

IAC-10-E7.2.10

CONSIDERATION ON THE INTERNATIONAL REGIME OF THE MOON AGREEMENT

F. Taniguchi

Japan Aerospace Exploration Agency, Japan, taniguchi.fuki@jaxa.jp

M.Sato

Japan Aerospace Exploration Agency, Japan, sato.masahiko@jaxa.jp

D.Saisho

Japan Aerospace Exploration Agency, Japan, saisho.daisuke@jaxa.jp

The Outer Space Treaty was opened for signature and entered into force on 1967 as the international rule that sets the basic principles of space activities. Currently, 100 countries have ratified the treaty, including Japan and almost all the space faring nations. The basic principles stated in the Outer Space Treaty apply to all activities on celestial bodies including the Moon.

On the other hand, in the set of international agreements concerning outer space is the Moon Agreement. The Moon Agreement became effective in 1984 as a treaty that complements the Outer Space Treaty. It regulates the rules concerning the development of natural minerals. However, currently, only 13 countries have ratified this treaty and countries that have executed celestial exploration, including Japan, are not signatories thereof.

The biggest issue in the Moon Agreement is that it states that the Moon and its natural resources are the “Common Heritage of Mankind” (hereinafter referred to as “*CHM*”) (Article 11, paragraph 1), which is the same term used to describe minerals in the deep seabed, and that an international regime will be built to govern the exploitation of natural resources on the Moon since such exploitation is about to become feasible. The Moon Agreement further states that the sharing of benefits derived from the resources will consider the interests and needs of the developing countries, as well as the efforts of those countries that have contributed to the exploration of the Moon (Article 11, paragraph 7 (d)).

Under the current status, the activities carried out on the Moon are for scientific investigation, which is not controversial. Thus, there is as yet no urgency to regulate the commercial exploitation of the Moon. Still, it is important today to proceed with the consideration of the relevant rules that will govern such commercial exploitation. This paper will thus (1) identify the rules for exploitation of natural resources on the Moon based on the Outer Space Treaty, which many countries of the international community have ratified, (2) consider the rules in the Moon Agreement as one option that space law could evolve into, (3) further consider the rules in the deep seabed as an analogy to the Moon, and (4) show, from the point of view of Japan as a celestial exploration country, what should be taken note of in order to reach a consensus in regulating the exploitation of natural resources on the Moon.

I. CURRENT LEGAL FRAMEWORK CONCERNING LUNAR EXPLORATION*

The Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies (hereinafter referred to as “*OST*”) was discussed in the United Nations and entered into force on 1967 as the international rule that sets the basic principles of space activities. Currently, 100 countries have ratified the OST,¹ including nearly all the space faring nations including Japan. The basic principles stated in the OST apply to all activities on celestial bodies including the Moon.

* The views expressed in this paper are personal to the authors and do not necessarily represent the views of the Japan Aerospace Exploration Agency (JAXA).

On the other hand, in the set of international agreements concerning outer space is the Agreement Governing the Activities of States on the Moon and Other Celestial Bodies (hereinafter referred to as the “*Moon Agreement*”). The Moon Agreement became effective in 1984 as a treaty that is intended to complement the OST. It sets out the rules concerning the development of natural minerals. However, currently, only 13 countries have ratified this treaty and countries that have conducted celestial exploration, including Japan, are not signatories thereof.²

The largest issue in the Moon Agreement is that the Moon Agreement states that the Moon and the natural resources on the Moon are the “Common Heritage of Mankind” (Article 11 paragraph 1), which is the same term used to describe minerals in the deep seabed in the United Nations Convention on the Law of the Sea (hereinafter referred to as the “*UNCLOS*”), and that an

international regime will be built to govern the exploitation of natural resources on the Moon since such exploitation is about to become feasible. The Moon Agreement further states that the sharing of benefits derived from the resources will consider the interests and needs of the developing countries, as well as the efforts of those countries which have contributed to the exploration of the Moon (Article 11 paragraph 7 (d)). The Moon Agreement thus lays out a restrictive rule for the exploitation of natural resources on the Moon by each country.

II. JAPAN'S SITUATION ON LUNAR EXPLORATION

First of all, as a premise to considering the regime for the exploitation of natural resources on the Moon, Japan's situation with respect to research and development and the status of international law concerning the exploration of the Moon and other celestial bodies will be briefly introduced.

II.1 Research and Development Status

Japan's first lunar exploration satellite, "HITEN", was launched in 1990 and made Japan the third country, after the U.S. and the Soviet Union, to send a satellite to the moon. Its mission was to learn and establish engineering technology necessary for future celestial exploration, such as swing-by maneuvering, detailed assessment of orbit and improving the precision of maneuvers.

The next lunar exploration satellite was "Kaguya", which was launched in August 2007. "Kaguya" investigated the origin and evolution of the moon, and obtained scientific data such as elemental distribution of resources, geographical features and surface structure to explore the possibility of future lunar exploration and utilization. After the termination of the operation of "Kaguya",[†] technological research and development took place on such matters as the technology of inserting instruments into the moon's surface for observation purposes, lunar landing, passing night time, transportation on the moon, and return to Earth.

Programs were also carried out for celestial bodies other than the moon, such as "Hayabusa", which explored the small asteroid "Itokawa", and currently "Hayabusa2", which is planned to bring back samples from an asteroid considered to contain more organic or hydrated materials than "Itokawa".

Japan has therefore succeeded in unmanned lunar exploration, and has concepts to continue exploring the moon and other celestial bodies. It can be said that

[†] "Kaguya" decayed on June 11, 2009.

Japan is one of the space faring nations exploring celestial bodies.

Moreover, Japan has no plans to implement manned lunar exploration by itself. It will implement its lunar exploration programs through international cooperation. For example, Japan participates in the International Space Exploration Coordination Group (ISECG), which is the forum for coordinating international technological cooperation.

Plans for Japanese lunar exploration has been discussed in a committee established in the Strategic Headquarters for Space Policy, which is headed by the Prime Minister based on the Space Basic Law that entered into force in August 2008. It was concluded that Japan will execute unmanned missions till 2020. As for manned exploration activities, R&D for elemental technology will take place to construct a technological base for the future.[‡]

II.2 Status of Ratification to UN Treaties on Outer Space

Japan has ratified the OST (entered into force in 1967), the Agreement on the Rescue of Astronauts, the Return of Astronauts and the Return of Objects Launched into Outer Space (entered into force in 1968), Convention on International Liability for Damage Caused by Space Objects (entered into force in 1972), and the Convention on Registration of Objects Launched into Outer Space (entered into force in 1976).[‡] However, Japan has neither signed nor ratified the Moon Agreement (entered into force in 1984). The reason for not doing so is because the government did not find importance in ratifying it when the countries that can carry out activities on the Moon-- the U.S. and the Soviet Union-- have not ratified it.

"Under the current situation, the only countries that can carry out activities on the Moon are the U.S. and the Soviet Union. And since both countries have not ratified this treaty, the treaty itself is yet to have

[‡] Japan ratified the OST when it entered into force. For the other 3 agreements, however, they were collectively ratified in 1983. The reason for such late ratification is because with respect to the Liability Convention, Japan argued that the law of the country where the damage is caused should apply in order to secure payment of liability, and the decision of the Claims Commission should be binding. For the other 2 agreements, the reason was because domestic law was not yet ready to accommodate such treaties. In 1983, Japan ratified these agreements due to the fact that space activities are limited to government related entities, and legislation was sufficient to execute the agreements.

importance, and therefore, it will not be too late to reconsider the treaty when the two countries have ratified it and the treaty gains substantial meaning.” (May 12th 1982 Response from the government at the Upper House Foreign Relations Committee (translated by authors))

Therefore, there is no official interpretation of the Moon Agreement by the Japanese Government.

All major space faring nations, including Japan, are still in the phase of scientific research, which is clearly allowed in the OST (Article 1). There is thus no urgency to agree on rules beyond scientific research for the sharing of natural resources on the Moon. However, since a considerable amount of time is needed for drafting such rules, it is worth considering the rules for governing natural resources now so as to prepare for the time when such rules will become necessary.

Considering the above, the rules governing how natural resources on the Moon should be exploited will be examined below.

III. THE LEGAL REGIME FOR GOVERNING EXPLOITATION OF RESOURCES ON THE MOON

III.I. Prohibition of National Appropriation

III.I.I. Rules on the Outer Space Treaty

Article 2 of the OST defines the legal status of outer space and provides that “[o]uter space, including the Moon and other celestial bodies, is not subject to national appropriation by claim of sovereignty, by means of use or occupation, or by any other means”. That is, by prohibiting national appropriation of the Moon and other celestial bodies, the legal status of outer space including the Moon is established as belonging to everyone (“res communis omnium”), instead of belonging to no one (“res nullius”) where it is free to be appropriated by any legal subject through occupation.⁴

From the point of view of national sovereignty, the phrase "national appropriation" translates into a prohibition of possession, while from the point of view of ownership, it means that no state can gain ownership or other exclusive right by any means in outer space.⁵

However, such prohibition is applied to the possession and ownership of the Moon itself and one can say that there is no consensus in applying this rule with respect to natural resources gained from the exploration of the Moon.

III.I.II. Rules on the Moon Agreement

The Moon Agreement also denies national appropriation by stating that “[t]he Moon is not subject to national appropriation by any claim of sovereignty, by means of use or occupation, or by any other means”, and clearly states that the placement of personnel, space vehicles, equipment, facilities, stations shall not create any right of ownership of the Moon (Article 11 paragraph 3).

However, concerning natural resources, it limits the prohibition to “natural resources in place”, and hence, does not prohibit mining and owning natural resources.⁶ The Moon Agreement intends that the mining and management of natural resources will in the future be undertaken by an international regime pursuant to Article 11, paragraph 7.

III.I.III. Consideration

Therefore, it is clear that under the OST, the Moon belongs to everybody, meaning that no state can own or exclusively use the Moon, or claim sovereignty over it. The Moon Agreement also contains a similar prohibition. Nonetheless, the ownership of minerals mined from the Moon, is not prohibited by either the OST or the Moon Agreement.

From the point of view of the advocates of the Moon Agreement, the notion that the Moon belongs to everyone should evolve from “res communis omnium” to the concept of the “Common Heritage of Mankind”. Such advocates point out that because this notion of “res communis omnium” implies the free usage of common spaces not susceptible to appropriation, and as a result, it leaves an almost exclusive usage to the hands of the more technologically developed countries. Thus, by defining the Moon as CHM, (1) mankind as a whole must be in charge of the usage, conservation and management of the Moon, and (2) the Moon should be regulated as such.⁷

It is true that, if one stands in a position that natural resources gained from the Moon should belong to mankind as a whole, then the idea of common good prohibiting exclusive use is all right for resources that do not decrease or can regenerate (such as the GEO slot where space faring nations could hand over to the new entrants by re-orbiting the satellite after its mission after the end of their mission, or living resources such as fish in the ocean that can regenerate after time). However, the resources expected from the Moon are minerals that do not regenerate, and could be mined by the former user to the very end before a new entrant can start mining it. Hence, defining the Moon as CHM could

be an effective and persuasive argument to protect the new entrants from such risk.

However, to recap what has been agreed upon by the States to date regarding the OST: there is a prohibition on claims of sovereignty and the ownership rights and other rights for exclusive usage, but such prohibition does not as yet extend to the concept of the Moon as CHM. The CHM is an option that the international community can choose to take for the currently evolving space law, and whether space law should head in that direction is a decision that each state needs to decide. In other words, the CHM is not the only solution to the appropriation and sharing of natural resources on the Moon.

Next, we will view the exploitation of natural resources on the Moon from the point of view of "Use of Space".

III.II. The regime for governing natural resources on the Moon

III.II.I. Regulations of the Outer Space Treaty

The OST provides the freedom of use of space (Article 1, paragraph 2). That is, any country, without discrimination of any kind, on a basis of equality, has the right to carry out space activities without permission from another country, and shall not be disturbed in doing so.⁸

Therefore, pursuant to the OST, exploitation of natural resources on the Moon can be carried out without the consent of other countries.

However, this understanding of freedom of use cannot be done in an unlimited manner. It has several limits.

First, the OST, states that space activities "shall be carried out for the benefit and in the interest of all countries", which clarifies that it should not take place in an exclusive manner by a certain nation⁹, and calls this area the "province of mankind" (Article 1, paragraph 1).

Second, freedom of use of outer space may conflict with the idea of non-appropriation discussed above. For instance, if a state goes beyond space "exploration", and starts the "use" of space and occupies a certain area for its use, this occupation may conflict with the prohibition on exclusive use based on non-appropriation. One can say that such conflict should be solved by referring to Article 9 of the OST, which provides that each state "shall be guided by the principle of cooperation and mutual assistance and shall conduct all their activities in outer space, including the Moon and other celestial bodies, with due regard to the corresponding

interests of all other States Parties to the Treaty".¹⁰ When viewed in this way, space faring nations may not occupy a wide range of outer space beyond their needs nor pollute any celestial body, or act in any other way that will interfere with the use of outer space by other countries.

Therefore, the exploitation of natural resources on the Moon is not prohibited by the OST. Moreover, collecting and returning samples for scientific purposes is clearly allowed by the OST, by providing for the freedom of scientific investigations in outer space (Article 1 paragraph 3).

III.II.II. Regime of the Moon Agreement

The Moon Agreement provides that State Parties have "the right to exploration and use of the Moon without discrimination of any kind, on the basis of equality" (Article 11, paragraph 4), and confirms what has been agreed in the OST, and as earlier mentioned, allows the exploitation of natural resources, which is not deemed as being against the non-appropriation rule stated in Article 11 paragraph 3.

Furthermore, the Moon Agreement expressly states (in contrast to the OST) that the Moon and the natural resources on the Moon are the CHM (Article 11, paragraph 1), and an international regime will be built to govern the exploitation of natural resources on the Moon as such exploitation is about to become feasible. The Moon Agreement likewise introduces the main purposes of the international regime, which shall include orderly and safe development, rational management, expansion of opportunities, and equitable sharing of benefits derived from the resources will consider the interests and needs of the developing countries, as well as the efforts of those countries which have contributed to the exploration of the Moon (Article 11, paragraph 7 (d)). Therefore, the exploitation of natural resources on the Moon is allowed only under the governance of the international regime.

In addition, until the commercial development of natural resources becomes feasible, scientific research will take place, and the Moon Agreement allows freedom of scientific investigation by all State Parties without discrimination of any kind, on the basis of equality. This does not conflict with the rules stated in the OST, but regulates the rights and obligations of States carrying out exploration. It gives States the right to collect and remove from the Moon samples of its minerals, and the right of disposal will remain in the State that collected such samples, which may be used for scientific purposes. However, the Moon Agreement also mentions that it is desirable for States to make a portion of such

samples available to other interested States and the international scientific community (Article 6).

III.II.III. Consideration

While the OST states the principle of freedom of use in space, it does not have articles clearly prohibiting the development of natural resources. On the other hand, there is also no provision that clearly mentions the commercial development of natural resources as the Moon Agreement does. Thus, one can appreciate the fact that the Moon Agreement sets out the rules concerning the commercial development of natural resources on the Moon.

However, the CHM concept itself is not clearly defined. The Moon Agreement leaves the content of the international regime to be coordinated between the countries ratifying the Moon Agreement with the premise that it will be based on the concept of CHM, but the concept of CHM itself is yet to be defined.¹¹ Before the space faring nations can come to an agreement, the CHM concept must first be clarified. This is particularly important for countries that have implemented lunar exploitation programs by taking high risks and investing an enormous amount of resources. The predictability of the ratio of the result will be decisively important since Article 11, paragraph 7(d) of the Moon Agreement (i.e., "consider the interests and needs of the developing countries, as well as the efforts of those countries which have contributed to the exploration") is too ambiguous.

Therefore, to further deepen our understanding of the regime based on CHM, in the next section we will examine the regime in the deep seabed (the only other regime employing the CHM concept) located far from the earth's surface, having minerals of interest, and requiring advanced technology and large investment to reach them.[§]

IV. THE REGIME OF THE DEEP SEABED

IV.I. Regime in the UNCLOS

More than a century ago, deep in the seabed further than the depth of 3,500m where continental shelf geographically ends, lumps of manganese formed by expensive minerals were found. The Convention on the Continental Shelf, which entered into force in 1955, defines the continental shelf by exploitability of the

[§] It is important to take note that many advocates of the CHM concept in the Moon Agreement point out that the CHM concept on the Moon is not constrained by the UNCLOS deep seabed regime.

coastal state. After the lumps of manganese became well known in the 1960's, the cautious approach taken by many countries with respect to the division of the seabed by developed countries started debates that led to conclusion of the UNCLOS.

The UNCLOS establishes a regime outside the continental shelf that governs the deep seabed, as follows:

IV.I.I. Principles that govern the deep seabed

- The deep seabed and its resources are the common heritage of mankind (Article 136), and no State shall claim or exercise sovereignty or sovereign rights over any part of the Area or its resources (Article 137, paragraph 1).
- All rights in the resources of the deep seabed are vested in mankind as a whole, on whose behalf the Authority shall act. The minerals recovered from the deep seabed, however, may only be alienated in accordance with the UNCLOS and the rules, regulations and procedures of the Authority (Article 137, paragraph 2), and no State or natural or juridical person shall claim, acquire or exercise rights with respect to the minerals recovered from the Area except in accordance with the UNCLOS (Article 137, paragraph 3).
- Activities in the Area shall be carried out for the benefit of mankind as a whole, taking into particular consideration the interests and needs of developing States, etc., financial and other economic benefits derived from activities in the Area shall be equitably shared, on a non-discriminatory basis. (Article 140)

IV.I.II. Organization for the Deep Seabed

Based on the foregoing principles, the International Seabed Authority (hereinafter referred to as the "ISA") is established to organize and control activities in the Area, particularly with a view to administering the resources of the Area (Articles 156-157).

- The Enterprise shall be established as the organ of the ISA which shall carry out activities in the Area directly, as well as the transporting, processing and marketing of minerals recovered from the Area (Article 170).
- Activities in the Area shall be carried out in a parallel manner, in two areas, one reserved area for direct exploitation by the Enterprise,

and the other non-reserved area of equal value opened for exploitation by States Parties or its nationals in association with the ISA (Article 153, paragraph 2).

IV.I.III A regime that has inhibitory influence to development

As a result of managing an international organization based on the principles mentioned above, there are provisions that slow down development, such as:

- The provision on production ceiling (Article 151) is meant to prevent economic impact to the developing countries exploiting the same mineral on earth with the appearance of minerals from the deep seabed.
- Operating cost of the ISA will be funded by the members of the ISA and the operating and exploitation cost of the Enterprise needs funding (Article 171 (a), Article 160 paragraph 2 (e), ANNEX IV Art.11 paragraph 3). Since these costs are basically pursuant to scale for the UN budget, they increase the cost for exploiting the resources.
- Mandatory transfer of technology for mining that is not available in the open market to the ISA or developing States. (ANNEX III Art.5)

IV.II. Revision made by the Implementing Agreement on the UNCLOS Deep Seabed Provisions

As we have mentioned in the above section, there are provisions in the UNCLOS that slow down the exploitation of the deep seabed. It is mainly because of this that developed States, who have the technology for exploitation and the capability to fund the ISA, did not ratify the UNCLOS, and the regime itself faced a risk of not being feasible. Therefore, by the “Agreement Relating to the Implementation of Part XI of the United Nations Convention on the Law of the Sea of 10 December 1982” (hereinafter referred to as the “*Implementing Agreement*”), UNCLOS Part XI and ANNEX III (Basic Conditions of Prospecting, Exploration And Exploitation), and ANNEX IV (Statute of the Enterprise) have been substantially reviewed.

IV.II.I Removal of production ceiling and limitation to economic assistance

The production ceiling was revised, and it was clearly stated that ISA’s production policy will be based on sound commercial principles (UNCLOS, Article 151, Implementing Agreement ANNEX Section VI, paragraph 1 (hereinafter referred to as

“Sec.VI 1”). A limitation was placed on economic assistance to the developing countries, which suffer serious adverse effects on their export earnings, etc. from a reduction in the price, etc. if such reduction is caused by activities in the Area (Sec.VII 1).

IV.II.II. Management cost reduction

Since it became clear that the commercial development of minerals in the deep seabed will not occur earlier than the beginning of the 21st century, an evolutionary approach was employed and ISA will start from a small organization and be enlarged as the exploitation proceeds. Authority of the Enterprise was to be performed by the ISA Secretariat until it begins to operate independently (Sec. II 2), in order to reduce management costs. (Sec I.2, 3). Also, the obligation of States to fund one mine site of the Enterprise (UNCLOS ANNEX IV article 11 paragraph 3) shall not apply and States shall be under no obligation to finance any of the operations in any mine site of the Enterprise or under its joint-venture arrangements (Sec. II 3).

IV.II.III. Technology Transfer Changed from Mandatory to “Cooperation”

The transfer of technology for mining not available in the open market to the ISA or developing States was changed from “mandatory” to “cooperation”. (UNCLOS ANNEX III Art.5, Sec. V 1)

IV.III. Consideration of the Regime to Govern Natural Resources on the Moon based on the Findings of the International Regime of the Deep Seabed

The above discussion only shows a part of the international regime in the deep seabed, but one can say that the regime based on the concept of CHM, especially before it was revised by the Implementing Agreement, has been one that had an inhibitory effect on development. Thus, when considering whether to employ the CHM concept for the Moon, there is a high risk for countries that explore the Moon to agree to a regime that can become inhibitive to development.

Also, as UNCLOS Part 11, which is based on the concept of CHM, does not involve developed States that have the technology for exploitation and the capability to fund the ISA, and the regime itself faced a risk of not being feasible, the international community made a realistic choice and revised the regime by adopting the Implementing Agreement.

Another thing one that should be pointed out from the deep seabed regime is that the discovery of significant mineral to mine, and the technology that

makes it feasible to do so, enabled substantial negotiations for the Implementing Agreement to be concluded.

Thus, it could be said that, in practice, substantial negotiations will start with respect to the Moon when significant resources are found therein and their development becomes feasible. Since no such important minerals have been found that could produce commercial interests, the time for such negotiations is yet to come. For now, it is the time to consider, with the OST as the starting point, whether the international community should employ the CHM concept or some other principle.

V. Conclusion

All major space faring nations, including Japan, are still in the phase of scientific research, which is clearly allowed in the OST (Article 1). There is thus no urgency to agree on rules beyond scientific research, for the sharing of natural resources on the Moon. However, since a considerable amount of time is needed for drafting such rules, it is worth considering the rules for governing natural resources now so as to prepare for the time when the implementation of such rules becomes feasible.

The OST sets out a non-appropriation principle (Article 2), meaning that the legal status of outer space, including the Moon, is established as belonging to everyone ("res communis omnium"). However, the non-appropriation principle applies only to claims of sovereignty and ownership over the Moon itself. One can say that there is as yet no consensus for the application of this rule to natural resources gained from the Moon. And if one looks at exploitation of natural resources as the "use" of space, the OST states that space activities "shall be carried out for the benefit and in the interest of all countries" and that this area shall be the "province of mankind" (Article 1, paragraph 1), which means that it should not be exclusively undertaken for the sole benefit of certain nations. Furthermore, the OST states the principle of the freedom of use of space (Article 1 paragraph 2). That is, any country has the right to carry out space activities without discrimination of any kind, on a basis of equality, without permission from another country, and shall not be disturbed in doing so. One can say, therefore, that the OST does not prohibit exploitation of natural resources on the Moon by one country or a group of countries.

On the other hand, the Moon Agreement states that the Moon and the natural resources on the Moon are the "Common Heritage of Mankind", and further states that an international regime will be built to govern the

exploitation of natural resources on the Moon as such exploitation is about to become feasible. The Moon Agreement can be considered as evolving from the notion that the Moon belongs to everyone to the CHM concept, with the idea that mankind as a whole must be in charge of the usage, conservation and management of the Moon, that the Moon should be regulated as such, and that the benefits from the Moon should belong to mankind as a whole.

For countries yet to ratify the Moon Agreement, CHM is one option that the international community can choose to take for the currently evolving space law, and whether or not space law should head in that direction is a decision that each state needs to make. In other words, the CHM concept is not the only solution to solve issues on the appropriation and sharing of natural resources on the Moon. Furthermore, the concept of CHM itself is yet to be defined. In practice, in order for a country to accept this concept, predictability of the ratio of the result will be decisively important, and what is stated in the Moon Agreement (i.e., "consider the interests and needs of the developing countries, as well as the efforts of those countries which have contributed to the exploration") is too ambiguous.

When one examines the regime for governing resources based on the CHM concept in the UNCLOS, it can be found that the regime has an inhibitory effect on development, prompting its substantial revision in the Implementing Agreement on the UNCLOS Deep Seabed Provisions. However, unlike the CHM concept in Article 136 of the UNCLOS, the CHM concept within the International Regime on the Moon is not clearly defined, and while the concept is ambiguous, for countries that explore the Moon, there is a high risk that they will agree to a regime that may inhibit development.

At the same time, considering the background of how the revision by the Implementing Agreement was concluded, in practice, substantial negotiations will start when significant resources are recognized and its development becomes feasible. Until such time comes in respect of the Moon, it is now the time to consider in which direction we should head for, whether or not we should adopt a regime based on the concept of CHM. The advocates wanting to lead the international community towards creating a regime based on CHM will need to further persuade other countries that it is the best option. In particular, it is essential to have further clarification of the regime.

On the other hand, those who emphasize the freedom of use of space should respect that Space activities shall be carried out for the benefit of mankind (Article 1), General Assembly resolution 51/122 of 13 December 1996 entitled "Declaration on International Cooperation in the Exploration and Use of Outer Space for the Benefit and in the Interest of All States, Taking

into Particular Account the Needs of Developing Countries”, and that exploration and use of outer space “shall be guided by the principle of cooperation and mutual assistance and shall conduct all their activities in outer space, including the Moon and other celestial bodies, with due regard to the corresponding interests of all other States Parties to the Treaty” (Article 9).

¹ See *Treaty Signatures*, UNOOSA.ORG, <http://www.unoosa.org/oosatdb/showTreatySignatures.do> (last visited Dec. 28, 2010).

² *Id.*

³ Commission for Lunar Exploration, *Lunar Exploration Strategy of Our Country* (July 2010).

⁴ Ministry of Foreign Affairs of Japan, *Outer Space Treaty 15* (July 1967).

⁵ FUMIO IKEDA, *COMMENTARY ON THE OUTER SPACE TREATY* 23 (1967).

⁶ *Outer Space Treaty*, in 1 *COLOGNE COMMENTARY ON SPACE LAW* 59 (Stephan Hobe et al. eds., 2009).

⁷ Juan Manuel de Faraminan Gilbert, *Remarks at the IISL and ECSL Space Law Symposium: The Common Heritage of Mankind Principle: the Moon and Lunar Resources* 7 (2009).

⁸ SOJI YAMAMOTO, *INTERNATIONAL LAW* 482 (new ed. 1994).

⁹ Ministry of Foreign Affairs of Japan, *Outer Space Treaty 28* (July 1967).

¹⁰ *Id.*, at 32.

¹¹ Faraminan Gilbert, *supra* note 7, at 6.