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OUTER SPACE AND COMMERCIALISATION: A LEGAL PERSPECTIVE

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The development of space law was started during the Space Race, in 1957. The United States, USSR and other nations wanted to establish a system to allow outer space to be used only for peaceful means. As a result, in 1959, the Committee on the Peaceful Uses of Outer Space (COPUOS) was established by the UN. Following this, they created 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 (also known as the Outer Space Treaty, 1967) and four other treaties that became the «five United Nations treaties on outer space». Article II of the Outer Space Treaty claiming that «outer space is not subject to national appropriation by claim of sovereignty», as outer space is *res communis*, a «province of all mankind».

Despite this, there is developing concerns of outer space being commercialised in the future for economic gain and the issues following this. The Commercial Space Launch Competitiveness Act of 2015 by the US and the Law on the Exploration and Use of Space Resources of 2017 by Luxemburg both contradict the belief that outer space should not be privately exploited or owned, rather it should be shared by mankind. This United States law explicitly allows American industries to «engage in the commercial exploration and exploitation of space resources», yet arguing they are «the United States does not [by this Act] assert sovereignty, or sovereign or exclusive rights or jurisdiction over, or the ownership of, any celestial body». Whereas the Luxemburg legislation asserts that «space resources are capable of being appropriated». The growing concern from developing countries of developed countries owning and exploiting outer space has only been validated by these pieces of legislation.

Clearly, despite both countries signing the Outer Space Treaty, the ownership and private exploitation of outer space can still occur. This article analyses and explores the potential of future commercialisation of outer space, through the context of space law and legislation of States. The conflict between the desire for private expansion and international consensus shall also be explored.

With the Outer Space Treaty allowing States to «use» outer space freely, this makes outer space vulnerable to exploitation, as a result of future commercialisation for the benefit of investors and the State. Billionaires desire to own and colonise Mars, make money from space tourism and to create human settlements on the Moon. Since the Earth only has limited resources, with some rapidly depleting, the push to take and use resources from outer space for «the betterment of mankind», has only been encouraged. The likelihood of outer space being owned and privately exploited for its resources by the leading space-faring nations is quickly growing, with little regulation to prevent the consequences of the establishment of outer space.

Due to the Outer Space Treaty, outer space is classified as *res communis* and the United States and Luxemburg laws only give citizens ownership of «space resources». The Moon Agreement asserts that the Moon is «common heritage of mankind», however the lack of signatures from leading space nations (such as the United States), only makes this agreement applicable to 11 States. Nonetheless, it would not be possible for a private body own the Moon or Mars, as they are shared and owned by mankind.

Arguably, the ownership of outer space is inevitable. As exemplified by Luxemburg's legislation, investors are incentivised by the prospect of having ownership, despite the Outer Space Treaty. If this is the case, how will legal jurisdiction be decided? There is no international law that answers this, leaving it to speculation. The Outer Space states that «States Parties to the Treaty shall bear international responsibility for national activities in outer space… whether such activities are carried on by governmental agencies or by non-governmental entities», so we could infer that whatever State the private entity is in, that State has jurisdiction. This would be following the International Space Station Intergovernmental Agreement that «each partner shall retain jurisdiction and control over the elements it registers and over personnel in or on the Space Station who are its nationals», which would make it easier to decide what State has jurisdiction, as this agreement has been into force since 1998. Hence, any legal dilemma would be resolved using the laws of whichever State owns the place in which the incident occurred.

The establishment of the mining industry in outer space- the mining of asteroids and outer space resources is one of the leading concerns. Instead of using the Earth's finite resources, resources such as minerals, precious metals and even ice may be collected from outer space. With the Russian and European Space Agency collaborating to mine ice on the moon and the United States Geological Survey also having an interest in mining, States and companies are all wanting a share of the potential billions or trillion dollars' worth of resources available from asteroid mining. Helium-3 is much more abundant on the Moon, if mined, it could be used for safer nuclear energy: resulting in no dangerous waste and no radioactive material. The benefit of getting resources that are finite on Earth for our anthropocentric needs is arguably, worth the minimal damage to the unique ecosystem of space, as the ends justify the means.

By eventually recognising ownership in outer space, despite the Outer Space Treaty, it will encourage financial investment from States and private bodies. Issues such as jurisdiction can be resolved by following the current principles the International Space Station has. Environmental issues have been addressed by encouraging minimal damage to outer space, to preserve the unique ecosystem and potential life. Akin to mining and fishery in seas and oceans, States and private bodies should be able to get resources without claiming ownership of outer space for the benefit of mankind. However, the possibility of leading space-faring nations creating a monopoly and solely benefitting from such resources is increasingly likely, as the opportunity for economic gain cannot be ignored.

Without the future commercialisation of outer space, we will rapidly run out of resources on Earth, lose support from private bodies to enhance our understanding of outer space and lose potentially trillions of potential incomes from the outer space industry.

Therefore, with the rapidly advancing technology that brings future commercialisation of outer space ever so closer, it would be ideal to update the current laws and treaties. By establishing new laws and regulations to include new technology and beliefs: such as the small satellites and the ownership of outer space, international space law will have the modern clarity it currently lacks. The protection of the ecosystem and anti-exploitation laws could also be introduced, to adapt to the modern beliefs regarding the use of outer space. Future commercialisation of outer space is inevitable, but with an update to the legal perspective of international space law, outer space can truly be used for the benefit and interest of all States.