

China's Plan for an International Lunar Research Station: A Path Towards Multilateralism or the Beginning of the End?

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1. Introduction

Over the past 15 years or so the Moon and other celestial bodies have returned to the centre of space actors' agenda, this time around with some key differences from the past. Indeed, while in the 1960's and 1970's lunar activities were the exclusive realm of the United States and the Soviet Union, nowadays several Asian countries as well as private entities are participating in them. Furthermore, while before the objective was merely to be the 'first' to set foot on the lunar surface, presently countries are planning to establish a stable presence on the Moon.

China has been at the forefront of this process; from sending a probe around the Moon in 2007 to returning samples of lunar rocks to Earth via the Chang-e' 5 mission in 2020, China has achieved remarkable results and positioned itself as a prominent 'lunar' player. In 2021, China announced its most ambitious project to date, namely the construction of an International Lunar Research Station (ILRS). The ILRS initiative assumes even more relevance if one considers that it is being developed parallelly to another project aiming at building a permanent presence on the Moon, namely the US-led Artemis Program.

The Chinese plan to build a station on the Moon envisions the possibility to use lunar resources to sustain the station's activities; intuitively, such as possibility raises questions related to China's legal approach to lunar resources utilization. This is an important question because in recent years the legal issues associated with the use of space resources have led to significant developments, such as the adoption of national space resource

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utilization laws by certain countries and the establishment of a working group on the legal aspects of space resources utilization within the United Nations Committee on the Peaceful Uses of Outer Space (COPUOS). Until recently, China had not taken an official position on the matter, and one had to rely on statements and practice to attempt to ascertain it. However, this changed on March 6th, 2024, when China submitted to the Working Group on Legal Aspects of Space Resource Activities of the Legal Subcommittee of COPUOS a document highlighting the country's position towards the utilization of space resources and indicating issues that the Working Group should address as a matter of priority importance.¹

The purpose of the present paper is to ascertain China's legal approach to space resources utilization and to do so by linking it to the ILRS initiative. The paper will begin by providing the regulatory background to the discussion and an analysis of Chinese lunar activities. Then, it will assess China's position on space resources activities not only through the analysis of March 6th's submission but also reviewing Chinese actions, practice and statements.

2. Regulatory Background Related to Lunar Activities

Introduction

The possibility to collect and use lunar resources is one of the key reasons to explain space players interest in the Moon. The Moon is, indeed, rich in resources, such as minerals, water, and other substances like Helium-3, that can be used for a variety of purposes, from sustaining human activities in space to making profit on Earth.²

The legality of the extraction and utilization of resources under international space law is a controversial matter, particularly when such a use has the purpose of generating a commercial profit. Indeed, while the use of resources in the context of scientific missions seems to be a practice accepted by all, their exploitation for profit remains highly debatable. The problem comes from the fact that international space law, at least in its most accepted form, does not clarify the status of resources nor the purpose for which they might be used.³ Another area of controversy is the method chosen to develop rules applicable to the space mining activities, either a multilateral one, through

1 China's submission is available at https://www.unoosa.org/documents/pdf/copuos/lsc/space-resources/LSC2024/English_Chinas_submission_to_the_working_group_on_space_resources.pdf.

2 I.A. Crawford, *Lunar Resources*, 89 *Reviews in Mineralogy and Geochemistry* 829 (2023).

3 Tronchetti, F. (2015). Legal aspects of space resources utilization. In F.G. von der Dunk & F. Tronchetti (Eds.), *Handbook of Space Law* (pp. 769-813), Edward Elgar pp. 788-792.

the United Nations, or an individual one, promoted by single States or small group of them.⁴

International space law

Two international treaties governing human activities in outer space are relevant to our discussion: the 1967 Outer Space Treaty⁵ and the 1979 Moon Agreement.⁶ These treaties differ from each other in two substantial ways. First, while the former has been largely accepted by States, the latter has been ratified by only 17 countries, not including the main space players. Second, while the Outer Space Treaty does not specifically address space resources, the Moon Agreement contains detailed rules governing their recovery and use.

The Outer Space Treaty clarifies that celestial bodies cannot be appropriated by means of use, occupation, or by any other means;⁷ additionally, it confers States the right to freely access, explore and use outer space, upon the condition that such an exploration and use are for the benefits and in the interests of all countries and the province of all mankind.⁸ Furthermore, it recognizes the right to conduct scientific investigation of outer space. The fundamental questions that the Treaty does not address are: a) whether the non-appropriative nature of celestial bodies also extends to the resources contained therein; b) whether the right to explore and use outer space also cover the exploration and use of space resources; c) how the province of all mankind clause affects space resources' utilization activities.⁹

The Moon Agreement contains dedicated rules to govern lunar activities, including the idea that the exploitation of lunar resources should be guided by the principle of the common heritage of mankind. However, due to its limited ratifications, the provisions of the Agreement are not enforceable upon space-faring countries, hence once is left with the provisions of the Outer Space Treaty which, as said, do not specifically regulate the use of space resources.

National and international initiatives

Certain States have taken advantage of this void to enact domestic space resources utilization laws: these laws, not only clarify the respective country's position on this matter (that usually amounts to a recognition of the legality

4 von der Dunk, F. (2017). Asteroid mining: international and national legal aspects; 26(1) Michigan State International Law Review, 83-101.

5 Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and other Celestial Bodies, 18 U.S.T. 2410; TIAS 6347; UNTS 205 (the Outer Space Treaty).

6 Agreement Governing the Activities of States on the Moon and Other Celestial Bodies, 18 December 1979, 18 ILM 1434; 1363 UNTS 3 (the Moon Agreement).

7 Art. II, Outer Space Treaty.

8 Art. I(1), Outer Space Treaty.

9 Tronchetti (2015) pp. 788-792.

of commercial use of resources under the Outer Space Treaty) but also envision the possibility to license companies to carry out space resources activities. This practice was initiated by the United States in 2015¹⁰ and has been followed by Luxembourg,¹¹ the United Arab Emirates¹² and Japan.¹³ The enactment of these laws has been criticized not only due to their content (often found to be inconsistent with Art. I and II of the Outer Space Treaty) but also because of the method used to develop them. Indeed, these countries have reversed the traditional approach to international law-making, the so-called top-down approach, according to which rules are developed first at international level and then implemented domestically, and have replaced with another approach, which is usually referred to as bottom-up, in which rules are developed at domestic level first, with the setting up of internationally agreed norms left at a later stage.

Recently, the United States went one step further in its effort to govern future space resources activities through the publication of the Artemis Accords,¹⁴ a US-led regulatory initiative aimed at supporting the realization of NASA's Artemis Program.¹⁵ From a regulatory perspective, the Artemis Program, which has been signed by 36 countries so far, contain positive and controversial features.¹⁶ As to the former, first, the Accords promote the rule of law in the context of space mining operations, and second several of its principles reflect those of the Outer Space Treaty or provides examples of their concrete implementation.¹ Despite these positive elements, there are also controversial sections of the Accords, particularly those dealing with matters not specifically regulated by the Outer Space Treaty. First, the Accords

10 Title IV – Space resources exploration and utilization, US Commercial Space Launch Competitiveness Act of 2015.

11 Law 674 on the Exploration and use of space resources of July 20, 2017.

12 Arts. 14, 18, Federal Law No. (12) of 2019 on the Regulation of the Space Sector.

13 Act on the Promotion of Business Activities for the Exploration and Development of Space Resources, 23 December 2021.

14 The text of the Artemis Accords, officially signed on 13 October 2020, is available at <https://www.nasa.gov/specials/artemis-accords/img/Artemis-Accords-signed-13Oct2020.pdf>, last visited 19 August 2023.

15 The Artemis Program aims at returning men to the Moon by 2024. For more information on the Program see at <https://www.nasa.gov/artemisprogram/>.

16 For an analysis of the legal and political implications of the Accords see Frans von der Dunk, 'The Artemis Accords and the law: is the Moon back in business?' *The Bigq.* (June 2, 2020), available at <https://www.thebigq.org/2020/06/02/the-artemis-accords-and-the-law-is-the-moon-back-in-business>, last accessed 19 August, 2023; Christopher Newman, 'The Artemis Accords and lunar exploration – Revolution and evolution'. *SpaceWatch Global* (October 2020), <https://spacewatch.global/2020/10/spacewatchgl-opinion-the-artemis-accords-and-lunar-exploration-revolution-and-evolution/>, last visited October 2020; Kai-Uwe Schrogl, 'We must not overrate the Artemis Accords', *SpaceWatch Global*, <https://spacewatch.global/2020/11/spacewatchgl-interviews-kai-uwe-schrogl-we-must-not-overrate-the-artemis-accords/>, last visited 19 August 2023.

(Sec.10) embrace the controversial US interpretation of Art. I and II of the Outer Space Treaty, as provided in the US space resources law (2015 Commercial Space Launch Competitiveness Act). Second, the Accords envision the possibility for Signatories to establish 'safety zones' on a celestial body's surface as a mean to avoid interferences with nominal operations.¹⁷ Despite understanding the practical usefulness of such 'zones', their establishment raises questions of compatibility with the Outer Space Treaty, particularly from the perspective of the non-appropriation principle (Art. II, OST), free access to all areas of celestial bodies (Art. I OST), coordination and non-interference with the operations of States/entities not participating in the Artemis Program

Besides the above mentioned unilateral and quasi-multilateral initiatives, there is an ongoing multilateral effort within COPUOS potentially aiming at drafting internationally agreed principles to govern space resources utilization. Notably, since 2022 a Working Group on Legal Aspects of Space Resource Activities.¹⁸ is operating under a five-year mandate with the goal of finalizing a set of recommended principles for space resources activities. Even though it remains to be seen what results the Working Group will be able to achieve, its establishment is significant because it reaffirms the role of COPUOS as space law-making forum but also because it reflects States' awareness of the importance of reaching international agreement on basic principles to govern lunar operations.

It is within the activities of Working Group that China delivered its submission on rather than leaving the matter in the hands of individual or limited group of States, as the latter approach is likely to eventually lead to tensions and disputes among countries.

3. The International Lunar Research Station; Construction and Framework

The International Lunar Research Station (ILRS) initiative started in 2021 as a China and Russia collaborative project but it has since turned into a Chinese-lead initiative that has been officially joined by 9 countries and several non-governmental organizations.¹⁹

The ILRS will be built through a series of missions spanning through the late 2020's/early 2030's. China plan to first complete a basic version of the station by the end of the 2020s and then have a final version by the early 2040's. In order to implement these goals, China will conduct a series of

17 Section 11 – Deconfliction of activities, Artemis Accords.

18 For information about the Working Group and its activities see the UN dedicated website, <https://www.unoosa.org/oosa/en/ourwork/copuos/lsc/space-resources/index.html>, last accessed 19 August 2023.

19 As of 12 April, 2024, the countries that are participating into the ILRS initiative are: China, Russia, Venezuela, South Africa, Azerbaijan, Pakistan, Belarus, Egypt, Thailand, Turkiye.

missions that will establish nuclear energy, communications (including the launch of the Queqiao-2 lunar relay satellite), astronomical observation and other infrastructure on and around the Moon. In the next few years, China will also undertake several Chang-e missions to seek out water-ice deposits in the Moon permanently shadowed crater and to test a robot designed to test 3D printing bricks from lunar regolith. Initially, the ILRS is supposed to operate autonomously and only at a later, more permanent, stage human presence is envisioned.

The ILRS initiative is open to all countries and organizations; to facilitate cooperation in April 2023 the International Lunar Research Station Cooperation Organization (ILRSCO) was established. to coordinate and manage the project. In this context, the Deep Space Exploration Laboratory (DSEL) was founded in 2022 to act as a contractor for lunar exploration and is engaged in the ILRS and international cooperation.

So far, China has not given a legal framework to the ILRS initiative; however, it has concluded a series of agreements and memoranda of understanding with space agencies and organizations that have joined the initiative. According to the DSEL, first signatories will enjoy more favourable terms and more rights as founding members.²⁰ In this regard, China has made clear that is going to treat participants to the ILRS as real partners which should enjoy rewards and benefits derived from their decision to join the project.

Evidently, while pursuing noble scientific research, the ILRS project represents a soft power tool, a means to extend and reinforce its influence and to show other countries its reliability as an international player.

4. Chinese Approach to Space Resources Utilization

After having analysed the existing international and national legal framework applicable to space resources utilization as well as the Chinese plan to build a lunar research station, it is time to ascertain the Chinese approach towards the use of lunar, and other celestial bodies, resources. As said in the introduction, until recently China had yet to take, at least publicly, a definite position on this matter and one had to discern such a position through the analysis of China's practice and official statements. This changed on March 6th, 2024, when China submitted to the Working Group on Legal Aspects of Space Resource Activities of the Legal Subcommittee of COPUOS a document highlighting the country's approach towards the utilization of space resources and indicating issues that the Working Group should address as a matter of priory importance. The following section will, thus, elaborate upon China's position of space resources utilization/activities by using March

20 ILRS Guide for Partnership, available at <https://www.cnsa.gov.cn/english/n6465652/n6465653/c6812150/content.html>.

6th documents as a main source, while complementing it with reference to China's practice and statements.

First, China has repeatedly affirmed the centrality of existing international space law, particularly, the 1967 Outer Space Treaty, and the need for any space resources activity to be consistent with it. This idea is included in March 6th submission (Section II, para. 3 and 4), in the 2021 China's White Paper on Space Activities²¹ and was stressed by the Chinese representative when the Working Group on Legal Aspects of Space Resources was established, specifically by saying that: 'The Outer Space Treaty (OST), as the cornerstone of the international legal regime governing outer space activities, manifests the fundamental principles of international space law, and will continue to provide an indispensable framework for the conduct of outer space activities, including those related to space resources. The Working Group shall be guided in its work by international law, primarily international space law with OST as an example, and make efforts to safeguard its central role in the global governance of outer space activities. Any envisaged outcome of the Working Group, in whatever form, shall be in line with the fundamental principles of international space law'. Importantly, March 6th submission China also recommends the Working Group to seek for a uniform interpretation and application of the principles of the OST and to, thus, refrain from embracing views that favour single nations. Through this language, China is urging the Working Group to keep a neutral approach and to avoid succumbing to the political pressure of certain delegations. China is indeed aware that certain States might use COPUOS discussions as an opportunity to gather support towards their own interpretation of the space treaties as well as a chance to block agreement on an interpretation/approach that does not reflect their own.

Second, China has pointed out the non-appropriative nature of outer space, including the Moon and other celestial bodies, as per Art. II, OST. Adherence to this principle has been confirmed in China's practice (while landing on the Moon with several Chang-e mission, China never claimed sovereignty of its landing sites), in statements and on March 6th submission. Interestingly, the submission not only points that any form of exploration, exploitation and utilization of space resources shall be consistent with the non-appropriation principle but that the Working Group shall make efforts to operationalize its meaning in the context of space resources activities. In this context, it is necessary to emphasize that China, by reflecting upon the meaning of the non-appropriation principle, is not suddenly recognizing the legality of the commercial utilization of space resources; over the years, directly and indirectly, China has deemed conceivable such form of use. What China has opposed in years past has been the method used by certain countries,

21 https://english.www.gov.cn/archive/whitepaper/202201/28/content_WS61f35b3dc6d09c94e48a467a.htm.

particularly the United States, to affirm the legality of the use of space resources for profit (and the possibility to license private companies to do so) through national and quasi-multilateral initiatives rather than seeking recognition and acceptance of such interpretation within COPUOS first. This is why China is encouraging the Working Group to make efforts to reach a uniform understanding of this concept.

Third, China believes that the right to carry out scientific investigation provided for in Art. I(3) of the OST includes the right to extract and use lunar resources for the purpose of study. This is proven by the fact that China has collected lunar samples during its Chang-e 5 mission, return them to Earth and studied their nature and characteristics. In addition, China has also shared some of this samples with third countries, in line with its Rules on the International Cooperation on Lunar Samples and Scientific Data.²² China's interpretation is in line with that of other major space players, like the United States, that have collected and use lunar samples for the purpose of scientific research. One can easily argue that based on State's practice and belief the right to extract and use lunar resources for the purposes of scientific research belongs to the category of customary rules, even though the OST does not clearly say so. Importantly, in its March 6th submission, China recommends the Working Group to develop principles to mitigate the potential negative impact that commercial space resources activities might have on activities undertaken for the purpose of scientific investigation, a clear indication that China gives preference to scientific rather than commercial space resources activities.

Fourth, China has emphasized the need to promote coordination, cooperation, and mutual assistance in space resource activities. This is an important point considering the likely presence of parallel lunar projects at some point in time. Along the same lines, China stresses the importance for States to have an adequate system for the supervision of private space resource activities; in the absence of such a system, private activities could interfere or compromise the activities and rights of third countries.

Fifth, China believes in the importance of developing rules to govern space resources activities at international level, through a multilateral process, rather than in a unilateral (or quasi-multilateral) fashion. From this perspective, China has emphasized the central role to be played by COPUOS in this process, as the Committee is viewed as the main forum for the governance of space activities. China's position assumes particular relevance if one considers that, in recent years, various unilateral (national) and quasi-multilateral initiatives (i.e. the adoption of national space resources utilization laws or regional projects such as the Artemis Accords) have reversed the traditional approach to space law-making (in which States

²² Rules for Management of International Cooperation in Lunar Samples and Scientific Data, <https://www.cnsa.gov.cn/english/n6465645/n6465648/c10086003/content.html>.

develop rules collectively) and, thus, weakened the governance role of COPUOS. Significantly, so far China has not undertaken any initiative having the effect of undermining the governance and law-making function of COPUOS. Instead, it has strongly supported the organization of general discussions in COPUOS about the exploration, utilization and exploitation of space resources as well as setting up a working group to address relevant legal questions. Furthermore, it has not unilaterally enacted space resources utilization laws and proposed approaches that endanger the stability of the system of governance of outer space activities.

5. Conclusion

China is gradually re-shaping its approach towards outer space; while in the past, the country did not act as initiator of projects/discussions but merely as a participant to them, nowadays China is leading several initiatives aiming, ultimately, to become a leader in the space arena. The ILRS initiative is an emblematic sign of this change of attitude.

End Note

- 1 See, for instance, Section 5 (Interoperability of Systems) and Section 12 (Mitigation of Orbital Debris), Artemis Accords.