Towards a Coherent Space Mining Regulatory Paradigm: contextualizing recent US and Luxembourg Legislations and International Law

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Abstract

With rapid developments in space technology and the abundance of space resources, a few States have introduced domestic laws that legitimize commercial exploitation of space resources within their jurisdiction. They do so by creating property rights on such resources for their citizens and companies incorporated in their jurisdictions. This paper primarily focuses on the comparative analysis of the United States and Luxembourg legislation on space resource utilization. Even though similar in aspiration and objectives, they differ in form and content. Further, it analyses whether the creation of property rights on space resources is compatible with the international obligations of the US and Luxembourg as stipulated in the 1967 Outer Space Treaty. Finally, it looks at the need for an international framework to support claims of property arising from such domestic validations.

1. Introduction

"Outer space is a legally and physically unique domain of human activity, and the United States does not view it as a global commons. Accordingly, it shall be the policy of the United States to encourage international support for the public and private recovery and use of resources in outer space, consistent with applicable law."

- Donald J. Trump, *in* the Executive Order on Encouraging International Support for the Recovery and Use of Space Resources, April 6, 2020[1]

"Attempts to expropriate outer space and aggressive plans to actually seize territories of other planets hardly set the countries (on course for) fruitful cooperation"

- Sergey Saveliev, Deputy Director General, Roscosmos, in response to the US Executive Order, April 7, 2020[2]

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1 Executive Order on Encouraging International Support for the Recovery and Use of Space Resources, April 6, 2020, online: <https://www.whitehouse.gov/ presidential-actions/executive-order-encouraging-international-support-recovery-use-space-resources/>

2 "Plans to seize other planets' territories damage cooperation", Roscosmos News, online: < http://en.roscosmos.ru/21369/>

This recent declaration by the US President and the immediate reaction from Russia is a clear evidence of the tension between two camps of thought among the international community on space mining—that it is legal to engage in commercial exploitation of space resources under the present international legal regime, and that applicable space law, as it is, does not permit such activities. In the past ten years or so, outer space has become the focus of private enterprises planning exploration and excavation of its precious natural resources. Pioneering ventures such as Planetary Resources[3] and Deep Space Industries[4] is at the helm of these activities.

These projects are not primarily concerned with minerals that could be used on Earth, but instead seek to exploit matter that can be further processed in outer space for the purposes of promoting scientific exploration, servicing space objects, enhancing living conditions in outerspace, or creating new space structures. The implementation of these projects requires further thorough scientific research, accompanied by the detailed imagery of potential mining sites, as well as the development of mining technologies that are capable of working in zero-gravity. The progress in technologies which allows for landing on asteroids or comets, to mention the ESA's project Rosetta[5] and Japan's Hayabusa missions[6] as examples, has shown that these plans are not science-fiction. The appearance of many start-ups in this area signals that this sphere can also offer a viable commercial model. While it is clear that time is needed to overcome numerous technical problems before the first mineral is commercially excavated in outer space, the output of the research and of the development of accompanying technologies can be offered much earlier.

In consonance with this trend, countries across the globe have drawn out plans to explore the prospects of space mining. For instance, there are reports stating that China is planning to exploit resources like titanium, helium-3 and water from the far side of the Moon.[7] Its Chang'e lunar exploration program is an on-going robotic mission to the Moon based on the White Papers on China's Space Activities led by the China National Space Administration. There is also information available that

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3 "AKRYD Astronautics Opens Its Doors" (January 3, 2011), online: <https://www.planetaryresources.com/2011/01/planetary-resources-opens-doors/>

4 Rod Pyle, "Deep Space Industries: A New Asteroid-Mining Company Is Born", January 28, 2013, onine: <>https://www.space.com/19462-asteroid-mining-deep-space-industries-birth.html>)

5 "ESA: Europe's Comet Chaser" (1 December 2017), online:<http://www.esa.int/Our_Activities/Space_Science/Rosetta/Europe_s_comet_chaser.

6 <http://www.isas.jaxa.jp/en/missions/spacecraft/current/hayabusa2.html>

7 Namrata Goswami, "China's Unique Space Ambitions", *The Diplomat* (3 August 2016),online:<https://thediplomat.com/2016/08/chinas-unique-spaceambitions/>