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The International Regime Governing Exploitation of Natural Resources in Outer Space

Potential Process of Formulation

Yangzi Tao and Guoyu Wang[*]

Abstract

With the development of space technology, the commercialization of space activities have brought urgent needs for international space law, one of which is the establishment of the international regime for the exploitation of natural resources in outer space. This paper focuses on two key issues. First, to what extent could the virtue of the Moon Agreement, i.e. the ideology of "common heritage of mankind" influence the formulation of the international regime? Second, what approaches could be adopted to establish such a regime?

On one hand, this paper presents the legal ambiguity of the Moon Agreement and the Outer Space Treaty in this field, especially the former which articulates in its Article 11 that "States Parties ... to establish an international regime ... to govern the exploitation of the natural resources of the Moon as such exploitation is about to become feasible", while there is no explicit provisions further interpreting the term "feasible". On another, this paper analyzes the ideology of "common heritage of mankind" under the context of the Moon Agreement while trying to point out its significance in the establishment of an international regime governing the exploitation of natural resources in outer space.

The paper then presents legal recommendation for the formulation of such an international regime, mainly on three perspectives: one, clarifying rights, obligations and responsibilities through amending the Moon Agreement; two, founding the Authority to authorize and supervise the exploitation of natural resources in outer space, the detailed regulations of which could be mirrored from Part XI of the United Nations Convention on the Law of the Sea, in correspondence with the term "common heritage of mankind"; three, developing international norms of exploiting natural resources.

I. Introduction

As for the exploitation of natural resources in outer space, the Outer Space Treaty contains regulations merely in principle without detailed interpretation,

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not to mention the continuing controversy. In this respect, the Moon Agreement provides significant guidance. However, as pointed out in academic community, with respect to the exploitation and use of the Moon and other celestial bodies, there is no clause addressing problems concerning whether if it fall into the scope of "exploration and use", concerning the establishment of legal mechanisms for it and concerning its international management, etc.[1] Therefore, the discussion on establishing an international regime for the exploitation and use of natural resources in outer space requires more attention.

Since the exploration and use of outer space made its first move, it has become undoubtedly a consensus of the international society that the rule of law must prevail in outer space activities.[2] With the pace of space industry development, there have been many researches on the issues of the applicability, jurisdiction, authorization, and international liability of space law concerning the use of space resources.

Based on visible practices, these researches have been predominantly carried out from the perspective of the exploration and use of outer space for scientific use, such as the component analysis of lunar soil. However, "the rule of law" not only rules available space exploration technology, but also foresees future space activities in every possible aspect. The Moon Agreement has started off by articulating in its Article 11 "...to establish an international regime ... to govern the exploitation of the natural resources of the Moon as such exploitation is about to become feasible". Despite of the fact that with 11 signatories including no countries capable of managing manned space flight, the Moon Agreement has not been widely acknowledged yet, it is noteworthy that by further interpreting Article 11, the Moon Agreement can lead to a prototype of an international regime governing the use of outer space resources under the framework of the Outer Space Treaty.

II. The International Regime in the Moon Agreement

The Moon Agreement has put forward the conception of an international regime on the exploitation and use of celestial bodies, mainly providing in Article 11. As paragraph 5 of this Article states, "States Parties to this Agreement hereby undertake to establish an international regime, including appropriate procedures, to govern the exploitation of the natural resources of the Moon as such exploitation is about to become feasible. This provision shall be implemented in accordance with article 18 of this Agreement."[3]

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1 Shouping Li, Yun Zhao, *Introduction to the Law of Outer Space*, Sunshine Daily Press 2009, 99.

2 Stephan Hobe, Gerardine Meishan Goh and Julia Neumann, *Space Tourism Activities-Emerging Challenges to Air and Space Law?* 33 J. SPACE. L. 373 (2007).

3 Agreement Governing the Activities of States on the Moon and Other Celestial Bodies (adopted 5 December 1979, opened for signature 27 December 1979, entered into force 11 July 1984) UNGA Res 34/68 art 11 para 5.

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An international regime is the foundation of effective exploitation of natural resources in outer space. Under the circumstance that any disputes concerning such exploitation occur, the adjudicatory body shall rely on existing clauses and international norms to decide the elements of law contained in space activities. Assuming that a national space agency of a signatory to the Outer Space Treaty has successfully captured a metallic asteroid (which may very well happen), discussion of its use would arise.

For one thing, the use of outer space, in light of the Outer Space Treaty, shall be the province of all mankind. If other space agencies not involved in this activity could still claim rights to exploit the asteroids or not remains negotiable. For another, private sectors participating in this activity at any stage might get involved in this legal issue, such as the claim to commercial use, the character of private sector in space activities and the validity of unilateral commitment from the national space agency. The adjudicatory body, if any by then, would have to face the question that what law could be applied to a case in such condition.

The international regime conceived in the Moon Agreement reveals in four stages: theoretical basis, main objectives, concrete contents and establishing procedures.

II.1. Theoretical Basis: The Principle of Common Heritage of Mankind

There are scholars arguing that the international regime conceived in the Moon Agreement is not necessarily based on the principle of common heritage of mankind, which could be challenged in two aspects.[4]

First, the principle of common heritage of mankind is substantially the cornerstone of the Moon Agreement. The concept of "common heritage of mankind" was first proposed in the field of the law of the sea. On December 17th 1970, the United Nations General Assembly passed Resolution 2749, acknowledging that the seabed and its resources are the common heritage of mankind.[5]

Earlier in the same year, the representative of Argentina had proposed in the meeting of the Legal Subcommittee of UNCOPUOS to introduce the concept of "common heritage of mankind" to international space law, asserting that resources of the Moon and other celestial bodies should be defined as the common heritage of mankind.[6]

The Moon Agreement did not articulate specifically on the detailed legal implication of common heritage of mankind. However, it is reasonable to interpret in the first place that the exploitation and use of the Moon and other celestial bodies, including their natural resources, shall be conducted under certain restrictions. The natural resources in outer space deserve no completely unconstrained exploitation. In other words, any unilateral exploiting activities are faced with the risk of violating this principle. Even though there have

4 S Hobe, et al., *Cologne Commentary on Space Law, Vol. II.* 416.
5 United Nations Documentation: A/RES/2749(XXV).
6 United Nations Documentation: A/AC.105/C.2/L.21.

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been loads of controversies towards the legal interpretation of common heritage of mankind, the wording of "common" reveals inherent tendency of international cooperation. In the second place, the implementation of this abstract principle relies on other concrete provisions of the Moon Agreement, such as specific clauses concerning the international regime. Therefore, the establishment of such an international regime should comply with the principle of common heritage of mankind. With these premises, this principle requires States parties of the Moon Agreement to conduct self-restraint and make transfers of right to the international community on the exploitation and use of the Moon and other celestial bodies including natural resources. Being a State Party of the Moon Agreement means the very nation makes a commitment to treat the Moon and other celestial bodies including natural resources as the common heritage of mankind, and thus put necessary restrictions on its own space activities. In a sense, the Moon Agreement is an agreement that sets right for a third party.

Secondly, as paragraph 2 and 3 of Article 11 provides, the Moon is not subject to national appropriation by any claim of sovereignty, by means of use or occupation, or by any other means. Neither the surface nor the subsurface of the Moon, nor any part thereof or natural resources in place, shall become property of any State, international intergovernmental or non-governmental organization, national organization or non-governmental entity or of any natural person. The placement of personnel, space vehicles, equipment, facilities, stations and installations on or below the surface of the Moon, including structures connected with its surface or subsurface, shall not create a right of ownership over the surface or the subsurface of the Moon or any areas thereof. The foregoing provisions are without prejudice to the international regime referred to in paragraph 5 of this article.[7] The wording of "foregoing provisions" in paragraph 3 should literally refer only to the content of paragraph 2, but not exclude the application of the principle of common heritage of mankind in paragraph 1. Namely, the international regime could be established on the basis of acknowledging ownership of natural resources of the Moon and other celestial bodies, while the principle of common heritage of mankind does not have to be violated, but rather interpreted by state practices and consensus in light of its spirit.

In short, the principle of common heritage of mankind should be the theoretical basis and fundamental principle of building the international regime governing the exploitation and use of the Moon and other celestial bodies, while its interpretation would be revealed by constructing such international regime.

7 See supra note 3, art 2 & art 3.

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II.2. Main Purposes and Principles

For "the main purposes of the international regime to be established", the Moon Agreement provides in its paragraph 7 of Article 11 as "(a) The orderly and safe development of the natural resources of the Moon; (b) The rational management of those resources; (c) The expansion of opportunities in the use of those resources; (d) An equitable sharing by all States Parties in the benefits derived from those resources, whereby the interests and needs of the developing countries, as well as the efforts of those countries which have contributed either directly or indirectly to the exploration of the Moon, shall be given special consideration".[8]

Apparently, the international regime should include principles that reflect order, security, rationality and equity during the exploitation of natural resources in outer space, three of which are principles that directly relate to international cooperation, or that must be achieved through international cooperation: order, rationality and equity. It should be noted that, according to its wordings in paragraph 7(d), only between States Parties could benefits derived from those resources be equitably shared, which is inconsistent with the spirit of the common heritage of mankind as a matter of fact, because "common heritage of mankind" does not refer to "common heritage among States Parties". From another perspective of view, it reflects the importance of applicability of the Moon Agreement, which is based on the active participation of space faring nations. The principle of common heritage of mankind in outer space is nowhere to be implemented without be widely recognized by the international community.

II.3. Concrete Contents: The Informing Obligation and the Right to Disposal

Article 11 has made specific statement of two concrete aspects: the informing obligation and the right to disposal. As paragraph 6 provides, in order to facilitate the establishment of the international regime referred to in paragraph 5 of this article, States Parties shall inform the Secretary General of the United Nations as well as the public and the international scientific community, to the greatest extent feasible and practicable, of any natural resources they may discover on the Moon.[9]

Meanwhile, paragraph 8 provides that all the activities with respect to the natural resources of the Moon shall be carried out in a manner compatible with the purposes specified in paragraph 7 of this article and the provisions of article 6, paragraph 2, of this Agreement.[10]

Correspondingly, paragraph 2 of Article 6 has set the right to disposal, which provides that in carrying out scientific investigations and in furtherance of the provisions of this Agreement, the States Parties shall have the right to collect

8 See supra note 3, art 11 para 7
9 See supra note 3, art 6.
10 See supra note 3, art 8.

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on and remove from the Moon samples of its mineral and other substances. Such samples shall remain at the disposal of those States Parties which caused them to be collected and may be used by them for scientific purposes. States Parties shall have regard to the desirability of making a portion of such samples available to other interested States Parties and the international scientific community for scientific investigation. States Parties may in the course of scientific investigations also use mineral and other substances of the Moon in quantities appropriate for the support of their missions.[11]

II.4. Establishing Procedures: Review Conference

Article 18 of the Moon Agreement articulates that ten years after the entry into force of this Agreement, the question of the review of the Agreement shall be included in the provisional agenda of the General Assembly of the United Nations in order to consider, in the light of past application of the Agreement, whether it requires revision. However, at any time after the Agreement has been in force for five years, the Secretary-General of the United Nations, as depositary, shall, at the request of one third of the States Parties to the Agreement and with the concurrence of the majority of the States Parties, convene a conference of the States Parties to review this Agreement. A review conference shall also consider the question of the implementation of the provisions of article 11, paragraph 5, on the basis of the principle referred to in paragraph 1 of that article and taking into account in particular any relevant technological developments.[12]

This provision has stipulated the establishing procedures of the said international regime, i.e. to build and improve the international regime governing the exploitation of the Moon through the form of review conference among State Parties.[13]

The Moon Agreement came into force from July 11th 1984. According to Article 18, UNCOPUOS initiated the review of the Moon Agreement during its 37th meeting in 1994. It turned out that the General Assembly was recommended not taking into account temporarily the amendment of the Moon Agreement.[14]

The General Assembly adopted the recommendation. In addition, the Review Conference among States Parties has not been convened insofar, probably in consideration of the number of State Parties. After all, countries with advanced space technology such as the United States, Russia and China have not yet joined the Moon Agreement. In recent years, with the growing attention on the exploitation and use of the Moon from the international commu-

11 See supra note 3, art 6 para 2.
12 See supra note 3, art 18.
13 S Hobe, et al., *Cologne Commentary on Space Law, Vol. II.* 415.
14 See supra note 13, para 415-416.

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nity, several State parties had made proposal to the UNCOPUOS in 2008 for amending legal rules concerning the exploitation of the Moon.[15]
In conclusion, the provisions above have been serving as procedural guidelines for the construction of the international regime on the exploitation of natural resources in outer space. The establishment of such an international regime would certainly not be limited among States Parties of the Moon Agreement.

III. The Conception of the International Regime in Outer Space

III.1. The Necessity of Establishing an International Regime on the Exploitation of Natural Resources in Outer Space

The Moon Agreement provides in paragraph 5 of Article 11 that States Parties to this Agreement hereby undertake to establish an international regime, including appropriate procedures, to govern the exploitation of the natural resources of the Moon as such exploitation is about to become feasible.[16]
However, the criteria for determining “feasible” have not been clearly defined. An international regime should be built on the basis of technical capacity and market demand. Some countries, inter-governmental organizations and private entities with advanced space technology may have already obtained the technical capacity to carry out the exploitation of natural resources in outer space. Particularly, private entities have been showing increasing exploiting needs for these resources, which has in reverse proved the existence of strong market demands, irrespective of whether such market demands contain commercial interests or political strategy.
Neither international space law nor general international law contains prohibitive provisions about the exploitation, mining or even commercial use of natural resources in outer space. Meanwhile, as stated, the existing provisions of international space law are very limited on adjusting future space activities including exploitation and use of natural resources in outer space.
From an international perspective, in order to ensure the orderly exploitation and use of natural resource in outer space, the antecedence of law is required on the establishment of an appropriate international regime.
From a national perspective, the exploitation of natural resources in outer space is closely related to political concerns and the competition for strategic resources. Unilateral space activities may very well lead to an exploitation race of natural resources in outer space, creating no long-term benefit for either party. Establishing a rational international regime is a pragmatic approach to guarantee effective exploitation and use while preventing negative consequences. Moreover, according to Article 6 of the Outer Space Treaty,

15 United Nations Documentation: A/AC.105/C.2/L.272
16 See supra note 3, art 11 para 5.

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States Parties shall bear international responsibility for national activities in outer space being carried on by non-governmental entities,[17] which are also under the jurisdiction of domestic rules and regulations. The creation and amendment of such rules and regulations call for prerequisites, i.e. they should be acknowledged by the international community in the first place, otherwise the related space activities would surely face increasing political risks. Therefore, to avoid potential risks, it is essential from the national perspective to establish an explicit international regime for domestic rules and regulations to make reference.

III.2. Approaches for Establishing an International Regime on the Exploitation of Natural Resources in Outer Space

Undoubtedly, it is an ideal method to adjust the exploitation and use of natural resources in outer space through treaties and conventions. However, it may not be practical at this stage. The number of countries and organizations with the capacity of exploiting natural resources in outer space remains limited. In addition, differing from past general space activities, the exploitation of natural resources in outer space is limited due to the non-renewable nature of exploitation object. Therefore, the process of reaching a convention would face enormous resistance. Hence, for achieving this goal, three indirect paths can be stepped on to establish an international regime on the exploitation of natural resources in outer space.

Firstly, rights and obligations could be clarified through bilateral or multilateral agreements, especially in the case of the exploitation and use of the same celestial bodies. This approach is mainly recommended for countries and international organizations that currently own space exploitation capacity or could be reasonably foreseen to obtain such capacity.

Secondly, the Moon Agreement could be amended under appropriate conditions to attract more signatories. The fact is that countries with capacity to exploit natural resources in outer space are outnumbered by States Parties to the Moon Agreement at this moment. By encouraging these countries to join the Moon Agreement, relations between space faring nations and developing countries could be coordinated within its framework which would become more stable and authoritative. As for developing countries, limited resources could be put into cooperation with countries that are willing to or obligated to share advanced space technology, through which they would be able to obtain more benefits from the exploitation of natural resources in outer

17 Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies (adopted 19 December 1966, opened for signature 27 January 1967, entered into force 10 October 1967) UNGA Res 2222 (XXI) art 6.

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space.[18] The United Nations Convention on the Law of the Sea can be well used for reference to set up an implementing agency mirroring the Authority, for instance to be named as Space Resources Authority.

According to Part XI of the Convention on the Law of the Sea and the Agreement relating to the implementation of Part XI of the Convention, the principles governing international seabed area are formulated in order to organize and control the activities of member states in the deep seabed beyond the limits of national jurisdiction.[19] The International Seabed Authority was thus created as an organization in charge of managing mineral resources in the international seabed area. According to the Convention on the Law of the Sea, the Authority is an independent inter-governmental international organization with authority to make regulations on the basis of the Convention and the Implementing Agreement above. In activities concerning existing and potential commercial exploitation of deep seabed, the Authority performs to have a fair share of the benefits of deep seabed exploitation contractors, while its subsidiary bodies – the Enterprise – may authorize activities directly involved in mineral exploitation in deep seabed area.[20]

The constitution of the Authority is detailed articulated in the Convention on the Law of the Sea, mainly containing contents of its structure, functions and subsidiary bodies. Procedures for subsidiary bodies to make respective decisions are also stipulated. The Convention on the Law of the Sea has made explicit regulations on the rights, obligations and responsibilities of member States in each part of the ocean from coast to deep seabed. Maritime activities are limited in certain scopes such as fisheries, shipping, resource exploitation and environmental protection, etc. According to this Convention, the international seabed area and its resources are the "common heritage of mankind", where natural resources including mineral resources are certainly included herein.[21] These practices could be taken as direct reference for implementing the international regime on the exploitation and use of natural resources in outer space under the framework of the Outer Space Treaty.

Thirdly, rights and obligations could be gradually clarified by customary norms of international law. Most of the fields in commercial space activities are in need for international customary law,[22] such as commercial launch, commercial remote sensing and satellite navigation in addition to the exploitation of natural resources. Due to historical and technical restrictions, international customary law had not been formed under the framework of international space law, especially the lack of decisions from the International

18 Virgiliu Pop, *Who Owns the Moon? Extraterrestrial Aspects of Land and Mineral Resources Ownership,* Springer, 2008.155.

19 United Nations Convention on the Law of the Sea, Part XO.

20 Ibid.

21 Ibid.

22 B Cheng, *Studies in International Space Law,* Clarendon Press, Oxford. 1997.665.

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Court of Justice or international tribunals. The clarification of specific rights, obligations and responsibilities and the settlement of disputes call for effective precedents. Therefore, from an evolutionary point of view, customary norms of international law in the field of space resources will arise to meet the demand from the disputing parties and from the convergence of domestic law and international law.

IV. Conclusion

An international regime is the guidance for an adjudicatory body to reach the decision. However, it is merely in the Moon Agreement that the establishment would be carried out when the exploitation of natural resources in outer space is about to become feasible. Thus, on the basis of existing international space law, it is important to realize what extent could the virtue of the Moon Agreement influence the formulation of such an international regime. By analyzing the deficiency of the Moon Agreement and reference of the Convention on the Law of the Sea, the ideology of "common heritage of mankind" could be taken as the fundamental principle in implementing the regime. For governing the exploitation of natural resources in outer space, various approached should be taken as long as state practices can be well expected.