

# The Non-Appropriation Principle and *Corpus Juris Spatialis*

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## I . Introduction

On October 4, 1957, the Soviet Union shocked the world when it launched the tiny, yet infamous beeping probe named Sputnik I. That seemingly harmless, beachball sized artificial satellite set off what would become a great race to conquer outer space between the East and West. The governance of space is intrinsically an international and complex legal affair. In 1959, as tensions between the Soviet Union and the U.S. were beginning to boil, the United Nations General Assembly acted to create the Committee on Peaceful Uses of Outer Space(*hereinafter* COPUOS).<sup>1)</sup> The stated mission of COPUOS is to “govern the exploration and use of space for the benefit of all humanity: for peace, security, and development.” These certainly lofty goals enabled COPUOS to establish five international treaties(the 1967 Outer Space Treaty<sup>2)</sup>, the 1968 Rescue Agreement<sup>3)</sup>, the 1972 Liability Convention<sup>4)</sup>, the 1975 Registration Convention<sup>5)</sup> and the 1979 Moon Agreement<sup>6)</sup>) and principles<sup>7)</sup>; moreover,

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- 1) Mitchell Powell, Understanding the Promises and Pitfalls of Outer Space Mining and the Need for an International Regulatory Body to Govern the Extraction of Space-Based Resources, XIX Journal of Technology Law & Policy, 2018-2019, p. 2.
  - 2) *Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies* (General Assembly resolution 2222 (XXI), annex). done 27 January 1967, entered into force 10 October 1967; 610 UNTS 205; TIAS 6347; 18 UST 2410; UKTS 1968. No. 10; Cmnd. 3198; ATS 1967 No. 24; 6 ILM 386 (1967).
  - 3) *Agreement on the Rescue of Astronauts, the Return of Astronauts and the Return of Objects Launched into Outer Space* (GA Resolution 2345 (XXII), annex)—done 22 April 1968, 19 UST 7570; 672 UNTS 119.
  - 4) *Convention on International Liability for Damage Caused by Space Objects* (GA Resolution 2777 (XXVI), annex)—done 29 March 1972, entered into force 1 September 1972; 961 UNTS 187; TIAS 7762; 24 UST 2389; UKTS 1974 No. 16; Crnd. 5068; ATS 1975 No. 5; 10 ILM 965 (1971).
  - 5) *Convention on Registration of Objects Launched into Outer Space* (GA Resolution 3235 (XXIX), annex)—done 14 January 1975, entered into force 15 September 1976; 1023 UNTS 15; TIAS 8480; 28 UST 695; UKTS 1978 No. 70; Cmnd. 6256; ATS 1986 No. 5; 14 ILM 43 (1975).
  - 6) *Agreement on the Activities of States on the Moon and Other Celestial Bodies* (GA

COPUOS has grown to become one of the largest Committees within the entire United Nations body, currently boasting 95 member-states. The seminal work of COPUOS, adopted in 1963, was the Declaration of Legal Principles Governing the Activities of States in the Exploration and Use of Outer Space (*hereinafter* Space Law Declaration).<sup>8)</sup> This declaration would lay the groundwork for what would become the preeminent international treaty governing outer space, what has now colloquially become known as the “Outer Space Treaty” (*hereinafter* OST).<sup>9)</sup> The OST, regarded as the *Magna Carta* of the *Corpus Juris Spatialis* (Space Law), specifies the “non-appropriation principle” in space as including the moon and other celestial bodies in Article 2 as follows:

“Outer 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.”

The “non-appropriation principle” means that, at a minimum, nations cannot claim sovereignty over the moon and celestial bodies. More controversially, some scholars suggest that the non-appropriation principle calls into doubt whether nations or businesses can ‘own’ what they extract from asteroids or other space bodies.<sup>10)</sup>

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Resolution 34/681), 5 December, 1979, done 5 December 1979, entered into force on July 11, 1984; 1363 UNTS. 3; 18 ILM 1434 (1979).

- 7) 1. *Principles Governing the Use by States of Artificial Earth Satellites for International Direct Television Broadcasting*, adopted on 10 December 1982 (Resolution 37/92)
2. *Principles Relating to Remote Sensing of the Earth from Outer Space*, adopted on 3 December 1986 (Resolution 41/65)
3. *Principles Relevant to the Use of Nuclear Power Sources in Outer Space*, adopted on 14 December 1992 (Resolution 47/68)
4. *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*, adopted on 13 December 1996 (Resolution 51/122).

8) UNGA Res. 1962(XVIII), 13 December 1963.

9) Powell, *op. cit.*, p. 8.

On July 20, 2017, Luxemburg's congress established the "Law on the Exploration and Use of Space Resources" (*hereinafter* Luxemburg Space Resources Law of 2017)<sup>11)</sup> modelled after the U.S. "Commercial Space Launch Competitiveness Act" (*hereinafter* CSLCA) of 2015, which allows private space exploitation companies to own and sell resources gathered in outer space, including the moon and asteroids. According to the Economy Ministry of Luxemburg, like the CSLCA, its legislation will guarantee the right to resources harvested in outer space in accordance with international law. However, it will apply not only to local companies but also to foreign corporations operating within its borders, a feature that led Deep Space Industries and Planetary Resources to establish legal entities in Luxembourg. Its definition of space resources is similar to that in the U.S. legislation.<sup>12)</sup> Luxemburg became the first European country to guarantee the private business operators' right to collect space resources. The question arises whether these national space laws violate the non-appropriation principle of the OST.

This article analyzes the relationship between the non-appropriation principle and *Corpus Juris Spatialis* for the activities of outer space by the states. The article seeks to prove that the non-appropriation principle is, as a restriction on sovereign claims to land, no obstacle to outer space resource extraction.

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10) John G. Wrench, Non-Appropriation, No Problem: The Outer Space Treaty Is Ready for Asteroid Mining, 51 *Case Western Reserve Journal of International Law*, 2019, p. 439.

11) Loi du 20 juillet 2017 sur l'exploration et l'utilisation des ressources de l'espace available at <http://legilux.public.lu/eli/etat/leg/loi/2017/07/20/a674/jo> (last visited Feb. 3, 2020).

12) Jinyuan Su, Legality of Unilateral Exploration of Space Resources under International Law, 66 *International and Comparative Law Quarterly*, 2017, p. 992.

## II . The Non-Appropriation Principle and *Corpus Juris Spatialis*

### 1. 1967 Outer Space Treaty

Article I of the OST establishes that all nations are equally free to explore and use outer space, including the moon and other celestial bodies, and that such exploration and use shall be conducted to benefit all countries, and the province of all mankind. Professor Carl Q. Christol(1913-2012) stated that the word ‘use’ has been interpreted to mean ‘exploitation’ on a non-exclusive basis. Thus, all countries have an equal right to exploit the resources of space, subject to other provisions of the treaty.<sup>13)</sup>

Professor Bin Cheng(1921-2019) stated that outer space is understood as *res extra commercium* meaning “an object outside commerce” just as the high seas and celestial bodies are *res nullius*(meaning “nobody's thing”) or *terra nullius*(meaning “land that is legally deemed to be unoccupied or uninhabited”) to be acquired by means of *occupatio* meaning occupation in a legally effective control like the New World discovered by Christopher Columbus on a first-come, first-served basis.<sup>14)</sup> The Space Law Declaration of 1963 consists of nine principles and states that all space exploration should be done with good intentions and equally open to all states in accordance with international law. No nation may claim ownership of outer space or any celestial body. Space activities should be carried out under international law and the nations undergoing these activities must assume responsibility for the governmental or non-governmental agencies involved. Objects launched into space are subject to their national jurisdiction. Objects, parts, and components discovered outside national

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13) Carl Q. Christol, *The Modern International Law of Outer Space*. Pergamon Press, 1982. pp. 39-42; James J. Trimble, International Law of Outer Space and its Effect on Commercial Space Activity, 11 *Pepperdine Law Review*, 1984, pp. 529-530.

14) Bin Cheng, The 1967 Space Treaty, *Journal du Droit International*, 1968, p. 564.

jurisdiction will be returned upon identification. Since the contents in the Space Law Declaration have been wholly reflected in international space treaties and no states have objected to those principles, in this regard this declaration is said to be incorporated into customary international law binding all nations on the globe.<sup>15)</sup> The OST repeatedly uses the expression, ‘outer space, including the moon and celestial bodies’. In general, for the purpose of the OST, ‘outer space’ includes ‘celestial bodies’, and ‘celestial bodies’ include ‘the moon’.<sup>16)</sup> The term ‘asteroid’ is generally used to indicate a diverse group of small celestial bodies that drift in the solar system in orbit around the Sun. The vast majority of asteroids are found within the main asteroid belt, with elliptical orbits between those of Mars and Jupiter.<sup>17)</sup>

As far as the moon and other celestial bodies are concerned Article 2 of the OST converted their legal status from *res nullius* to *res extra commercium*.<sup>18)</sup> *Res extra commercium* is similar to the high seas in international law, so each state cannot exclusively own high seas, but can freely use the resources of the same region.<sup>19)</sup> Likewise, space is a place that is not subordinated or incorporated by a state, exists beyond state territory and may be explored by all states, analogous to the high seas, where fishing vessels from each country catch and sell fish without occupying the sea.<sup>20)</sup> Professor Frans von der Dunk also states that the high seas are considered global commons as much as outer space,

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15) Han Taek Kim, International Law on the Natural Resources Exploitation of the Ocean and Outer Space(*hereinafter* Natural Resources Exploitation), 3 *The Korean Journal of the Law of the Sea*, 2018, pp. 4-5.

16) Bin Cheng, *Studies in International Space Law*, Clarendon Press·Oxford, 1997, p. 527.

17) See Asteroid, Science Daily *available at* <https://www.sciencedaily.com/terms/asteroid.htm>(last visited Feb. 3, 2020).

18) Sylvia Maureen Williams, Celestial Bodies, 11 *Encyclopedia of Public International Law*, 1989, p. 52.

19) Han Taek Kim, Principles of Space Resources Exploitation under International Law(*in Korean*), 33 *The Korean Journal of Air & Space Law and Policy*, 2018, p. 41.

20) Han Taek Kim, Fundamental Principles of Space Resources Exploitation: A Recent Exploitation of International and Municipal Law(*hereinafter* Fundamental Principles), 11 *Journal of East Asia and International Law*, Spring 2018, pp. 39-40.

meaning that appropriation of part of the high seas as exclusively national territory is prohibited.<sup>21)</sup> At the same time, the right to fish, one of the fundamental freedoms of the high seas,<sup>22)</sup> means that in spite of such non-appropriation of the high seas themselves, the fish caught there would legitimately belong to whoever caught it—provided the person complied with international laws regarding, for instance, overfishing or pollution.<sup>23)</sup> Consequently, individual states would be entitled to unilaterally license fishing companies to fish on the high seas, as long as the companies act in a lawful manner.<sup>24)</sup> *Res extra commercium* is referred to as *res communis omnium* meaning “a thing of the (entire) community”.<sup>25)</sup>

Professor Bin Cheng said that Article 2 of the OST has turned the whole of outer space, including the moon and other celestial bodies, into *res extra commercium*. Insofar as outer space *sensu stricto* (meaning ‘strictly speaking’) is concerned, Article 2 has merely confirmed the legal status under general international law. As regards the moon and other celestial bodies, Article 2 has the effect, as among the contracting states, of transforming them from *res nullius* (their status under general international law) to *res extra commercium*.<sup>26)</sup> However, the non-appropriation principle applied to outer space and celestial bodies might have been considered not only a legal norms of international treaty law but also a part of customary international law binding upon all states.<sup>27)</sup> In

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21) The United Nations Convention on the Law of the Sea (*hereinafter* UNCLOS), done 10 December 1982, entered into force 16 November 1994; 1833 UNTS 397, 21 ILM 1261, art. 89.

22) UNCLOS, art. 87(1)(e).

23) UNCLOS, art. 87(2).

24) Frans von der Dunk, Asteroid Mining: International and National Legal Aspects, 26 *Michigan State International Law Review*, 2017, p. 93.

25) Fabio Tronchetti, A legal regime to govern the exploitation of the natural resources of the Moon and other celestial bodies, 23 *The Korean Journal of Air and Space Law*, 2008, p. 140.

26) Bin Cheng, *Studies in International Space Law*, *op. cit.*, p. 400.

27) Ricky J. Lee, Article II of the Outer Space Treaty: Prohibition of State Sovereignty, Private Property Rights, or Both?, 11 *Australian Journal of International Law*, 2004, p. 141.

other words, as the non-appropriation principle has been accepted as general international law through its implementation over the last 50-year,<sup>28)</sup> it may be considered international customary law that binds all states even developing into *jus cogens* meaning peremptory norm in international law.<sup>29)</sup>

In this regard this author believes that Article 2 has the effect, among the contracting and even non-contracting states, of transforming the legal status of the moon and other celestial bodies from *res nullius* to *res extra commercium*. So, no country can insist that outer space including the moon and other celestial bodies is subject to national appropriation by any claim of sovereignty, use, occupation or by any other means.

Professor Francis Lyall and Professor Paul Larsen have insisted that Article 2 of the OST only bars claims of ‘celestial bodies’, but not extracted materials. The term ‘celestial bodies’ has never been fully defined in space law, but applies to planets, moons, and asteroids.<sup>30)</sup> What the OST does not rule out is the availability of limited property ownership in extracted minerals.<sup>31)</sup> The U.S. CSLCA of 2015 defines an ‘asteroid resource’ as ‘a space resource found on or within a single asteroid’.<sup>32)</sup> A ‘space resource’ is further defined as ‘an abiotic resource in situ (meaning ‘in position’) outer space’, including ‘water and minerals’.<sup>33)</sup> The International Astronomical Union (IAU), in a resolution adopted in 2006, divides natural bodies in the Solar System<sup>34)</sup> into planets, dwarf planets,

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28) Leslie Tennen, *Enterprise Rights and the Legal regime for Exploitation of Outer Space Resources*, 47 *The University of the Pacific Law Review*, 2015. p. 284.

29) Ram Jakhu, Legal Issues Relating to the Global Public Interest in Outer Space, 32 *Journal of Space Law*, 2006, p. 44-48; Han Taek Kim, *Fundamental Principles*, *op. cit.*, p. 42.

30) Francis Lyall & Paul Larsen, *Space Law: A Treatise*, Ashgate, 2009, p. 175.

31) Kevin MacWhorter, Sustainable Mining: Incentivizing Asteroid Mining, 40 *William & Mary Environmental Law and Policy Review*, 2016, p. 661.

32) U.S. Commercial Space Launch Competitiveness Act, section 51301.

33) *Ibid.* Luxembourg takes a similar view. See Luxembourg Draft Law on the Exploration and Use of Space Resources, with Commentary (n 12) 1.

34) The solar system means the system composed of the sun formed by gravitational collapse of molecular cloud about 4.6 billion years ago, surrounding celestial bodies attracted to the gravity of the sun, the star. The planets making a revolution focused



and small Solar System bodies, which include asteroids, most trans-Neptunian objects, comets, and other small bodies.<sup>35)</sup> However this definition is not legally binding.<sup>36)</sup>

Even if nations, businesses, and individuals are equally bound by the non-appropriation principle, the scope of that restriction is not entirely clear from the text of Article 2 of the OST. While the OST explicitly prohibits the ownership of real property, it does not mention or define “extracted materials” and does not rule such ownership out.<sup>37)</sup> It is unlikely, however, that the non-appropriation principle is an absolute ban on the ownership of resources extracted in outer space. An interpretation of Article 2 supporting a blanket ban on resource ownership is unwarranted by the text of the OST and ill-founded on account of the international community’s common practices.<sup>38)</sup> As such, resources found in outer space could be subject to appropriation by individuals or corporations.

In reality, non-government actors in space are not independent from their governments. Along this line, Article 6 of the OST attempts to curtail non-governmental entities by requiring “authorization and continuing supervision” of that State’s entities. Article 6 of the OST makes it extremely clear that treaty states maintain international responsibility over national activities in space. This responsibility covers both government and non-government actors. Not only are states responsible for the activities they, or their citizens, carry out in space, the OST requires states to authorize and continuously supervise their national

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on the sub are known as four solid planets existing inside based on the asteroid zone, that is, Mercury, Venus, Earth, Mars, namely, terrestrial planets and four liquid planets outside, Jupiter, Saturn, Uranus and Neptune, namely, Jovian planets; available at <http://solarviews.com/eng/solarsys.htm>(last visited on Feb. 3, 2020)

35) IAU Resolution B5, Definition of a Planet in the Solar System *available at* [http://www.iau.org/static/resolutions/Resolution\\_GA26-5-6.pdf](http://www.iau.org/static/resolutions/Resolution_GA26-5-6.pdf)(last visited on Feb. 3, 2020) at fn 3.

36) Su, *op. cit.*, p. 997.

37) MacWhorter, *op. cit.*, pp. 645, 661.

38) Wrench, *op. cit.*, p. 447.

activities conducted in space.<sup>39)</sup> In relation to ‘national’ appropriation a question may be raised whether political subdivisions of a state, such as the states of a federal state, cities or municipalities may appropriate? Under a strict interpretation, the answer to this question would likely be in the negative even though an occasional court decision in other areas of the law may support an affirmative position.<sup>40)</sup>

## 2. 1979 Moon Agreement

Article 11 (2) of the Moon Agreement(*hereinafter* MA), like Article 2 of the OST, repeatedly sets forth the non-appropriation principle that the moon cannot be the subject of state appropriation. Article 11 clarified that the moon and other celestial bodies in the solar system except for the Earth and their natural resources are the Common Heritage of Mankind(*hereinafter* CHM), which is significant in that this is a treaty of the CHM, a new area first introduced in international law. In connection with the international regime, the MA stipulated its purposes in Article 11(7). Likewise, it is provided that an international regime is to be established at the time as such exploitation is about to become feasible in Article 11(5) of MA. When compared to the declaration of the exploration and exploitation of sea-bed resources in the UN General Assembly Resolution 2574 of December 18, 1967,<sup>41)</sup> is the MA a moratorium on the exploitation of the natural resources on the moon until such international regime is adopted?

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39) Andrew Lintner, Extraterrestrial Extraction: The International Implications of the Space Resource Exploration and Utilization Act of 2015, 40 *Fletcher Forum of World Affairs*, 2016, pp. 146-147.

40) See *Sullivan v. Sao Paulo*, 36 F. Supp. 503 (E.D.N.Y.), *aff'd*, 122 F.2d 355 (2d Cir.1941); Stephen Gorove, Interpreting Article II of the Outer Space Treaty, 37 *Fordam Law Review*, 1969, p. 352.

41) UNGA Res. 2574 (XXIV) of December 18 1967: Question of the reservation exclusively for peaceful purposes of the sea-bed and the ocean floor, and the subsoil thereof, underlying the high seas beyond the limits of present national jurisdiction, and the use of their resources in the interests of mankind.

Considering the MA's legislative development, it might rightly be interpreted that a moratorium on the natural resources of the moon and the other celestial bodies was not required before the establishment of an international regime.<sup>42)</sup>

However space-faring states such as the U.S. and Russia make two major arguments against the MA. First, these states claim that the language places "a moratorium on the commercial exploitation of resources until the international regime is established" and no regime has yet been established. Second, they allege that, once the regime is established, it will be "unsympathetic to free enterprise",<sup>43)</sup> because the benefits will have to be divided equally among all states, regardless of their economic contribution.<sup>44)</sup> In 2008, the 'Joint Statement' in COPUOS Legal Subcommittee by the states parties, trying to convince members of the treaty ratification, highlighted its advantages.<sup>45)</sup> However, as of February 2020, only 18 states are parties to the MA whereas 109 states are parties to the OST including space-faring states.

For the past 40 years, American Dennis Hope has been selling parts of the Moon. Hope and his company—the Lunar Embassy Corporation—offers people an acre of terra luna (meaning 'the moon'). The Lunar Embassy Corporation has sold more than 611 million acres of land on the moon as well as properties on

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42) Sylvia Maureen Williams. *op. cit.*, p. 53; Eilene Galloway, Agreement Governing the Activities of States on the Moon and Other Celestial Bodies, 5 *Annals of Air and Space Law*, 1980, p. 500; Han Taek Kim, Natural Resources Exploitation, *op. cit.*, pp. 10-11.

43) Trimble, *op. cit.*, p. 549.

44) Brandon C. Gruner, Comment, A New Hope for International Space Law: Incorporating Nineteenth Century First Possession Principles into the 1967 Space Treaty for the Colonization of Outer Space in the Twenty-First Century, 35, *The Seton Hall Law Review*, 2011, pp. 328 - 329; Benjamin David Landry, A Tragedy of the Anticommons: The Economic Inefficiencies of Space Law, 38 *Brooklyn Journal of International Law*, 2015, p. 529.

45) René Lefeber, Relaunching the Moon Agreement, 41 *Air and Space Law*, 2016, pp. 42-44; Virginie Blanchette-Seguin, *Reaching for the Moon: Mining in Outer Space*, 49 *New York University Journal of International Law & Politics*, 2017, p. 963; Tanja Masson Zwaan, Current Issues & Prospects of International Space Law, 25 *The Korean Journal of Air & Space Law*, 2010, p. 248

Mars, Venus, Mercury and IO(Jupiter's fifth moon).<sup>46)</sup> Ram Jakhu stated that Hope's claims were not likely to hold much weight. nor, for that matter, would any nation's. "I don't see a loophole. The moon is a common property of the international community, so individuals and states cannot own it. That's very clear in the U.N. treaty. Individuals' rights cannot prevail over the rights and obligations of a state."<sup>47)</sup> Professor Frans von der Dunk told The New York Times that "Dennis Hope's ownership" is "either a hollow claim or a fraud."<sup>48)</sup>

### III. U.S. CSLCA of 2015 and Luxemburg Space Resources Law of 2017

Article 1 of the Luxemburg Space Resources Law of 2017 states that space resources are capable of being appropriated. The reasoning behind the legislation is made by analogy with the rules governing the high seas since people can exploit the resources of the sea without appropriating the area in international law. It also dictates the approval and supervision procedures for space exploration duty.<sup>49)</sup>

The U.S. CSLCA of 2015 fosters the space mining industry through the creation of private property rights in relation to the extraction of certain space

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46) See Simon Ennis, The Man Who Sells the Moon, *The New York Times*, March 10, 2013.

47) Stephen Ornes, The Man Who Sells the Moon-Dennis Hope has made \$9 million selling space "property.", *Discover*, June 14, 2007. available at <https://www.discovermagazine.com/the-sciences/the-man-who-sells-the-moon>(last visited on Feb. 3, 2020).

48) M. Kelley, The Man Who 'Owns' The Moon Has Made Serious Bank, *Business Insider*, Mar. 26, 2013.

49) Luxembourg's new space law guarantees private companies the right to resources harvested in outer space in accordance with international law See Law on the Exploration and Use of Space Resources (Nov. 11, 2016); Han Taek Kim, *Fundamental Principles*, *op. cit.*, p. 39.

and asteroid resources. The U.S.-based businesses like Planetary Resources and Deep Space Industries have plans to profit from space mining. Scientists believe that asteroids and other celestial objects are abundant with precious metals, including those used to create a wide range of technology. In January of 2018, Planetary Resources accomplished a step in its resource mining plans, by launching a satellite capable of detecting water. Because water can be used to create rocket-fuel, identifying water on asteroids would essentially create “launch pads for long distance travel.”<sup>50)</sup> Similarly, Deep Space Industries plans to launch a spacecraft capable of prospecting near Earth asteroids for valuable resources. In response to what it deems “some misunderstanding,” the Deep Space Industries’ general counsel has reassured the international community that the non-appropriation principle prohibits ownership-not the ‘use’-of celestial bodies.<sup>51)</sup>

As specified in the U.S. CSLCA of 2015 or the Luxemburg Space Resources Law of 2017, private space exploitation companies can own and sell the resources gathered in outer space, including the moon and asteroids. If the provision allows fellow countrymen and enterprises run by other countries to commercially explore and utilize space resources, the question is whether this violates the non-appropriation principle in Article 2 of the OST. No wonder, in case of the CSLCA, that this law explicitly specifies that sovereignty, possessory right, and judiciary right to a specific celestial body cannot be claimed, nor can ownership. Since the status of outer space and the celestial bodies is *res extra commercium*, and as long as countries, private enterprises or individuals respect the non-appropriation principle of outer space and the celestial bodies, they can use and benefit from it. In this regard the CSLCA and the Luxemburg Space Resources Law probably do not violate the OST. Is the CSLCA, therefore, practical enough to spur significant growth in the space field, likening it to the

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50) See Melody M. Bomgardner, Chris Lewicki is Aiming at Asteroids to Launch a New Era of Space Travel, C&EN (Feb. 20, 2018), *available at* <https://cen.acs.org/articles/96/i9/Chris-Lewicki-is-aiming-at-asteroids-to-launch-a-new-era-of-space-travel.html>(last visited on Feb. 3 2020).

51) Wrench, *op. cit.*, pp. 443-444.

Homestead Act of 1862,<sup>52)</sup> which played a key role in the gold rush and exploitation of forest resources in the United States.<sup>53)</sup> On the other hand, it should be noted that the CSLCA clarified the fact that the U.S. cannot claim sovereignty or sovereign or exclusive rights or jurisdiction right, nor can it claim ownership over any celestial body in outer space.<sup>54)</sup> In this respect the CSLCA is quite different from the Homestead Act.

At COPUOS' Scientific and Technical Subcommittee session in February 2015, representatives of Brazil and Russia maintained that CSLCA was inconsistent with the non-appropriation principle referred to in Article 2 of the OST. Since the U.S. is a party to the OST, this is a violation of international law.<sup>55)</sup> However, the Scientific and Technical Subcommittee discussing questions related to the scientific and technical aspects of space activities is different from the Legal Subcommittee discussing legal questions related to the exploration and use of outer space.<sup>56)</sup> Therefore they should have insisted their position about the CSLCA in the Legal Subcommittee.

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52) Passed on May 20, 1862 in the U.S., the Homestead Act accelerated the settlement of the western territory by granting adult heads of families 160 acres of surveyed public land for a minimal filing fee and 5 years of continuous residence on that land. The claimant paid the government \$1.25 per acre; See The Homestead Act of 1862, *available at* <https://www.ourdocuments.gov/doc.php?flash=true&doc=31> (last visited on Feb. 3, 2020).

53) See Planetary Resources Applauds U.S. Congress in Recognizing Asteroid Resource Property Rights, Planetary Resources, Nov. 10, 2015.

54) SEC. 403. DISCLAIMER OF EXTRATERRITORIAL SOVEREIGNTY.

“It is the sense of Congress that by the enactment of this Act, the United States does not thereby assert sovereignty or sovereign or exclusive rights or jurisdiction over, or the ownership of, any celestial body.”

55) Han Taek Kim, *Fundamental Principles*, *op. cit.*, p. 43.

56) See Committee on the Peaceful Uses of Outer Space, The United Nations Office for Outer Space Affairs (UNOOSA), *available at* <https://www.unoosa.org/oosa/en/aboutus/index.html> (last visited on Mar 3, 2020).

## IV. Conclusion

The non-appropriation principle was stipulated in Article 2 of the OST and Article 11(2) of the MA. However the MA, creating the CHM principle in international law for the first time, attempted to further limit the prohibitions to include ownership of resources extracted from celestial bodies, its rejection by the U.S. and most of the international spacefaring community prevented it from serving as a binding international treaty.<sup>57)</sup>

The U.S. CSLCA of 2015 and Luxembourg Space Resources Law of 2017 allow states to provide commercial exploration and use of space resources to their own nationals and to companies operated by other countries within their territory. These laws do not violate Article 2 of the OST. In the case of the former, the law clearly states that it cannot claim ownership, sovereignty or jurisdiction over certain celestial bodies. Even if many scholars claim that the U.S. CSLCA and Luxembourg Space Resources Law violate the non-appropriation principle of the OST, their theories cannot prevent these two countries from extracting the space resources on a “first come, first served” basis.

In this respect major space-faring nations such as the U.S. and Russia must push for the adoption of an international regulatory committee which will oversee applications and issue permits based on a set of robust, modern, and forward-thinking ideals that are best equipped to govern and protect outer space as individuals, businesses, and nations compete to commercialize space through mining and the extraction of space-based resources.<sup>58)</sup> The new *Corpus Juris Spatialis* on the development of space resources, especially in the case of the Moon and Mars where the permanent human settlers might live in the future, will cover a degree of dimension of area to develop, and the period by the states should be specified. For the future generation we can not permit countries to own

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57) Lintner, *op. cit.*, p. 153.

58) Powell, *op. cit.*, pp. 35-36.

and use the moon and celestial bodies on a “first come, first served” basis forever. I recommend that a soft law such as a recommendation and declaration, might be more useful than a treaty due to the failure of the MA.



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## 초 록

### 비전유원칙과 우주법(*Corpus Juris Spatialis*)

비전유원칙은 1967년 우주조약(OST) 및 1979년 달협정(MA)에 규정되어 있다. 2020년 2월 현재 OST가 109개국의 회원국을 확보한 반면, 국제법상 최초로 인류공동유산(CHM)개념을 도입한 MA는 우주의 천체에서 추출한 자원의 소유권을 가지지 못하도록 국제조약을 통해 국가들을 더욱 제한하려는 시도를 해 보았지만, 미국 및 대부분의 우주개발국기들의 MA채택 거부로 인해 18개국의 회원국만 확보한 상태이다. OST에 규정된 비전유원칙은 사실상 우주와 천체를 국제법상 국제공역(*res extra commercium*)으로 선언한 것이다. 국제공역은 마치 공해상에서 각국이 생선을 잡아서 판매하는 것과 같은데, 어부들이 생선을 어획하고 판매하는 데 필요한 허가는 각 국가에서 얻지만 바다를 소유하지 않고도 어업행위와 판매가 가능하다. 따라서 이 논리에 따르면 어느 국가이든, 사기업 체이든, 개인은 우주와 천체의 비전유원칙을 존중하는 한 그것을 이용하고, 수익을 취할 수 있다.

한편 OST는 당사국으로 하여금 우주활동시 타 당사국의 이익을 고려하여야 한다고 명시하고 있다. 우주자원 채취하려는 개인이나 민간기업은 반드시 당해 국가의 승인을 받아야 하며, 우주나 천체를 자기 멋대로 전유할 수 없다. 이러한 실체들이 우주활동을 할 때에는 관할권을 가진 각 당사국은 그 활동에 대한 책임을 지게 된다. 우주활동에 대한 국가책임은 OST 제6조와 제7조에 명시되어 있고, 1972년 책임협약은 이러한 문제를 상세하게 다루고 있다.

OST 제2조의 비전유원칙과 관련하여 미국의 2015년 CSLCA나 2017년 룩셈부르크의 우주자원의 탐사 및 활용에 관한 법은 OST 제2조를 위반하고 있는가 하는 문제가 제기된다. 그러나 이 법들은 OST 제2조상 비전유원칙을 위반하지 않는다는 점에 주목해야 한다. 특히 미국의 CSLCA의 경우에는 이 법에 의해 특정 천체에 대한 주권이나 점유권, 사법권을 주장하거나 소유를 주장할 수 없다고 분명하게 명시하고 있다. 학자들이 미국의 CSLCA나 룩셈부르크 우주자원법의 OST의 비전유원칙을 위반한 것이라고 주장할지라도 이 두 국가의 우주자

원개발을 막을 수는 없다. 그러나 한편 이렇게 비전유원칙이 국가나 기업체가 주권을 주장하지 않으면서 우주자원을 마음대로 활용하게 할 수 있다면 우주자원채취에 대한 선착순의 원리가 배제될 수 없기 때문에 국제사회는 우주자원의 확보에 대한 국제경쟁을 도모하고, 개발에서 얻어진 이익을 세대간 형평을 위해 배분하고, 지구와 우주의 환경을 보호하고 보존하기 위하여 조만간 새로운 국제규제체제를 확립해야 할 것이다. 이러한 새로운 우주자원개발에 관한 국제규제체제에는 인간의 거주가능성이 있는 달과 화성의 경우 그 면적을 고려하여 각 국가들이 어느 정도의 면적을 개발할 수 있으며, 언제까지 개발할 수 있는지 그 기간이 명시되어야 할 것이다. 우리는 미래세대를 위하여 국가들이 선착순의 원리에 따라 우주와 천체를 자유롭게 전유하거나 무한정 소유하게 해서는 안 된다. 새로운 우주법(*Corpus Juris Spatialis*)은 1979년 달협정의 실패를 고려해 볼 때 우선 결의나 선언 같은 연성법의 채택이 경성법인 조약보다는 더 나을 것 같다.

**주제어** : 우주조약, 달협정, 비전유원칙, 우주법(*Corpus Juris Spatialis*), 국제공역 (*res extra commercium*), 2015 미국 상업적 우주발사 경쟁력 법 (CSLCA), 2017 룩셈부르크 우주자원개발법

## Abstract

### The Non-Appropriation Principle and *Corpus Juris Spatialis*

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The Non-Appropriation Principle was stipulated in the OST and the MA. However the MA, creating CHM in international law for the first time, attempted to further limit the prohibitions to include ownership of resources extracted from celestial bodies, its rejection by the U.S. and most of the international spacefaring community prevented it from serving as a binding international treaty. Individuals or private enterprises intending to perform space exploitation must receive approval from the nation and may not appropriate outer space or celestial bodies. In the course of this space activity, each party will be liable. Articles 6 and 7 of the OST and the Liability Convention of 1972 deal with matters concerning those problems.

The CSLCA of 2015 and Luxembourg Space Resources Law of 2017 allows States to provide commercial exploration and use of space resources to their own nationals and to companies operated by other countries within their territory. These laws do not violate Article 2 of the OST. In the case of the CSLCA of 2015, the law clearly states that it cannot claim ownership, sovereignty or jurisdiction over certain celestial bodies. Even if scholars claim that the U.S. CSLCA and Luxembourg Space Resources Law violate the non-appropriation principle of the OST, they cannot prevent these two countries from extracting the space resources on “the first come, first served” basis. The legal status of outer space including the moon and other celestial bodies is *res extra commercium*, like the high seas, where the fishing vessels from each country catch and sell fish without occupying the sea.

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Major space-faring nations must push for the adoption of an international regulatory committee which will oversee applications and issue permits based on a set of robust, modern, and forward-thinking ideals that are best equipped to govern and protect outer space as individuals, businesses, and nations compete to commercialize space through mining and the extraction of space-based resources. The new *Corpus Juris Spatialis* on the development of space resources, whether it is a treaty or a soft law such as recommendation and declaration, in the case of the Moon and Mars, will cover a certain amount of area to develop, and the development period by the states should be specified.

**Key Words** : Outer Space Treaty, Moon Agreement, Non-Appropriation Principle, *Corpus Juris Spatialis*, *res extra commercium*, U.S. CSLCA of 2015, Luxemburg Space Resources Law of 2017