Re-exploring Terra Nullius and Property Rights in Space: Could a Lunar Settlement Claim the Lunar Estate?

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In the modern era, the development in outer space has increased. Human exploration in such a field has raised concern regarding the formulation of a treaty to govern these activities. They claim to own the Moon and other celestial objects have been practiced for over 250 years. This paper begins with a discussion regarding the pursuit of property claims on the Moon, which could impede future activities aimed at benefiting society. Such trends in the purchase of plots on the lunar surface can be advantageous in the near future. In this article, the author analysis whether the claim on lunar real estate is valid? This is done by examining the non-appropriation and sovereignty language in Article II of the 1967 Outer Space Treaty. It is interesting to observe how the silence of law regarding private entities aid them in their struggle for such claims on the purchase of plots on the lunar surface. The paper also analysis the stance of various countries in the realm of International Space Law. Finally, the paper proposes a regime for real property rights in outer space, which requires the creation of land claims recognition legislation that can act to lever the new frontier's opening.

Keywords: UNCOPUOS, outer space treaty, moon treaty, space stations, lunar estate

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Introduction

In the modern era, the development in outer space has increased, the human exploration in the field of outer space, and has raised concern regarding the formulation of a treaty for the purpose of governing these activities. The claim to own Moon and other celestial bodies in outer space has been practiced for over 250 years. Several treaties were introduced by UNCOPUOS (United Nations Committee on the Peaceful Uses of the Outer Space) like the Outer Space Treaty, the Moon Treaty, Rescue Treaty, Liability Treaty, and Registration Treaty

(Tronchetti, 2009). However, the main concern under the Outer Space Treaty was regarding the exercise of sovereign control in outer space. There has been scientific and commercial interest associated with the Moon in this era of modernization. It has become a popular practice among ordinary individuals to purchase pieces on the lunar surface, with vendors arguing that that the lack of specific prohibition of individual private affairs in space makes such action legitimate. Multiple Nations are working towards building outposts and settlements on the Moon, for instance:

a) ESA is working towards building an international village between the year 2020 and 2030 (Williams, 2016);
b) The China National Space Agency (CNSA) is also planning to build such a base (China, 2019).

In addition to this NASA has particularly shown its interest in the advantage of building a lunar base. Such a base can be used for the purpose of gathering and harvesting water from lunar surface material. NASA has also emphasized the point that Moon is rich in its resources. However, the question that may arise from the above discussion is whether a claim on lunar estate legal? Whether the principle of res communis is applicable on the Moon? Whether the principle of terra nullius can be applied on the Moon? Will such a claim on lunar estate benefit society? Can there be the protection of interest over the Lunar Estate? Whether the Outer Space Treaty allows such claims by private entities? The answer to all these questions has been addressed in the succeeding paragraphs.

The principle of terra nullius and its application on the lunar estate

The term "terra nullius" is a Latin term, which means "no man's land," land owned by no one. This principle has a rich and varied history, which has now been settled under the sea's international law and outer space law. Vast parts of the globe were largely unknown to the Europeans from the 15th to 19th century. It was at this time that many countries sent their seamen in order to explore new territories. If they found a place which was inhabited, such seamen would enter into trade prospects in such place, while if a particular place were uninhabited, they would claim it, in the name of their King, Queen, or Emperor. In this way, the explorers planted flags, claimed the lands, mapped such areas, and then returned to report such good news to their Emperor. However, in the territory viewed as "terra nullius," one does not have to respect the inhabitants (Matignon, 2020). They are simply a tourist. They have no more rights to be there than others do. Until 1992, Australia was "terra nullius" or "land belonging to no one." However, in the case of Mabo v. Queensland (No. 2) (1992) HCA 23, the concept of terra nullius was nullified. These laws denied the fact that indigenous peoples had prior occupation and connection to the land. But is there any prior occupation on Moon by anyone? No. Whether this means that the principle of "terra nullius" can be applied on the Moon? In addition, if such an application is made since terra nullius properly refers to Earth, can one refer to it as luna nullius or astra nullius? An application of this principle on the lunar estate brings us to the understanding that, the people who visited Moon went to explore it and be treated as a tourist. If the principle of "terra nullius" is applied, then it means such a property is very valuable and could be claimed as no one has more rights in such land than others do. Since terra nullius properly refers to Earth, one can refer to such a principle towards the Moon as luna nullius or astra nullius and even caelestia nullius.

The principle of res communis and its application on the lunar estate

The principle which is followed in outer space is the concept of res communis and not terra nullius. The principle of res communis implies that the Moon is a common heritage of mankind. The term "res communis" means a common thing. During the 6th century CE, the Roman law was restated by Justinian. According to nature's law, things like air, running water, sea, and its shores are common to mankind. Thus, an explanation of this principle gives us the understanding that the Moon is a common heritage of mankind, and it cannot be used for private or individual purposes. Rather, it must be used for a community as a whole (Matignon, 2020). It is used for a greater purpose and to reach out to large masses. Hence it cannot be a subject of individual ownership or privatization. The doctrine of res communis resounds most prominently when dealing with property ownership rights in outer space. The Outer Space Treaty (1967) forbids the claiming of territory by nations, but the Moon Treaty (1979) attempts to extend that prohibition to private legal entities. Although the United States of America is not a signatory to the Moon Treaty, it has not taken open actions actually to refute its legal viability (Matignon, 2020). The result is that the Moon Treaty and its res communis doctrine has slowly crept into the realm of accepted international law. The principle of res communis is a widely accepted principle under the realm of international law of space. Therefore, it is the principle of res communis, which is applicable in outer space. This principle allows all states to equally explore outer space and does not put any discrimination or special clause for a particular Nation. The discussion above may lead us to a question as to whether there is any possibility of a shift from res communis to terra nullius? However, there is no possibility of such a shift until now. Still, the continuously evolving and developing in the space field and the new fashion for ordinary individuals to "purchase" pieces on the lunar surface may give us an opportunity to re-explore terra nullius. However, instead of such a shift, it is better to treat the Moon as a common heritage because such application could lead to space wars in the near future. It could also cause more exploitation in outer space instead of restoring peace and shall violate the provisions of the Outer Space Treaty.

Protection of "interest" and not "ownership" in lunar estate

The principle of res communis is followed in outer space. This means one cannot claim ownership over it. However, there can be the protection of interest in space. Now the question that may arise is: What are the ways in which interest in space is protected? Some ways in which such interest can be protected are mining license, concessions, prospecting rights, and certain contractual rights. The proposed regime also favours the same concept and asserts upon the fact that instead of providing ownership to individuals, it is the interest that can be granted to the people, which will thereby reduce the possibility of exploitation. (Listner, 2011). As discussed above, Moon is also thought to have major deposits of iron, titanium, and other metals. Under a mining license, the private entities can operate mining activities for a limited period on the Moon. Through concessions, it means the private entities must make the offer so attractive that it makes people invest in such a plot. However, it must not give an ownership right to any person. The third way the interest in space can be protected is the Prospecting rights, which are similar to mining rights where the corporate, or other private entities, or legal entity gives permission to carry on mining activities within a given area. A similar concept can be applied to the lunar estate. There can be the protection of interest in space through contractual rights as well, in which the private entities may enter into contract and benefit

by protecting the interest of individuals in space. Hence, the concept of ownership must not be used for the celestial bodies and Moon in outer space. Alternative ways and methods can help us continue with the development activity and not promote privatization in outer space. However, such rights can only be provided in order to benefit society as a whole. Even if such rights are given to private entities, they must be under the control of an independent body, formed by all Nations' governments, if they agree to it. Through the above discussion, it is clear that there are several ways to protect space interest. However, in order to implement such interest first, we need to understand whether such a claim is legal throughout the Outer Space Treaty? Or, are there any loopholes in the Outer Space Treaty which makes the claim of private entities legal? These questions will be addressed in the succeeding paragraphs.

Property claims on Moon could impede future activities aimed at benefitting society

The Space Settlement Initiative says the act of space settlement will be beneficial for all of humanity, and it shall also open a new frontier, thereby energizing the society. This shall lead to the growth of the human race without negatively impacting Earth and creating a lifeboat for humanity that could survive even a planet-wide catastrophe (Maheshwari, 2015). The pursuit of lunar estate claims over the Moon could impede future development activities and benefit society at large. It is generally asserted that a piece of rock with a lack of oxygen and water can be of no use to private entities. But what if the rock on the Moon, when brought down to Earth, could have a great significant value? Even though picking up rocks is nowhere near profitable enough for an established settlement, the ability to sell legitimate, recognized land, which is the rocks, would produce revenues in the scores of billions of dollars. Those billions of dollars of potential profit could be a powerful incentive to develop space settlements. Mining is the major activity that can be performed on the Moon. With the reduced gravity, launching a heavy load from the Moon requires very minimum energy as compared to Earth. Thus mined materials can be useful for supplying missions to Mars and, in the case of refueling satellites, to extend their operational life spans. Ice is a valuable commodity in space, and the Moon is regarded as a major depositor of irons, titanium, and other metals. Many might argue that such mining activities could affect the Moon. However, according to the NASA scientist's research, mining helium does not cause the Moon to deflate. Nor will mining operations have enough impact to affect the mass of the Moon in any major way, as loss of even 1% of the Moon's total mass will not significantly affect its gravitational pull on Earth's ocean (Maheshwari, 2015).

Claims of property rights in outer space

The claim to own Moon and other celestial objects has been practiced for over 250 years. Few, instances where there has been a claim to own Moon and other celestial objects are:

1. Bagota Declaration (Declaration, 1976)

In the year 1976, there were eight equatorial states which claimed sovereignty over the geosynchronous orbit. The countries claimed that an orbit is also a form of the physical fact that has arisen from nature, its existence depends upon gravity and therefore, it should not be considered a part of outer space. Hence, they claimed that orbit forms an integral part of their territory and could be subjected to their sovereignty.

2. A citizen of the United States, Dennis M. had filed a declaration regarding ownership with the US, UN, and USSR and claimed property rights over the Moon surface. When his claims were not responded to, he assumed that he has the ownership and started a Company called "Lunar Embassy." He claimed such Land on Moon to be his estate on the ground that The Outer Space Treaty only bars Nations from appropriating Moon and other celestial bodies. However, the Treaty does not bars any individual or company. He even went to the extent of selling such 1-acre land for $19 and even Mercury, Venus, and Mars. On payment of such an amount, the buyer used to get a deed, map, and the Constitution and Bill of Rights (formulated by Hope himself). However, it is the principle of res communis which is followed in outer space and not res nullius. Therefore, how can such claims be valid? (Maheshwari, 2015)

3. Nemitz v. the United States, ILDC 1986 US (Nemitz, 2004)

The Appellant claimed that Eros' ownership is based on the ground that he had registered the same on the Archimedes Institute Website and his filling of a California Uniform Commercial Code security interest. He claimed that in it, he named himself as both the creditor as well as a debtor. He asserted that NASA spacecraft had infringed his private property rights, and therefore, he is liable to get compensation for parking and storage fees. He also stated that Eros's initial value is 8 billion dollars and that he is suffering special damage of 5 million dollars. He was also impressed by the fact that the Outer Space Treaty does not apply to an individual. However, the State argues that the Appellant has no proof of using such property or having any property interest, and since there is a lack of interest, it means there is no right. It was held that no person has a natural right over any such property. That is, neither the common law or civil law recognizes such natural rights over property in outer space. It was also held that Article VI of the Outer Space Treaty expressly states that the State is responsible for the acts of its individuals.

4. In India, Sushant Singh Rajput (a Bollywood actor) claimed that he had brought a small piece of land on the far side of the Moon, which is known as Mare Muscovites (Sea of Muscovy). He had brought such land from the International Lunar Lands Registry. (The Indian Express). Similarly, Sharukh Khan owns a part of the Moon, which is gifted by his Australian fan. Every year his fan buys a little piece of Land of the Moon for him and certifies it in his name (Sushant, 2018).

In relation to such claims, the question that arises is that, how can an individual sell land of Moon when he himself has never brought it? How can a person claim ownership of such land when he himself has not brought it? Are such claims valid? Or, is it the loopholes in the Outer Space Treaty which makes the individual take advantage? The answer to this question is that yes, there are certain loopholes in the Outer Space Treaty, and what are those loopholes can be analyzed in the paragraphs below.

Outer space treaty

The Outer Space Treaty**,** formally the Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies (1967), is an international treaty, which binds the parties to use outer space only for peaceful purpose. On October 10, 1967, the Treaty came into effect and became the basis of International Space Law (Maheshwari, 2015). Article II of the Outer Space Treaty clearly states that the Outer Space includes the Moon and other celestial bodies, and these are not subject to national appropriation by any such claim of sovereignty, occupation, or by any

other means. International lawyers have differed in their interpretation of the term "national appropriation." Some interpret Article II of the Outer Space Treaty narrowly; that is, it only deals with prohibiting national appropriation (Grush, 2017).

An Instance which Strengthened the Prohibition Against National Appropriation: There is one instance in which nations have asserted territorial claims in outer space. In the year 1976, there were eight equatorial states, which claimed sovereignty over the geosynchronous orbit. The countries claimed that an orbit is also a form of a physical fact, which has arisen from nature, its existence depends upon gravity, and therefore, it should not be considered as a part of outer space. Hence, they claimed that orbit forms as an integral part of their territory and hence could be subjected to their sovereignty.

Many other International Lawyers interpret Article II more broadly; that is, it prohibits all appropriation forms and not just "national appropriation." However, the interpretation and comparison of Article II of the Outer Space Treaty with other provisions clearly indicates that the narrow interpretation is the correct approach. Under the principle of international law, states are permitted to do what is not forbidden expressly. A restriction on independent States cannot be presumed. The legal doctrine of "expressio unius est exclusion alterius"[1] states that, when a statute is interpreted, it should be presumed that things that are not mentioned have been excluded deliberately. Thus, Article II does not contain any specific language about private individuals' rights in outer space. It only addresses the issue of national ownership. Hence, it has been argued that to determine property rights, one must recognize it based on jurisdiction rather than territorial sovereignty. This can be regarded as one of the loopholes in the Outer Space Treaty. However, it must be noted that many critics have attempted to impose a ban on private property claims in space through Article V, VI, VII, and VIII of the Outer Space Treaty. Article VI and Article VII state that the State is responsible to other State if, for instance, a private rocket launched in one country lands in another country and causes damage. For example, State A has launched a private rocket, and it has landed and caused destruction in State B.Then, in this case, in accordance with the provisions of the Outer Space Treaty, State A will be responsible to State B, for such damages. Article VIII clearly states that the objects launched in outer space by States who are party to this Treaty retain the jurisdiction of such objects in the outer space and even their personnel. If State A sends its rocket into outer space and State A is a party to this Treaty, then State A has the jurisdiction over such a rocket, including the personnel it has sent in the outer space. Article V obliges the States that are party to this Treaty to carry out national activities in conformity with the Outer Space Treaty principles. However, another loophole of this Treaty is that it does not explicitly state that states must not authorize the citizen to do something which it cannot do itself (Grush, 2017).

The question, which arises here, is whether India should recognize a settlement's claims. In such a case, the opinion of the Indian government matters most. If the government decides it would not be an exercise of sovereignty, then it would not be an exercise of sovereignty. India has also ratified the Outer Space Treaty, which means, through a broader interpretation of Article II of the Outer Space Treaty, prohibition on all forms of appropriation, including private and international appropriation. However, in sum, there appears to be no explicit ban on private property claims in the Outer Space Treaty. In addition, there is no explicit ban on Nations recognizing such private property in good faith, and what is not explicitly prohibited in international law is generally permitted. But, as we are aware by the above discussion, the

[1] It is a principle in statutory construction, which states that, when one or more things of a class are expressly mentioned others of the same class are excluded.

principle of res communis, gives us the understanding that such privatization is not possible, as this would harm the community as a whole. So, could a Lunar Settlement Claim the Lunar Real Estate? What we find from our above discussion is that such a settlement must not happen. Moon is common to all mankind. No law permits such claims to be valid. There is a need to ban such practice of buying moon plots.

Moon agreement

The Agreement Governing the Activities of States on the Moon and Other Celestial Bodies was adopted on December 5, 1979. Article I of the Moon Treaty clearly states that the Treaty shall apply to the Moon as well as the celestial bodies, and Article III provides that the Moon can be used by all state parties but for a peaceful purpose. It also seeks international cooperation of all countries for such purposes. It states that Stations can be established on Moon. However, it cannot be claimed by any individual for its private purpose. The Moon Treaty bans ownership of the Moon or any celestial bodies in outer space by an individual under Article XI. It also lays down that all states have the right to exploration in the Moon; however, it must not discriminate against the other states. It also states that the principle followed is res communis, and therefore, Moon cannot be used for private purposes. It is common to all. Although the Treaty came into force in 1984, it was not ratified by influential countries like the USA and USSR. Only 13 UN member countries signed it. Unfortunately, the moon treaty was a failure due to the non-participation of influential countries (Grush, 2017).

The stance of various countries

As discussed above, there are many cases where a citizen's claim to own a plot on the Moon. Many countries such as India, Japan, China, Thailand, Ukraine, USA, UK, and Russia has signed and ratified "The Treaty on Principles Governing the Activities of States in the Exploration and the Use of Outer Space including the Moon and other Celestial Bodies," commonly known as "Outer Space Treaty," which makes it impossible for any person to legally lay claim on a piece of land in space. This means individuals belonging to any of the countries mentioned above do not have the right to claim lunar estate in outer space. It has been observed that these claims have occurred several times in the USA. Individuals of many countries may fall into the trap of owning such land, but such a claim is still not possible. Therefore, there is a need for countries to legislate and collaborate with other governments in order to ban such claims and also resort to the proposed regime. This will help in creating the awareness that Moon is not private property and, therefore, it cannot be claimed by an individual. It can be used for exploration, mining, and settlements but not for private entities. In order to avoid a situation where the emerging trend of claiming land on the Moon is becoming fashionable, it is necessary to legislate such laws, which puts a ban on such claim and clearly states that individual cannot make such claim. This shall avoid confusion among the citizens in the near future and also avoid disputes on such claims.

Proposed regime

Under the proposed regime of real property rights, the concept of "ownership" must be avoided, rather the property rights which can be made available to private entities is to protect their interest in the space, and their claims include the-mining licenses, concessions,

prospecting rights, and certain contractual rights. Therefore, there is a need to create partly land claims recognition legislation on Lunar Estate in terms of mining licenses, concessions, prospecting rights, and certain contractual rights to lever the opening of the new frontier for the private entities. However, there must be only a limited number of Corporation or Entities, each specializing in different competencies (that is, space tourism, space internet, extracting the precious metal, and so on) established by the collision of small private entities, in order to create a large dominant group and avoid much exploitation on the lunar estate.

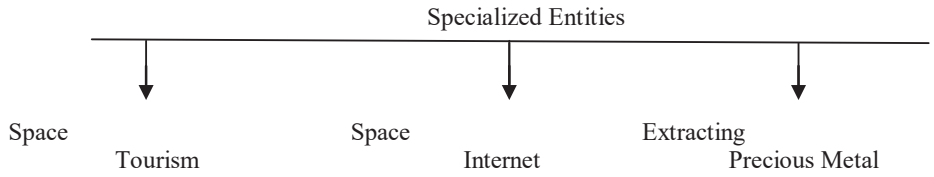

Figure 1.1

Figure 1.1 indicates the ways in which the services can be operated in outer space instead of ownership.

The Corporation must also be provided with property rights, not in terms of ownership, but in terms of mining licences, concessions, prospecting rights, and certain contractual rights. Their interest in space is protected and they can carry out activities legally.

Figure 1.2

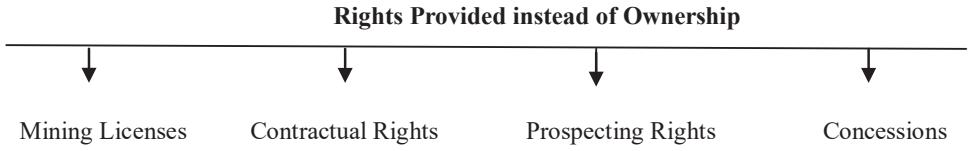

Figure 1.2 provides examples of rights, which can be provided to such entities. It provides for rights which can be provided instead of ownership.

Since such an initiative requires a lot of funding, individuals must not be given the right to own a Moon plot. However, they can visit the space with the help of such Corporations. Since the principle followed in outer space is the concept of res communis, these private entities must be created and funded by individuals, but they must collaborate with the government. In the past two decades, through a combination of technology, policy, and will, governments of more than a dozen countries have successfully transferred many space operations to the private sector, and it has yielded good results. Hence, there is a need to create a treaty that the Nation-State must consent to and be a party and make a collaborative effort to specialize such entities. It must be noted that the proposed regime does not favour private entities as a whole. Instead, it impresses upon the fact that Nations' Collaborative efforts can open future prospects without providing much harm. However, a complete understanding of Nation-states is required for this

purpose. If each state start building their own Corporation, such a proposed regime would be a complete failure. Hence, instead of claiming lands on the lunar estate, such objects in outer space must be utilized for the greater good and for the larger masses. Now, a question can be raised, that not everyone will be able to afford it, then the answer to this question is that, when Nations collaborate together, they must resort to the solution of using such technology which adheres to this question. There must also be guidelines governing such entities to avoid any conflict and establish a Dispute Resolution Body in case of any dispute. Moreover, there is a need for all Nations to come forward and make a ban on such individuals' claims. There must also be legislation banning all such individual's claims on the plot of the Moon. The proposed regime requires a two-tire support system from:

i) private entities and government and
ii) cooperation among governments in order to be implemented effectively;
iii) there should be no discrimination based on the capacity, power, or economy of the State.

Each State must have equal rights in respect of this purpose. Once the requirement is fulfilled, the proposed regime can act to leverage the new frontier's opening.

Conclusion

Throughout the discussion, we find that the land on the Moon can benefit society as a whole. It can also be concluded that the principle followed in outer space is that of res communis, which means it is the common heritage of mankind. Hence, collaboration with private entities is essential for the purpose of capacity building and cost reduction. Most countries like Ukraine, India, the USA, Russia, UK have signed and ratified the "Outer Space Treaty," which makes it impossible for any person to lay claim on a piece of land in space legally. According to this Treaty, outer space, which includes Moon and other celestial bodies, is common to all mankind, and therefore it cannot be owned by any nation. To maintain a balance between the development of the society and Natural resources, as well as to benefit all, one can take resort to the above-proposed regime. This can open a new frontier through private entities and the government's initiatives at the National level and increase the cooperation among governments at the International level. With new affordable spaceflight technologies on the horizon, such activity in space will be a possibility in the near future. Therefore, to conclude, one can use the lunar estate, for the benefit of all, but one cannot sell a plot of Moon, of which he himself is not the owner, and any such person claiming such land on the basis of a document is unforce able. Moreover, a settlement is a better option than just claiming a random land on the lunar surface.

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