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Applying the principles of Common Heritage of Mankind and Cultural Heritage to Outer Space

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Submission for the panel 3, "Protection of cultural heritage sites on the Moon".

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Concerning the protection of cultural heritage sites on the Moon, organizations such as "For All Moonkind" call for the implementation of a new convention, as the *lex specialis* governing outer space does not mention the concept. However, there is a case to be made for the establishment of cultural heritage sites in the existing legal framework, specifically through the principle of "Common Heritage of Mankind".

While "Common Heritage of Mankind" in context Article 11 of the Moon Agreement ("MOON") should be viewed restrictively in its relation to resource exploitation rather than cultural heritage, a broader concept can be introduced to the *lex specialis*, namely through Article III of the Outer Space Treaty ("OST"), which stipulates that exploration in space is to be carried out "in accordance with international law"; this includes the principle of "Common Heritage of Mankind" in its broader meaning as set forward by codifications of other areas considered *res communis omnium*, such as the Area of International Waters, as evident in Article 135 United Nations Convention on the Law of The Sea ("UNCLOS") as well as its preamble. Common Heritage of Mankind in this context refers *inter alia* to an area outside of territorial jurisdiction governed by an international authority with limitations to private exploitation of resources.

Article 149 UNCLOS puts the principle of "benefit of mankind as a whole" in the broader context of cultural preservation. But while the preamble of the World Heritage Convention ("WHC") states the intention of establishing a "heritage of mankind", paralleling the provisions concerning *res communis omnium* mentioned above, its focus on territorial jurisdiction for example in Article 3, seemingly negates the non-appropriation principle of Article II OST. However, Article 11 (3) WHC states that sites and objects can be declared cultural heritage if they are situated in "jurisdiction over which is claimed by more than one State" under general consent. Considering the "Common Heritage of Mankind" principle includes the administration of an international authority, an argument can be made that in the consent of all states, cultural heritage can be established on areas considered *res communis omnium*, even on celestial bodies as the Moon.

An possible implementation of this can be examined in the context of the international seabed through Article 11 and 12 of the Convention on the Protection of Underwater Cultural Heritage ("CPUCH"), which put this authority of declaring cultural heritage on the High Seas outside of national jurisdiction in the hands of the Director-General of the International Seabed Authority as well as a "Coordinating State" similar to the exploitation of natural resources of the seabed, in turn paralleling the provisions for resource exploitation established in the Moon Agreement. Therefore, the establishment of cultural heritage in the context of the existing legal framework governing Outer Space and paralleling areas should be considered.

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Customary International Law and the appropriation of space resources

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This article analyses whether a rule of customary international law forbidding the exploitation of space resources has already been developed in the international community. The possibility of commercial exploitation of space resources rests in a grey area embedded in legal uncertainty, which might hinder further commercial activities in space. The panorama of applicable treaty law, notably the relationship between the provisions of the Outer Space Treaty and the Moon Treaty, has been subject to a comprehensive analysis of scholars. However, whether there is a customary law obligation forbidding the exploitation of space resources remains essentially unexplored. The answer to this question is especially relevant due to the relatively low number of ratifications of the Space Treaties and the absence of a specific framework for space resources exploration. We argue that there has not been yet formed a customary law rule forbidding the exploitation of space resources, since the requirements of state practice and *opinio juris* are not fulfilled. For the assessment of State practice, we consider the rare occasions where extraterrestrial matter was collected. A small amount of matter derived from extraterrestrial was collected and brought to Earth in several missions, but the quantity – very limited, and its purpose – scientific research, clearly distinguish these cases from the commercial exploitation of space resources which is currently intended. States have collected and retained ownership of extraterrestrial samples without opposition. Nevertheless, it is not possible to derive definitive conclusions from such a limited practice, especially in light of the fact that even the Moon Treaty allows the collection of samples for scientific purposes. Since State practice has been limited to the scientific collection of samples, we conclude that there is no sufficient State practice confirming a rule forbidding the exploitation of space resources. On the possibility of existing *opinio juris* on this issue, we discuss the hypothesis of the formation of customary law through the law-forming function of the applicable space treaties. The rule forbidding the appropriation of space resources might have been crystalized in customary law through the same path as the rule forbidding military use of space. The Moon Agreement and two UNGA Resolutions (unanimously approved) would provide a strong indication of the illegality of exploiting space resources. However, the exploitation of space resources seem to pose a different challenge than the rule forbidding military uses of the space. We find it difficult to find similarities in the rule forbidding military uses of the space, which was one of the deciding factors of the Space Treaties, with the totally unknown commercial uses of the space, such as extracting minerals from asteroids. The conduct of the US, and, to a lesser extent, of Luxembourg, of approving a law that clearly allows exploitation of space resources further indicates the absence of *opinio juris* in this regard. Hence, we argue that it would be highly contestable to affirm the existence of a customary international law rule prohibiting the appropriation based on current state practice and *opinio juris*.

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Forty Years Later: Reviving the 1979 Moon Agreement in view of Commercial Mining of Space Resources on Celestial Bodies

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Panel: Legal Challenges relating to The Future of the Moon Agreement

Abstract

The celestial bodies within the Solar System contain an enormous supply of mineral resources used on Earth, e.g., phosphorus, somewhat rare on Earth and essential in agriculture. In recent years, a growing interest by private companies in the possibility to mine and utilise extraterrestrial resources has emerged. Two companies, Deep Space Industries and Planetary Resources, have announced ambitious plans to mine asteroids by 2025. While the advantage to extract space resources is economically indisputable, the biggest obstacle to mine space resources commercially seems to be the lack

of clear international rules. Private companies and investors need the security of an adequate legal framework, that is compatible with existing principles of space and international law, to undertake risky and costly projects like mining asteroids.

The Outer Space Treaty provides the current legal framework for the use and exploration of the Moon and other celestial bodies, in spite of the absence of serious consideration of commercial exploitation of celestial bodies resources. In its turn, the Moon Agreement reaffirms and/or extends on the provisions of the OST. Nevertheless, it is clear that the existing rules are written at a time when practical use of space resources was not a pressing problem.

Unlike the other space law treaties, the Moon Agreement imposes specific obligations on parties undertaking the exploration of celestial body resources. It does not, however, solve some gaps which remain open to interpretation left by the OST. Firstly, the longstanding debate over rights of ownership on the Moon, as embodied in Article II of the OST, remains unclear, as the provision is subject to two different interpretations with regard to space resources. Secondly, the definition and legal status of natural resources on the Moon and celestial bodies is unresolved. More controversially, the treaty provides in Article 11, in uncertain terms, that “the Moon and its natural resources are the Common Heritage of Mankind (CHM)”. In addition, the Agreement does not create an international regime but instead calls for one to be set up by the States Parties to the treaty.

Despite its limited number of ratifications, notably due to the vagueness of its provisions, the Moon Agreement seems to provide the best available option to establish the rules to govern the exploration, use and exploitation of space resources in a harmonious way. A national approach can promote national interests but also creates instability. Therefore, this paper analyses the controversial nature of the Agreement and summarises concrete proposals regarding possible amendments in view of commercial space mining, drawing a renewed interest in the international community. Particular attention is dedicated to Article 11, including the CHM concept, and the establishment of more realistic rules on the international regime to be set up once the exploitation of Moon resources becomes feasible, perhaps including an ‘international license’ necessary to regulate commercial exploitation. Also, adjusting the equitable sharing of benefits concept is also considered, considering the 1982 Convention on the Law of the Sea regime for exploitation of deep seabed, fundamentally re-interpreted by 1994 New York Agreement.

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Past, present and future perspectives for the Moon Agreement

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A fundamental issue facing the Moon Agreement (MA) is the lack of consensus within the international community. Different states have different interpretations. From their interpretations, they can either accept in full or part the provisions of the MA. The lack of support raises concern about the future of the MA. Do we require a United Nations (UN) general resolution to open the debate over the MA based on new developments? Is leadership required by key players to make the agreement more widely accepted? There is no definitive answer. My abstract for the proposed presentation on this topic will aim to resolve these issues.

Application of *ius spatiale* has identified that definitions are required for “outer space”, “space activities” and “celestial body”. The concept of “common heritage of mankind” found within the MA and the “jurisdiction and control” in the OST are ambiguous. Both these concepts interplay, when considering the international legal regime for the celestial bodies being influenced by national laws concerning natural or juridical persons engaged in the extraction of Moon minerals. Another question raised whether exercise jurisdiction concerns the exploitation of property rights.

Article XI (5) of the MA provides an international regime to govern the extraction of resources for the purpose of equitable sharing for all states. The treaty does not define “equitable”. However, ‘equitable’ does not mean ‘equal’ and therefore is not meant to be interpreted for the benefit of developing countries. A balance must be determined based on the return of the benefit with considering the

contributions of space-faring and non-space faring nations.

A UN General Assembly Resolution is required to resolve these issues. In 2018, the UN 'Oceans and the Law of Sea' resolution were described by Norway as a step forward for sustainable fishing practices. The General Assembly adopted the Resolution to 'elaborate the text of UN Convention on the Law Sea (UNCLOS)'. The resolution called upon states to agree on the proposed changes to the provisions of the covenant if states have not aligned their national legislation with these provisions. The original draft shared similar problems to the MA, as a result of later discussions this lead to a more accepted and more resilient framework.

From this Resolution, it is advisable to have a discussion to formulate principles on the governance of the moon and celestial bodies. The principles can harmonize the current international legal regime with the "Revised" MA. These principles will further strengthen the enforcement of the MA whilst considering future perspectives that are optimal for all stakeholders.

The MA is still relevant although its lack of support which is troublesome. However, reopening discussions between states may encourage more states to ratify the MA. All states can offer different perspectives which can enhance the agreement. There is no easy way to develop a balanced MA, however superior spacefaring-states (eg the European Union) should consider how their space activities can benefit developing countries in meeting the UN Sustainable Development Goals.

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Public and Private cooperation to enable commercial mining of celestial bodies.

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Abstract: Public and Private cooperation to enable commercial mining of celestial bodies.

The European Space sector is strong, competitive and plays a key role in developing high- value capital goods for the benefit of all mankind. According to the last report published in January 2019 by the European Investment Bank (EIB), in collaboration with the European Space Agency (ESA) and the European Commission, the international space economy reached EUR 309 billion in 2019, has grown on average by 6,7% p.between 2005 and 2017. With a value estimated at EUR 48 -54 billion in 2016, the European Space Industry represents around 21% of the value of the global space sector, employing more than 230.000 people across Europe.

Current EU space economy delivers services that benefit millions of people. Aerospace technologies and telecommunications data is used in many areas, such as emergency services, aviation, agriculture, internet of the things, monitoring oil spills and responding to natural disasters. The New Space Economy and especially commercial mining of outer space resources could boost the economic and social revitalization of Europe.

The sustainable use of space resources is key to become a multiplanetary specie. However, there are legal challenges that must be solved before the permanent establishment of the Moon Village and possible further mining facilities in the Outer Space. Under the rule of 1967 Outer Space Treaty, all celestial bodies are "global commons" legally accessible to all countries. At that time mining asteroids for commercial purposes was purely science fiction. However, in the current world, we are seeing that it does not truly matter whether the source of an idea is science or fiction. Commercial mining activities will be scientifically, technically and economically feasible in the next decade. For this reason, mankind must be addressed proper interpretation of Outer Space Treaty and the Moon Treaty through an Implementation Agreement or a "New Space Agreement" to promote a common planetary vision for the sustainable use of outer space resources.

In this context, cooperation among International Institutions and the private sector is key to facilitate further bootprints on other celestial bodies. On 21st January 2019, a European innovative consortium formed by ArianeGroup, PTScientists and Space Applications Services signed a joint agreement with

the European Space Agency to study and prepare for a mission to go to the Moon with the aim of mining regolith.

My ten minutes presentation will address the current legal trends between public and private cooperation, that will enable castles build of moon dust for further exploration and exploitation purposes of lunar resources, benefiting mankind and future moonkind.

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Public-Private Partnerships for the Moon Economy

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The **role of space agencies** is evolving, with industry and the private sector now engaging in types of activities traditionally initiated and developed by governments and their space agencies. The NewSpace wave is bringing challenges and new ambitions in space, injecting a new spirit into the ecosystem, a new way of doing things in space, where *reusability and economies of scale* are key drivers. With space activities growing increasingly commercial due to greater private sector involvement, science and exploration are gradually becoming drivers for economic growth.

Over the past 15 years, a new method for developing space technologies has been tested under various forms. **Public-Private Partnerships (PPP)** models are being implemented as a new way to achieve access to space, with the goals of lowering costs, increasing efficiency and boosting economic growth. And since the New Age of Space Exploration translates into *space exploration through economic development*, PPPs will play an increasingly important role in developing the in-space infrastructure required.

The success of NASA's programs demonstrated how the effective use of PPP models of "*acquisition of commercial items*" ("procurement" of space systems and services) can facilitate the transfer of capital and expertise to the private industry for technology development and operations, so that sufficiently mature technologies can be developed by companies and startups under new formulas, escaping the old cost-plus contracts.

Experience with **PPPs in the European space sector** is growing, but so far limited only to the Satcom sector. Still, these valuable examples and case studies represent the foundation for future partnerships to be implemented in other areas of the space sector.

The **Call for Partnership Ideas**, issued by ESA in 2015, had led to the selection of a series of projects to enter a pilot phase. Through strategic partnerships with industrial and private partners, ESA is learning how to exercise new roles, such as *business partner, investor, and technical advisor*. Highly valuable lessons have been extracted in this process, insights that will improve the development of future partnerships.

With the most recent initiatives announced, it is expected that the Moon would become a Gateway to our Solar System over the next decades, representing a transit/transfer point and a stepping stone for missions to Mars and beyond. These initiatives invite the private sector to collaborate and contribute in order to build a common (public-private) infrastructure that would represent the *backbone of future space exploration*. And once we start looking at the Moon through an economic prism, we can identify several roles our "eighth continent" could play in the grand scheme of things.

Needless to say, these models will have a direct and profound impact on the legal framework, shaping the future of the "Moon Agreement" and the subsequent regulation to be developed and implemented by various entities around/ on the Moon; the implications are manifold and at all levels (national, international, ESA policy level, etc). Therefore, this study is concerned with the matters outlined above and explores some of the main **legal, political and economic implications of PPPs**.

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Security Interests in Extra-terrestrial Infrastructure

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As outer space becomes more commercial, financial models which involve creditors and debtors will become more viable and commonly used, as they are for the development of most projects and infrastructure on Earth.

By definition, a security interest is a 'legal right granted by a debtor to a creditor over the debtor's property which enables the creditor to have recourse to the property if the debtor defaults in making payment or otherwise performing the secured obligations'. Common examples of financial models that result in the creation of security interests include reliance on leases, mortgages, charges, liens, or conditional sale agreements.

The regulation of security interests falls under the broader ambit of secured transactions law which is largely governed under national laws in most jurisdictions, with some international treaties developed to harmonise the applicable law to transactions in specific industries, such as the Cape Town Convention on International Interests in Mobile Equipment, which has specific Protocols that apply a uniform scheme of secured transactions laws to various industries. Presently, there exists a Protocol for the aviation industry which has already entered into force, as well as Protocols for the rail and space industries which are awaiting ratifications by States. A Protocol applicable to mining, agriculture, and construction is also presently being negotiated.

A significant amount of security interests also relate to real estate, for which only national laws apply at the present moment. As commercial space mining on celestial bodies grows, a large amount of infrastructure will either be transported to celestial bodies, or could alternatively even be built on celestial bodies. This paper will examine the secured transactions laws that would be applicable to this infrastructure and will analyse the presently available domestic and international law remedies available to creditors in cases of default by a debtor which has a majority of its assets in outer space.

Special attention will be paid to the Space Protocol of the Cape Town Convention which is an international instrument that creates a global regime applicable to space assets to secure rights of creditors in cases of insolvency and bankruptcy of parties where the assets over which creditors possess security interests are premised in outer space. The paper will conclude with recommendations on how the commercial environment in space can be bettered to facilitate more transactions in space equipment, as well as enabling access to space, and space mining to more stakeholders, with special emphasis on affordable financing of high-value infrastructure and assets in outer space.

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The Legal Framework of Preservation of Cultural Heritage on the Moon

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Since the launch of human exploration to the moon, preservation of cultural heritage on the moon becomes an important project. This article aims at discussing the legal framework of how to preserve cultural heritage on the moon.

I will first discuss what constitutes "cultural heritage" in the legal language. On an international level, relevant clauses under the Outer Space Treaty (OST) and the Moon Treaty will be examined. Under

Article II of the OST, outer space, including the moon “is not subject to national appropriation by claim of sovereignty, by means of use or occupation, or by any other means.” Article 4 of the Moon Treaty emphasizes that “due regard shall be paid to the interests of present and future generations.” In a domestic setting, in certain jurisdictions such as the United States, the White House and National Aeronautics and Space Administration (NASA) has made plans on how to protect cultural heritage on the moon.

Meanwhile, we can learn from two historical lessons. One is the experience of protection of cultural heritage on earth by the United Nations Educational, Scientific and Cultural Organization (UNESCO). However, under the current legal framework of United Nations World Heritage Convention, no state can claim sovereignty over the moon while states can only nominate sites within their territory. I will discuss the possibility of claiming the moon as whole as a cultural heritage site. The other is protection of resources in the Antarctic under the Protocol on Environmental Protection to the Antarctic Treaty. Article 11 creates a Committee for Environmental Protection for the continent. In addition, there are concrete efforts made by NGOs such as For All Moonkind.

In conclusion, the preservation of cultural heritage on the moon requires a systematic legal framework, and the concerted efforts of all parties on different levels including States, international organisations and NGOs.

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The Moon Agreement: A Prospective Analysis

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Almost 40 years have passed since the Agreement Governing the Activities of States on the Moon and Other Celestial Bodies (Moon Agreement or MOON) was approved in the UN General Assembly through Resolution 34/68. With only 18 ratifications and four signatures, the Moon Agreement marked the end of the hard-law era in space and it is seen as a somewhat failed treaty. As so, besides understanding what the future reserves, it is important to establish if we should still talk about the Moon Agreement. The conclusion of such a discussion shapes the future of the MOON.

We believe the Moon Agreement should not be so rapidly disregarded, indeed, it contains many lessons and some of the questions that arise from it are still important today.

As an introductory step, we will start by understanding what the status of the treaty is: should it be considered as a subsequent treaty that only interprets and applies provisions of the Outer Space Treaty (Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies, UNGA Resolution 2222 (XXI), entered into force in 1967) or as a subsequent treaty that creates new rights and obligations not deriving from the OST? This also requires a categorization of the MOON according to the Vienna Convention on the Law of Treaties. Such categorization will allow us to understand the relevance of the Moon: is it an important means of interpretation of the OST or is it a new approach and, thus, a failed attempt to create new concepts? This is a very important step, as any prospective analysis requires an understanding of the current relevance of the analyzed variable.

We will look at some of the questions that arise from the MOON and try to establish the most important lessons that derive from it after almost 35 years of its entry into force. This step will require an analysis of the Moon Agreement to determine its most important provisions, the ones that we should carry on to the future and most definitely should be applied to the international community, as opposed to the ones not so relevant which might be disregarded in the long run.

Finally, we will conclude with the current relevance and try to come up with future scenarios for the Moon Agreement. If it is a valid means of interpretation of the Outer Space Treaty, then the MOON is a relevant Treaty, which we should still debate and maybe re-use for future legislation. Should

it be seen as a failed attempt to create new concepts, the only discussion left is to understand the lessons learnt and what to keep from them in pursuing new legislation.

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The Moon Race Competition and the protection of cultural heritage sites on the Moon

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Panel 3: Protection of cultural heritage sites on the Moon.

Nowadays, on the Moon there are 110 metric tons of cultural material, which has the potential to be worthy of preservation for future generations for its scientific, technical and social significance in the realm of space exploration.

While the terrestrial cultural properties are usually preserved by UNESCO, those materials cannot be protected under the 1972 World Heritage Convention because they are not part of this world and, above all, because the Convention requires a sovereign nomination.

In 2011 NASA set guidelines to protect and preserve the historic and scientific value of the U.S. Government lunar artifacts that could be inspirational for future space exploration programs. Although in fact, the cultural material is currently for the majority property of the United States, it represents a global cultural heritage to be protected insight of intergenerational equity.

In a current perspective, the MOON RACE competition, which serves several purposes with different deadlines to reach the final goal of a moon mission in for 2024, would be a good test pad to provide protection of the cultural heritage on the lunar surface.

The purpose of this paper is to suggest the application in the competition of criteria that are suitable to guarantee the protection of the lunar cultural heritage, requiring the applying teams to develop projects that pay attention to this topic and favoring in the final evaluation those who will propose a sustainable exploration project of the lunar soil able to find a balance with the need to preserve the cultural heritage of the moon.

Following the NASA example, I will suggest to convene a team of experts in legal, scientific and engineering field that will meet the potential developers of potential future exploration missions, in order to evaluate the short-term and long-term risks, to suggest approach strategies and safe methods to visit the historic sites.

The paper will start with an overview of the concept of “cultural heritage” on the Moon and its cultural and scientific significance. Secondly, the investigation will analyze the legal framework protecting the cultural heritage in different environments, such as on the Earth, beyond the sea and in the Antarctic region. Thirdly, the *Corpus Iuris Spatialis* will be considered to identify existing limits for the protection of cultural heritage in outer space. Finally, a possible solution for the forthcoming lunar exploration mission promoted by the Moon Race Competition will be provided.

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Towards an International Space Resources Union?

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The last decade access to outer space has become more common than ever before. The global space industry is valued at 360 billion USD in 2018 and a growing number of private companies worldwide aim to explore and use outer space for commercial purposes. Although technically it would not constitute an 'arms race in space', the current space race aiming for the strategically important areas on the moon and other celestial bodies – even if only economically, may create significant political tension in the international community. What if the People's Republic of China authorises a ten-year license to a Chinese entity that manages the first to start extracting resources from the Moon in one of the few areas where water has been found? It is highly unlikely that Europe and the United States would happily perceive this action as a step towards scientific development for the benefit of all humankind. One can imagine that, the other way around, the People's Republic of China or the Russian Federation would perceive a similar authorisation for a private American or European company in the same way.

A solid legal solution is needed to maintain international peace and security and to guarantee the coordinated and sustainable development of space mining activities in the interest of all countries. Obviously the non-appropriation principle (art. II OST) is of utmost importance, although currently it generates legal uncertainty, which endangers international peace and security. Furthermore, the applicable authorisation system on mere national level creates a 'first come, first serve' practice in which consideration of the 'commons' is at risk. Authorisation is currently granted by national authorities that can be driven by the aim to be the first State mining the most valuable areas of the Moon. As a consequence, this 'first come, first serve' practice is not only seriously challenging to international peace and security, it is inherently contrary to the benefit of all humankind. Therefore, this paper will argue for the urgent development of a meaningful international body taking into account that thorough cooperation and consultation on the authorisation of space mining activities will be fundamental in order to avoid conflicts in space, and to guarantee sustainable development of outer space activities.

First, this paper will shortly address an evaluation of the International Seabed Authority and the International Telecommunications Union as potential examples for the governance of space mining activities. Due regard will be given to the advantages and disadvantages of each and what makes them (un)successful. Second, this paper will examine to what extent the successful elements of these international bodies can be applied to space mining activities, which will be helpful to, finally, make a proposal on the concrete structure and functioning of this international body for managing mining rights in space resources.

(Sigrid Heirbrant, 28 years, student, University of Luxembourg, panel Commercial Mining of Celestial Bodies)

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What can one visit as a space tourist?

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In September 2018, Elon Musk announced that Japanese billionaire Yusaku Maezawa will be their first space tourist. This year humankind will mark the 50th anniversary of the first person stepping on another celestial body; and now the fast emerging space tourism industry can become a real threat to the space cultural heritage.

On Earth, UNESCO has the role to protect the cultural heritage of humankind. The main treaty, which regulates this action, is the 1972 UNESCO World Heritage Convention. The main problem for space heritage is that this convention does not apply in space. The US Congress tried through

the Apollo Lunar Landing Legacy Act to nominate Tranquillity Base for the UNESCO World Heritage List, as a site of “outstanding international value”, but failed as the treaty only applies on Earth.

Firstly, one has to identify what needs protection on the moon. Currently there are 80 historical archaeological sites on the Moon. The 1972 UNESCO convention states that monuments, group of buildings and sites can be categorized as cultural heritage; therefore every site on the moon is eligible for protection.

Secondly, the currently existing space laws need to be examined. The 1967 Outer Space Treaty (hereafter OST) is the backbone of space law, but does not mention the protection of space cultural heritage. Albeit there is no explicit protection laid down in the treaty, there is other relevant information about property rights in space that can become useful for the drafters of a possible future treaty. Article II of the Treaty prohibits states from claiming sovereignty over any part of space, which also includes the Moon, if we take into consideration, article 11 of the Moon agreement. The latter states that “the moon and its natural resources are the common heritage of mankind”. Article VIII of the OST states, however, that any objects placed in space remain the property of the state that put them there. This has been exercised on a national level too, with California passing a law in 2010 that designated protection for Tranquillity Base; although its effects are merely local.

In conclusion, we are clearly in need for a treaty that protects cultural heritage. NASA's 2011 white paper that suggests a 2 kilometre keep-out zone near landing sites is a good place to start. This document does not have legal force, but it was enough to keep the Google Lunar X Prize competitors out of the Tranquillity Base. The treaty which can stand as a base model is the UNESCO Convention on Underwater Cultural Heritage. The main ideas that should be followed are the creation of a supervising committee, and defining what can be visited by “space tourists”. Having 80 archaeological sites on the moon, the treaty should categorize which site could be visited by tourists, and which only by scholars. Like the Underwater convention, this should also focus on the preservation, rather than removal of heritage.

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Why is the Future of the Moon Agreement Emergent?

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Panel: The future of the Moon Agreement

Why is the Future of the Moon Agreement Emergent?

It has been concluded in many occasions that, the true test of the Moon Agreement both as treaty and customary law will come only when the exploration of extraterritorial resources becomes technically and economically feasible. The author of this Abstract however argues that there is already an urgent need for palpable international reaction and prevention to the tendency of unilateral legislation and act of space powers.

The United States in 2015 guaranteed through its Commercial Space Launch Competitiveness Act (CSLCA) to its private companies the right to own, sell, and profit from sources extracted from asteroids and other celestial bodies. Following the US precedent, in August 2017, Luxembourg became the first European state to officially allow commercial groups based within the country to appropriate space resources. If the two countries' universally unregulated venture is successful, they would not only potentially violate various international treaties, but may also widen the inequality gap between the developed and the less competent nations, and would also enhance unlimited contamination of space.

By now, it is clear that in order to boost inevitable space exploration, development, and appropriation, a well-elaborated and universally institutionalized regulation is needed. Although the multilateral

approach might not be in the interest of space-faring countries and their associations, they should learn from past experiences that individual interest does not suffice in the long term. Negligent refusal of the Moon Treaty is very likely to result with the rise of conflicts among unilateral space actors due to the rush for space mining.

Under Article 11 of the Moon Treaty – when it is feasible – for the sake of exploitation of the natural resources of the Moon and other celestial bodies, an international regime shall be established. Nonetheless, the specific norms on the creation and management of the international regime was not stated within the Moon Treaty, since about 40 years ago – when the Moon Treaty was adopted by the General Assembly, space exploitation was still implausible. Needless to say, the trend of unilateral space legislations, the continuous news on technological space developments, achievements, and further aspirations – these imminent signs should all indicate that exploitation of natural resources of celestial bodies is upon us, and if we fail to act collectively and promptly for the sake of mankind, we may come to the same fate as it has been happening with the environment of the Earth due to our inaction or late reaction (through set of non-binding guidelines, principles and standards).

In order to ensure global space development, – the author asserts –, the US space appropriation hegemony with its CSLCA Treaty is needed to be balanced, by making the Moon Treaty appealing to other space powers (such as China, Russia, Japan, etc.). In addition, the Moon Treaty should be more explicit with regards to the international regime and its connection to the common heritage of mankind principle, which should be effectuated through the Treaty's consensual alteration or through *lex specialis* legislation. For further clarification, practical potential measures (ie. The International Seabed Authority, International Tribunal for the Law of the Sea) can be incorporated from the 1982 Law of the Sea Convention. These measures would not only make space activities transparent and foreseeable, but it would also restore confidence in the Moon Agreement and therefore in the efficiency of multilateral cooperation for the sake of the immediate future.