from the Perspective of Space Natural Resources Exploitation

Is It Time to Act Instead of React?

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1. Introduction

One of the main objectives that the law of outer space seeks to achieve is to ensure the use of outer space for the advancement of humankind. Looking at the issue of the exploitation of celestial bodies' natural resources from this perspective, relevant technological developments reveal that such endeavor can only be realized with the active participation of the private sector which would inevitably require either an *a priori* legal basis for the commercial exploitation of space natural resources, or an *a posteriori* acceptance of it. However, one controversial question arises: How would it possible to ensure the use of outer space towards the advancement of humankind given that the commercial exploitation of substantive parts of the latter is not explicitly addressed in *lex spatialis*. Such a question is directly linked to the issue of whether the time for New Laws as envisioned by New Space activities has arrived. This paper attempts to answer this question by proposing the establishment of benefit-sharing mechanisms to accompany such activities. Specifically, it asks whether benefit-sharing agreements would serve as a legitimized basis for the commercial exploitation of space natural resources, and if so, how would such an approach be realized in practice.

The paper suggests the establishment of a new platform under the auspices of the UN Committee on the Peaceful Uses of Outer Space (hereafter "COPUOS") to examine profit (benefit)-sharing agreements that already exist in other fields

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of resources exploitation and decide what model would be the most appropriate for the purposes of space resources exploitation. The objective of the proposed platform would be to come up with a model agreement that attributes benefits to the private companies analogous to their investment, as well as to the authorizing States the right to collect and further distribute benefits deriving from the undertaken activities. The paper endeavors to demonstrate that the OST has not lost its legitimacy; on the contrary, it provides a solid basis on which States ought to cooperate furthering an intricate law-making process. Such a process would guide towards the advancement of humankind through the new means that technology offers to it and which public and private New Space actors have a duty to use in a modernized yet sustainable manner.

2. The Need to Identify the Net of Space Uses' "Beneficiaries" Prior to the Establishment of a Resources Governance Mechanism

The management of the exploitation of the natural resources of the celestial bodies requires the prior identification of the entities that justify interest in the subsequent return in benefit (both in kind and economic) as the uses of outer space have been provided to be "in the interests and for the benefit of all countries".¹ As the nature of space law is State-centered, such entities would primarily comprise States as the main stakeholders.² However, since space mining activities have proved to be implausible and unsustainable without the participation of private space actors,³ the latter must also be considered as stakeholders in such an exploration. Besides, the Outer Space Treaty as well as the Agreement Governing the Activities of States on the Moon and Other Celestial Bodies⁴ (hereafter "Moon Agreement") do not prohibit the participation of such entities in the exploration/exploitation of the celestial bodies. On the contrary they foresee and regulate it through Article VI⁵ and

1 Outer Space Treaty, Article I, paragraph 1: "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."

2 Marietta Benkö, Kai-Uwe Schrogl, Eds, *Space Law: Current Problems and Perspectives for Future Regulation* (The Netherlands: Eleven International Publishing, 2008) at 248.

3 Ram S Jakhu, Joseph N Pelton, *Space Mining and its Regulation* (Switzerland: Springer, New Space Ventures, 2017) at ch. 6.

4 Agreement governing the Activities of States on the Moon and Other Celestial Bodies, 5 December 1979, 1363 UNTS 3 (entered into force 11 July 1984) [Moon Agreement].

5 Outer Space Treaty, Article VI: "States Parties to the Treaty shall bear international responsibility for national activities in outer space, including the Moon and other celestial bodies, whether such activities are carried on by governmental agencies or by non-governmental entities, and for assuring that national activities are carried out in conformity with the provisions set forth in the present Treaty. The activities of non-

14⁶ respectively. Therefore, private entities could – and should – be considered as stakeholders to the exploitation of the natural resources of the celestial bodies. Similarly, the concept of humankind, which is inherent in the very nature of space law as the main “beneficiary” of the uses of outer space,⁷ would justify a series of further stakeholders such as: human beings as individuals, future generations, and the environment.⁸As such, the issue of governance – in the sense of management – of the natural resources of the celestial bodies is one that comprises multiple aspects, each one responding to the interest of each group of stakeholders.

First, States’ interests involve participation in the benefits of the resources on the basis of equality⁹ for the purposes of internal economic growth, or replenishment of depleting terrestrial resources. The need for equal access of States to the resources of outer space does not only derive from the wording of article I of the OST, but also of the standing of States as equal subjects of international law. However, such “equality” should not be considered as a facet of quantitative equality of access to or use of the resources. It should rather be considered as a concept that emerges from the equal sovereignty of States itself, perceived as an “equality of the chances of all States”.¹⁰

Second, private entities’ interests would include profit as a consequence of their investments’ return, as otherwise no incentives would attract their participation in space resources exploitation activities. In addition, human beings as individual entities within humankind would justify a right to access

governmental entities in outer space, including the Moon and other celestial bodies, shall require authorization and continuing supervision by the appropriate State Party to the Treaty. When activities are carried on in outer space, including the Moon and other celestial bodies, by an international organization, responsibility for compliance with this Treaty shall be borne both by the international organization and by the States Parties to the Treaty participating in such organization.”

- 6 Moon Agreement, Article 14, paragraph 1: “States Parties to this Agreement shall bear international responsibility for national activities on the Moon, whether such activities are carried on by governmental agencies or by non-governmental entities, and for assuring that national activities are carried out in conformity with the provisions set forth in this Agreement. States Parties shall ensure that non-governmental entities under their jurisdiction shall engage in activities on the Moon only under the authority and continuing supervision of the appropriate State Party.”
- 7 Gabriel Lafferranderie, Daphné Crowtherat, *Outlook on Space Law over the Next 30 Years* (The Hague: Kluwer Law International, 1997) at 32.
- 8 G S Sachdeva, *Outer Space, Law Policy and Governance* (India: KW Publishers, 2014) at ch. 5.
- 9 Outer Space Treaty, Article I, paragraph 2: “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.”
- 10 Juliane Kokott, “States, Sovereign Equality”, Max Planck Encyclopedia of International Law, April 2011, online: Oxford Public International Law <http://opil.ouplaw.com/view/10.1093/law/epil/9780199231690/law-9780199231690-e1113>.

the benefits of outer space, especially considering the scenario of terrestrial natural resources depletion.¹¹ Last, the consideration of future generations requires the management of the resources in a manner considerate to humankind's future needs as well as in a manner protective of the terrestrial and extraterrestrial environment.¹²

3. Benefit-Sharing Models as a Key Concept in the Exploitation of Celestial Bodies

As a logical consequence of the coexistence of the aforementioned groups as stakeholders to the exploitation of celestial bodies' natural resources, their management is not an issue to be decided with the sole participation of part of them. On the contrary, it requires the comprehensive participation of all stakeholders not only in the distribution of the benefits of the resources, but also – and even more importantly – in the design of the platforms that can offer free and equal access to them.¹³ In other words, comprehensive participation in the decision-making process seems to be key in the adoption of a “fair and equitable” exploitation mechanism and to the consequent application of “fair and equitable” benefit sharing.¹⁴ The relevance and adequacy as well as efficiency of a benefit-sharing model to regulate the exploitation of the natural resources entails legal, philosophical and practical justifications.

First, from a legal perspective and by exploring the letter and spirit of the Outer Space Treaty, outer space, including the celestial bodies, do not fall within the sovereignty of any State,¹⁵ while their use is to be enjoyed by and benefit all States in an equal manner.¹⁶ However, as mentioned earlier, the modern subjects/users of outer space do not only comprise States, but also multiple other stakeholders. As such, the comprehensive participation of all subjects to the benefits that derive from the uses of an area beyond sovereignty would justify “use” not for own profit purposes but rather for universal (and thus neither private, nor sovereign) benefit.

Second, the practical value of this approach would be justified on the grounds of conflict avoidance: Given that the *de facto* actors that are interested in using outer space (and thus interested in benefiting from such use) are not only multiple groups of entities, but also of different identities and with different

11 Robert M Solow, “On the Intergenerational Allocation of Natural Resources”, (1986) 88:1 The Scandinavian Journal of Economics at 141-149.

12 Ricky J Lee, *Law and Regulation of Commercial Mining of Minerals in Outer Space* (Dordrecht: Springer, Space Regulations Library, 2012), at ch. 1.7.

13 Outer Space Treaty, Article I, paragraph 2.

14 Outer Space Treaty, Article I, paragraph 2.

15 Outer Space Treaty, Article II: “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.”

16 Outer Space Treaty, Article I.

interests,¹⁷ the broader the participation that is provided *ab initio* – in number as well as in category of actors – the less likely it is for conflicts to arise, should space mining commence. Third, the theoretical foundations of outer space as being beyond sovereignty and appropriation¹⁸ and its use as in the benefits of all countries¹⁹ entails in itself a spirit of equitable sharing and distribution, not only in the context of outer space but also in other contexts of other areas and fields of common interest.²⁰

Therefore, the exploitation of the natural resources of the celestial bodies does not constitute an issue that can be decided or undertaken in a unilateral manner. Examples of the past on the exploitation of other areas that are considered as *global commons*, or resources used in common benefit could be considered in building a benefit-sharing based exploitation mechanism for the resources of the celestial bodies, such as the *Convention on Biological Diversity*.²¹

4. Taking the Example of Benefit-Sharing Concepts Captured in the Convention on Biological Diversity

One would think that the example of the Convention on Biological Diversity is not appropriate for illustrating the need to establish benefit sharing mechanisms for the exploitation of outer space, as it refers to natural resources under the sovereignty of States. However, although the Convention on Biological Diversity recognizes in its preamble that “States have sovereign

17 Myres S McDougal, Harold D Lasswell, and Ivan A Vlasic, *Law and Public Order in Space* (USA: Yale University Press, 1964).

18 Outer Space Treaty, Article II.

19 Outer Space Treaty, Article I.

20 See for instance, Richard Spinello, *Cyberethics: Morality and Law in Cyberspace* (USA: Jones & Bartlett Publishers, 2013) at 50 ff; Agreement on Trade related Intellectual Property Rights, Annex 1C of the Marrakesh Agreement establishing the World Trade Organization, 15 April 1944, 1869 U.N.T.S. 299, Art 31bis, where public interest justifies limits to (intellectual) property on patents by providing less obligations for importing Members under specific circumstances, see para. 1: “The obligations of an exporting Member under Article 31(f) shall not apply with respect to the grant by it of a compulsory licence to the extent necessary for the purposes of production of a pharmaceutical product(s) and its export to an eligible importing Member(s) in accordance with the terms set out in paragraph 2 of the Annex to this Agreement”; Convention on Fishing and Conservation of Living Resources of the High Seas, 29 April 1958, 17 UST 138; 559 UNTS 285 (entered into force 20 March 1966); Convention on the Law of the Sea, 10 December 1982, 1833 UNTS 3 / [1994] ATS 31 / 21 ILM 1261 (1982) [UNCLOS], Art 140-144; Agreement relating to the Implementation of Part XI of the Convention on the Law of the Sea, 28 July 1994, ATS 31 (entered into force 28 July 1996), Art 136,137,140.

21 Convention on Biological Diversity, 5 June 1992, 1760 UNTS 79; 31 ILM 818.

rights over their own biological resources”,²² it also recognizes that “the conservation of biological diversity is a common concern of humankind”,²³ as well as that

“the importance of, and the need to promote, international, regional and global cooperation among States and intergovernmental organizations and the non-governmental sector for the conservation of biological diversity and the sustainable use of its components”.²⁴

The Convention on Biological Diversity also recognizes the need for private investment to achieve such sustainability.²⁵ It is interesting to note that the elements of the preamble of the Convention on Biological Diversity present similarities with the preamble as well as the letter of the Outer Space Treaty. For instance, the preamble of the Outer Space Treaty recognizes “the common interest of all mankind in the progress of the exploration and use of outer space for peaceful purposes”,²⁶ the benefit of all humankind in the use and exploration,²⁷ and the need that such use and exploration contributes to and promotes international cooperation.²⁸

However, the involvement of private investment is not explicitly addressed in the Outer Space Treaty; perhaps, this can be justified based on the second difference between the two preambles, that is, the sovereign character of States’ biological resources, which is, of course, absent from the nature and uses of outer space.²⁹

Guidance on this matter is provided in article 15 of the Convention on Biological Diversity, which provides for the access to the genetic resources. Specifically, although it recognizes the sovereign rights of States over their genetic resources, it also provides for access to them by third countries that

22 Convention on Biological Diversity, Preamble: “Reaffirming that States have sovereign rights over their own biological resources.”

23 Convention on Biological Diversity, Preamble: “Noting that, ultimately, the conservation and sustainable use of biological diversity will strengthen friendly relations among States and contribute to peace for humankind.”

24 Convention on Biological Diversity, Preamble: “Stressing the importance of, and the need to promote, international, regional and global cooperation among States and intergovernmental organizations and the non-governmental sector for the conservation of biological diversity and the sustainable use of its components.”

25 Convention on Biological Diversity, Article 11. Incentive Measures: “Each Contracting Party shall, as far as possible and as appropriate, adopt economically and socially sound measures that act as incentives for the conservation and sustainable use of components of biological diversity.”

26 Outer Space Treaty, Preamble: “Recognizing the common interest of all mankind in the progress of the exploration and use of outer space for peaceful purposes.”

27 Outer Space Treaty, Article I.

28 Outer Space Treaty, Article IX.

29 Outer Space Treaty, Article II.

justify interest.³⁰ Furthermore, the Convention introduces the obligation that States possessing such resources facilitate access to them as well as provide the appropriate and necessary relevant structures.³¹

Accordingly, article 16, paragraph 7 of the Convention provides that States bear the obligation to undertake necessary “legislative, administrative or policy measures” to ensure the “sharing in a fair and equitable way [of] the results of research and development and the benefits arising from the commercial and other utilization of genetic resources with the Contracting Party providing such resources.”³² Paragraph 5 of the same article, provides also the obligation of the “subject/user” of the resources to acquire prior consent before from the Contracting Party before accessing them.³³

The nature of the genetic resources as something necessary to humankind in its entirety, rather than to the “subjects/users” or “subjects/owners”, finds many similarities with the nature of the resources of the celestial bodies to be used in common benefit. In drawing a parallel between the genetic resources and the way that the Convention on Biological Diversity governs them and the resources of the celestial bodies and lack of their respective governance in the Outer Space Treaty,³⁴ it can be observed that the Convention on Biological Diversity requires consent of the owner of the resources before use,³⁵ while the Outer Space Treaty solely refers to the prohibition of sovereignty and appropriation not excluding, however, the use. With that in mind, the Convention on Biological Diversity could constitute a basis for justification of access to resources such as the celestial bodies, given that it witnesses international consent on facilitating common access to sovereign resources, thus setting a higher positive standard of action.

Based on the aforementioned, similarly to the Convention on Biological Diversity, which, through the Nagoya Protocol³⁶ (article 10), provides for a

30 Convention on Biological Diversity, Article 15, Access to Genetic Resources, paragraph 5 and 7: “Access to genetic resources shall be subject to prior informed consent of the Contracting Party providing such resources, unless otherwise determined by that Party,” and “Each Contracting Party shall take legislative, administrative or policy measures, as appropriate, and in accordance with Articles 16 and 19 and, where necessary, through the financial mechanism established by Articles 20 and 21 with the aim of sharing in a fair and equitable way the results of research and development and the benefits arising from the commercial and other utilization of genetic resources with the Contracting Party providing such resources. Such sharing shall be upon mutually agreed terms.”, respectively.

31 Convention on Biological Diversity, Article 15, Access to Genetic Resources.

32 *Ibid.*

33 *Ibid.*

34 Outer Space Treaty, Article II.

35 Convention on Biological Diversity, Article 15.

36 Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization to the Convention on Biological Diversity, 29 October 2010, UNEP/CBD/COP/DEC/X/1 [Nagoya Protocol].

“global multilateral benefit-sharing mechanism,”³⁷ the Outer Space Treaty could be supplemented in order to provide for the creation of such a mechanism. One argument against this approach could be the fact that the Moon Agreement already provides for similar possibility to adopt a mechanism allocating the resources and, yet the Agreement remains in the margin of the international scene. However, the Moon Agreement characterizes the resources as “common heritage of mankind,”³⁸ wording that has caused series of academic debates and political disagreements, while the Outer Space Treaty does not. Hence, the mechanism would be more widely acceptable if established under the umbrella of the Outer Space Treaty regime.

5. The Need for a Forum under the Auspices of Committee on the Peaceful Uses of Outer Space to Explore the Governance of Celestial Bodies’ Mineral Resources

Reaching an agreement on the creation of such a mechanism is not, however, an easy task. Therefore, this paper suggests that the ever-important forum for discussions on the legal treatment of space related issues, the Committee on the Peaceful Uses of Outer Space (hereafter “COPUOS”), should play a central role in the negotiation of such a mechanism. The COPUOS constitutes a forum, where discussions of the international space community evolve and take shape.³⁹ For example, the recent tendency towards soft law that has been observed during the past years as emerging under the auspices of the COPUOS has proved to be more efficient than recent soft law initiatives initiated by external fora.

One example that illustrates the need for discussions under the auspices of COPUOS is the *Code of Conduct for Outer Space Activities* (hereafter “Code

37 Nagoya Protocol, Article 10, GLOBAL MULTILATERAL BENEFIT-SHARING MECHANISM: “Parties shall consider the need for and modalities of a global multilateral benefit-sharing mechanism to address the fair and equitable sharing of benefits derived from the utilization of genetic resources and traditional knowledge associated with genetic resources that occur in transboundary situations or for which it is not possible to grant or obtain prior informed consent. The benefits shared by users of genetic resources and traditional knowledge associated with genetic resources through this mechanism shall be used to support the conservation of biological diversity and the sustainable use of its components globally.”

38 Moon Agreement, Article 11, paragraph 1: “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.”

39 UN GA, International Co-operation in the Peaceful Uses of Outer Space, GA Res 1472 (XIV); UN COPUOS, “Committee on the Peaceful Uses of Outer Space and its Subcommittees”, online: UN COPUOS www.unoosa.org/oosa/en/ourwork/copuos/comm-subcomms.html.

of Conduct”).⁴⁰ Although this initiative had the potential to lead to widely acceptable soft law – or to perhaps future binding forms of conventional instruments – it is not considered as a successful initiative by international space law scholars, neither by the international community as a whole.⁴¹ Specifically, it has been noted that “the project [was] seen as a way favouring the adoption of voluntary rules of behaviour as first step towards an international binding treaty.”⁴² It has also been observed that “it contains [...] commitments that Subscribing States accept to abide to and general principles that could be detailed in subsequent legal instruments.”⁴³ Although these justifications could form a similar rationale behind the creation of an instrument setting the backbone for the development of the law to govern the exploitation of the natural resources of the celestial bodies, they could simultaneously form the reasons for a possible failure of soft law’s mandate, should the latter be discussed outside the UN system and infused into it *ex tunc*. In fact, given the steps that are yet to be taken in the technological development to enable access to space mining and to the further study of the economical feasibility and sustainability of this endeavor, time allows for such discussions to mature under the auspices of the COPUOS. To stress even more the importance of the forum of discussion, one needs to compare the dialogue platform and model that was adopted for the *Space Debris Mitigation Guidelines of the Committee on the Peaceful Uses of Outer Space* (hereafter “Space Debris Guidelines”),⁴⁴ and the one adopted for the aforementioned Code of Conduct. The difference in the success and acceptance range between the two instruments is apparent.

Therefore, it is essential that a forum (perhaps in the form of a Working Group) be established under the auspices of the COPUOS to promote and enhance discussions on the topic, and reinforce the dialogue among the members of the international community. Of course, COPUOS has already existed as a platform for relevant discussions on the topic. For instance, the *provisional*

40 Council of the European Union, *Council Conclusions of 27 September 2010 on the revised draft Code of Conduct for Outer Space Activities*, 11 October 2010, PESC 1234, CODUN 34, ESPACE 2, COMPET 284.

41 Michael J Listner, “The International Code of Conduct: Comments on Changes in the Latest Draft and Post-Mortem Thoughts” (26 October 2015), online: The Space Review www.thespacereview.com/article/2851/1.

42 Sergio Marchisio, “The Draft Code of Conduct for Outer Space Activities” (16-19 November 2010), UN/Thailand Workshop on Space Law, Activities of States in Outer Space in Light of New Developments: Meeting International Responsibilities and Establishing National Legal and Policy Frameworks, at 2.

43 *Ibid.*

44 UN OOSA, *Space Debris Mitigation Guidelines of the Committee on the Peaceful Uses of Outer Space*, Vienna, 2010, online: www.unoosa.org/pdf/publications/st_space_49E.pdf.

agenda of the Legal Subcommittee's meetings in June 2017⁴⁵ included an item devoted to this topic and entitled "General exchange of views on potential legal models for activities in exploration, exploitation and utilization of space resources." However, such an approach to the dialogue on the topic does not provide systemic analysis of the existing possibilities, neither does it provide for a specific work programme. In fact, the idea that the issue requires special treatment through discussions in the Legal Subcommittee of the COPUOS was also expressed during these meetings. Specifically, it is important to note some of the outcomes of the *Report of the Legal Subcommittee on its fifty-sixth session, held in Vienna from 27 March to 7 April*,⁴⁶ such as:

"[...] The view that taking a broad multilateral approach to space resources within the Committee on the Peaceful Uses of Outer Space and its Legal Subcommittee was the only way to ensure that the concerns of all States were taken into account, thereby promoting peace and security among nations,"

"The view [...] that a greater understanding among States of the principles set out in the Outer Space Treaty was needed, as was a multilateral approach to addressing issues relating to the extraction of resources from the Moon and other celestial bodies, in order to ensure that States adhered to the principles of equality of access to space and that the benefits of the exploration and the use of outer space were enjoyed by all humanity,"

"The view [...] that the Legal Subcommittee should undertake detailed discussions on the exploitation and utilization of space resources by private entities, specifically addressing whether the legal status of a celestial body was the same as the legal status of the resources on it, whether the exploitation and utilization of space resources by a private entity could be for the benefit of all mankind, whether a private entity's claim of ownership of space resources violated the principle of non-appropriation in the Outer Space Treaty, and how an international mechanism for coordination and the sharing of space resources could be built,"

"[...] The view that questions under this agenda item, relating to space resources, could be included in the questionnaire before the Working Group on the Status and Application of the Five United Nations Treaties on Outer Space."⁴⁷

Considering the general views expressed in the aforementioned report, and the range of academic discussions on the topic, it seems that the issue requires a more systematic and systemic approach. The role of a specific forum mandated by the COPUOS to address this issue, or one established under its umbrella,

45 UNGA, Annotated Provisional Agenda, Committee on the Peaceful Uses of Outer Space, Legal Subcommittee, Fifty-Sixth Session, Vienna, 27 March-7 April 2017, A/AC.105/C.2/L.299, Item 14.

46 UN COPUOS, *Report of the Legal Subcommittee on its fifty-sixth session, held in Vienna from 27 March to 7 April 2017*, 1 June 2016, A/AC.105, LSC 56th Session.

47 *Ibid.*

would establish a framework of guiding rules and principles for the exploitation of the natural resources of the celestial bodies through cooperation and mutual understanding, enabling thus the objectives of Article I and IX of the Outer Space Treaty,⁴⁸ articles fundamental to the undertaking of any activity that concerns common benefit, or in other words, that involves the exploitation of outer space as a *global commons*. For instance, the establishment of minimum standards of action involving the cooperation between public and private sectors, both central aspects of such exploitation activities, would set the basis for further formal discussions within the decision-making fora of the UN, leading, perhaps, to the adoption of a Code of Conduct for space mining activities produced, this time, under the inclusive UN spirit.

In fact, similar initiatives have been observed outside the auspices of the UN through independent platforms. Although the mission of such platforms⁴⁹ appears as an effective approach to achieving informal agreement on how the topic needs to be dealt with, similar past approaches to relevant problems of the space industry and community have shown the ineffectiveness of discussions that lead to soft law proposals outside the auspices of the UN. One such unsuccessful example is the aforementioned case of the Code of Conduct. The luck of this soft law initiative could have been different, had its mission been mandated by the UN or discussed under its umbrella, since it is the UN, where the concepts of the five UN Treaties were fathered, and as such, where their further development should also be expected to take place.

In contrast to soft law failures initiated outside the auspices of the UN, the Space Debris Mitigation Guidelines of the Committee on the Peaceful Uses of Outer Space⁵⁰ enjoyed broader acceptance and success due to their UN founded

48 Outer Space Treaty, Article I, paragraph 1, and IX: “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,” and “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 extraterrestrial matter and, where necessary, shall adopt appropriate measures for this purpose” respectively.

49 Universiteit Leiden, “The Hague Space Resources Governance Working Group”, online: Law Leiden <http://law.leiden.edu/organisation/publiclaw/iiasl/working-group/the-hague-space-resources-governance-working-group.html>.

50 UN OOSA, *Space Debris Mitigation Guidelines of the Committee on the Peaceful Uses of Outer Space*, Vienna, 2010, online: www.unoosa.org/pdf/publications/st_space_49E.pdf.

mandate. It is worth noting the path that was followed towards the production of these guidelines:

“At its thirty-sixth session, in 1999, the Subcommittee adopted the technical report on space debris (A/AC.105/720) and agreed to have it widely distributed, including by making it available to the Third United Nations Conference on the Exploration and Peaceful Uses of Outer Space (UNISPACE III), the Legal Subcommittee at its thirty-ninth session, in 2000, international organizations and other scientific meetings (A/AC.105/736, para. 39).

At its thirty-eighth session, in 2001, the Subcommittee agreed to establish a workplan for the period from 2002 to 2005 (A/AC.105/761, para. 130) with the goal of expediting international adoption of voluntary debris mitigation measures. In addition to the plan to address debris mitigation measures, it was envisaged that member States and international organizations would continue to report on research and other relevant aspects of space debris.

In accordance with that workplan, at the fortieth session of the Subcommittee, in 2003, the Inter-Agency Space Debris Coordination Committee (IADC) presented its proposals on debris mitigation, based on consensus among the IADC members. At the same session, the Subcommittee began its review of the proposals and discussed means of endorsing their utilization.

At its forty-first session, in 2004, the Subcommittee established a Working Group to consider comments from member States on the above-mentioned proposals of IADC on debris mitigation. The Working Group recommended that interested member States, observers to the Subcommittee and members of IADC become involved in updating the IADC proposals on space debris mitigation for the Working Group’s consideration at the next session of the Subcommittee”⁵¹

Furthermore, in addition to the benefit-sharing issues that would require the wider participation of space actors in a UN mandated body, safety and security issues might emerge from potential space mining activities⁵² and they would also justify similar approach.

6. Conclusions

In light of these considerations, such a forum would act as a platform towards the achievement of a “common denominator solution”, especially if it is also open to representatives of the private space industry. This would allow to strike the balance between all conflicting interests and to achieve a moderate, yet

51 UN OOSA, *Space Debris Mitigation Guidelines of the Committee on the Peaceful Uses of Outer Space*, Vienna, 2010, online: www.unoosa.org/pdf/publications/st_space_49E.pdf, Preface.

52 Ram S Jakhu, Joseph N Pelton, “Regulation of Safety of Space Mining and Its Implications for Space Safety”, Proceedings of the 8th IAASS Conference, at 93.

all-encompassing, approach towards guidelines for positive action of all space actors. To conclude, this paper identifies two needs: first, the need to explore the issue of the exploitation of the natural resources of the celestial bodies as a matter comprehensive, and as such through the sustainable consideration of opposing and often conflicting interests of States and private actors alike, and; second, the need to head towards the discussion and subsequent promotion of relevant benefit-sharing models within a multilateral and UN mandated *forum*.

Therefore, the Outer Space Treaty has not lost its legitimacy. On the contrary, it constitutes a solid basis for the future effective development of space law to adjust to and address the very needs of the possibilities that the advancement that space technology offers.

