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Gauging Justice in Outer Space Exploration and Use for All Countries

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Abstract

Outer space is characterized by a high technology, high cost, and high risk status. This means not all countries are capable of exploring and using outer space. Nowadays, only technologically developed countries are capable of going on missions and exploiting outer space. A variety of activities have been carried out in space, including commercialization by developed countries. This indicates developed countries' domination over outer space. Recalling that outer space is the province of all humanity, the exploration and use of space should be for the benefit of all countries and their people. This has challenged developed and developing countries to collaborate in implementing activities in and exploiting outer space. This study is a legal normative research project that utilizes secondary data, including primary and secondary legal materials, as well as non-legal materials, collected through library research and analyzed qualitatively. In realizing justice and reducing the gap between developed and developing countries in terms of outer space exploitation, this research employed a global justice perspective. This concept of justice requires the presence of a global legal authority that distributes rights and obligations to all countries and achieves coordination among developed and developing countries in exploring and using outer space.

Keywords: justice, international law, outer space

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Evaluación de la justicia en la exploración y el uso del espacio ultraterrestre para todos los países

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Resumen

El espacio ultraterrestre es un ámbito caracterizado por su alta tecnología, su elevado coste y su alto riesgo, lo que significa que no todos los países tienen la capacidad de explorarlo y utilizarlo. En la actualidad, solo los países tecnológicamente desarrollados son capaces de llevar a cabo misiones y explotar el espacio exterior. Se han llevado a cabo diversas actividades en el espacio, incluida su comercialización por parte de los países desarrollados, lo que indica su dominio sobre este. Teniendo en cuenta que el espacio exterior es patrimonio de toda la humanidad, su exploración y uso deben beneficiar a todos los países y a sus pueblos. Esto supone un reto para los países desarrollados y en vías de desarrollo, pues deben colaborar en la realización de actividades en el espacio exterior y en su explotación. El presente estudio es un proyecto de investigación normativa jurídica que utiliza datos secundarios, incluidos materiales jurídicos primarios y secundarios, así como materiales no jurídicos, recopilados a través de la investigación bibliográfica y analizados cualitativamente. Para hacer justicia y reducir la brecha entre los países desarrollados y en vías de desarrollo en términos de explotación del espacio ultraterrestre, esta investigación empleó una perspectiva de justicia global. Este concepto de justicia requiere la presencia de una autoridad jurídica global que distribuya derechos y obligaciones a todos los países y logre la coordinación entre los países desarrollados y en vías de desarrollo en la exploración y el uso del espacio exterior.

Palabras clave: justicia, derecho internacional, espacio exterior

Introduction

Outer space exploration and use have developed very rapidly in recent years. Technological innovations by developed countries, with the participation of the private sector, have generated new phenomena related to outer space.[1] The phenomenon of launching space objects in an attempt to exploit outer space becomes an arena of competition for countries with advanced technology. Some activities exploiting outer space have already been carried out; even commercialization in outer space has grown very rapidly. Commercialization is relevant to the activities carried out not only by developed countries but also by the private sector, which utilizes advanced technology to exploit and derive economic benefits from outer space.[2] Outer space is a critical area for countries with superior and potential characteristics to improve their power. Outer space is also one of the strategic objectives for a country's national interests.[3]

Several forms of activities have been carried out by countries in outer space, including telecommunications, remote sensing, space insurance (involving launch and in-orbit coverage; launch risk guarantee; launch vehicle flight; post-satellite separation; in-orbit satellite; optional reinsurance; satellite transit and pre-launch; and satellite revenue loss[4]), space mining (e.g., the United States' Artemis Program whose basic mission to mine natural resources in the first phase and other space objects in the subsequent phase[5]), and outer space transportation including space tourism.[6]

Satellites are one of the space objects launched most widely by countries in their activity in outer space. Satellites are launched and placed into various orbits, including Low Earth Orbit, Medium Earth Orbit, Highly Elliptical Orbit, and Geostationary

1 Marco A. Janssen and Xiao Shan Yap, "Governing Outer Space as a Commons Is Critical for Addressing Commons on Earth," *International Journal of the Commons* 18, no. 1 (2024): 33, https://doi.org/10.5334/ijc.1378.

2 Niken Tyasworo and Mas Nana Jumena, "Tanggung Jawab Perusahaan Dalam Komersialisasi Ruang Angkasa Dan Implikasinya Terhadap Outer Space Treaty 1967 (Studi Tentang Wisata Ruang Angkasa)," *Uti Possidetis: Journal of International Law* 2, no. 2 (2021): 134–35, https://doi.org/10.22437/up.v2i2.12203.

3 Reza Triarda, "Astropolitik: Signifikansi Ruang Angkasa Terhadap Posisi China Dalam Hubungan Internasional," *Jurnal Interdependence* 3, no. 1 (2015): 47, http://e-journals.unmul.ac.id/index.php/JHII/article/view/1335.

4 Runggu Prilia Ardes et al., "Perbandingan Sistem Regulasi Asuransi Keantariksaan Beberapa Negara," *Jurnal Kajian Kebijakan Penerbangan Dan Antariksa* 1, no. 2 (2021): 90, https://doi.org/10.30536/jkkpa.v1n2.2.

5 Taufik Rachmat Nugraha, "Program Artemis: Tantangan Hukum Ruang Angkasa Di Era Baru," *Veritas et Justitia* 8, no. 1 (2022): 80, https://doi.org/https://doi.org/10.25123/vej.v8i1.4388.

6 Aryuni Yuliantiningsih, "Aspek Hukum Kegiatan Wisata Ruang Angkasa (Space Tourism) Menurut Hukum Internasional," *Jurnal Dinamika Hukum* 11, no. 1 (2011): 150, https://doi.org/10.20884/1.jdh.2011.11.1.87.

Orbit (GSO). The GSO is the best one to put space objects, including satellites, specifically those functioning as communication and broadcasting media, because it matches Earth's rotation. The GSO is the orbit most widely used by developed countries for satellite deployment.[7] The GSO features the most strategic values and advantages for countries with advanced technology to put satellites into orbit. It is located above equatorial countries, making it a limited natural resource.[8] The types of satellites often placed on the GSO are related to telecommunications and weather monitoring.[9]

Countries' activities in outer space, such as launching space objects into the GSO through a variety of international agreements, are considered not to reflect fairness, particularly for developing countries.[10] This condition is because outer space management and exploitation can be conducted only by developed countries, with the support of high technology.[11] Technology development in outer space reveals a predisposition to the exploitation of the GSO by countries using the principle of first-come, first-served. This becomes a constraint, particularly for developing countries that have not been capable of doing their activities in outer space, while the GSO is a limited, scarce, and very important natural resource for all countries.[12]

To use outer space, a country should possess advanced technology. This means that not all countries are capable of launching their own missions to outer space. This also results in domination over outer space by developed countries only. A country's domination over outer space can certainly lead to the context of weaponization, with inherent risks.[13] For example, domination over outer space is exerted by major countries like the United States as a consequence of their disproportionate

7 Aktieva Tri Tjitrawati, "Indonesia Dalam Persimpangan Hukum Antariksa," in *Prosiding Seminar Nasional Kebijakan Penerbangan Dan Antariksa III (Sinas KPA-III)* (2020): 188, https://doi.org/10.30536/p.sinaskpa.iii.13.

8 Melissa Retno Kusumaningtyas, "Geostationary Orbit (GSO) Dalam Perspektif Hubungan Utara-Selatan," in *Prosiding Seminar Nasional Kebijakan Penerbangan Dan Antariksa III (Sinas KPA-III)* (2018), 195–96, https://doi.org/10.30536/p.sinaskpa.iii.14.

9 European Space Agency, "Types of Orbits," 2020, accessed on September 25, 2021, https://www.esa.int/Enabling_Support/Space_Transportation/Types_of_orbits.

10 Agung Prayuda Yahya Putra, "Urgensi Pengaturan Sui Generis Bagi Negara-Negara Ekuator Khususnya Indonesia," *Jurnal Legalitas* 14, no. 1 (2021): 24. https://doi.org/10.33756/jelta.v14i01.10209.

11 Agus Pramono, "Orbit Geostasioner (GSO) Dalam Hukum Internasional Dan Kepentingan Nasional Indonesia," *Pandecta* 6, no. 2 (2011): 129.

12 Syahmin AK, Meria Utama, and Akhmad Idris, *Hukum Udara Dan Luar Angkasa (Air and Outer Space Law)* (Palembang: Unsri Press, 2012), 195.

13 Michael Krepon and Christopher Clary, *Space Assurance or Space Dominance? The Case Against Weaponizing Space* (Washington, DC: The Henry L. Stimson Center, 2003), 3.

and ever-developing military power.[14] In addition, the United States' domination over outer space continues to this day and can trigger military conflict with China, Russia, or other countries and make outer space unusable for future generations.[15] This is because the United States has attempted to find a directed way of using energy systems to effectively dominate outer space.[16]

Developing fair outer space management can create new opportunities for developing countries to take part in the exploration and exploitation of outer space. For developing countries, it is crucial to participate in outer space activities based on the principle of a province for all mankind. This research aims to emphasize the gap between developed and developing countries in the implementation of outer space exploration and exploitation. This is important because outer space belongs to all humanity and should be used for the benefit of all humanity.

Methodology

This study is a normative legal research project utilizing secondary data, which comprises both primary and secondary legal materials, as well as non-legal materials.[17] The primary legal material used in this research is the Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies of 1967 (the Outer Space Treaty of 1967) and the Resolution adopted by the United Nations General Assembly, Declaration on International Cooperation in the Exploration and Use of Outer Space for the Benefit and in the Interest of All States (RGAUN A/RES/51/122). Secondary legal materials include legal books, legal journals, and legal experts' writings, while non-legal materials include books, journals, and experts' writings relevant to space science. Library study is a method of collecting data used in this research,[18] and the data is analyzed qualitatively.[19]

14 Krepon and Clary, 39.

15 Joan Johnson-Freese and Kenneth Smith, "U.S. Space Dominance," in *War and Peace in Outer Space*, ed. Cassandra and Matthew Hersch Steer (Oxford: Oxford University Press, 2021), 124.

16 Dmitry V. Stefanovich and Daniel Porras, "Space as a Competition Domain: Threats and Opportunities," *Journal of International Analytics* 13, no. 2 (2022): 98, https://doi.org/10.46272/2587-8476-2022-13-2-95-106.

17 Mukti Fajar and Yulianto Achmad, *Dualisme Penelitian Hukum Normatif & Empiris* (Yogyakarta: Pustaka Pelajar, 2019), 158.

18 Bachtiar, *Metode Penelitian Hukum* (Tangerang Selatan: UNPAM Press, 2019), 140.

19 Muhaimin, *Metode Peneltian Hukum* (Mataram: Mataram University Press, 2020), 67–68.

Results and Discussion

History of Outer Space Exploration and Use

History records that the technology for outer space activities (space technology) was first developed by the Chinese in the first century, when they formulated gunpowder to produce fireworks for festivals. Then, gunpowder rockets were created and spread in Western Europe, later being further developed by experts for war purposes. During that period, the tube was designed to allow for an accurate launch of rockets on a specified trajectory. In the 15th and 16th centuries, European armies used rockets with cannons, resulting in higher accuracy. The war period in the 1930s saw significant advancements in rocket technology, with the production of various rockets and guided missiles in different sizes and shapes. Notably, Germany developed the V-2 rocket, which was powered by liquid fuel.[20]

Technology development in the exploitation of outer space is inseparable from the Space Race phenomenon of 1957.[21] In that year, the Soviet Union successfully launched its first satellite at the Baikonur Cosmodrome in Kazakhstan, marking the beginning of the era of subjugating outer space..[22] Following the successful launch of the first satellite using advanced technology, the Soviet Union also successfully sent a cosmonaut to outer space. The Soviet Union's activity was responded to by the United States in 1957 with the establishment of a civil space agency, separate from military affairs, called the National Aeronautics and Space Administration (NASA). Following the establishment of this institution, the United States initiated the Apollo Program as part of its mission to send humans to the moon.[23]

During the Cold War and Space Race periods, space strength was assessed using metrics such as launch numbers and size, astronaut achievements, the deployment of military supporting technology, and the findings of space science. The activities were almost entirely dependent on the programs managed and funded by the state

[20] Marini Amimah and Nurannisa Nadya Firdaus, "Peluang Komersialisasi Antariksa Terhadap Perkembangan Teknologi Antariksa Milik Indonesia," in *Prosiding Seminar Nasional Kebijakan Penerbangan Dan Antariksa V (SINAS KPA-V)* (2020), https://puskkpa.lapan.go.id/files_arsip/03_Marini_Peluang_Komersialisasi_2021_rev.pdf.

[21] Fazri Ramadhan and Mohammed Dean Syahreza, "Analisa Kebijakan Space Act Amerika Serikat Sebagai Tantangan Bagi Stabilitas Politik Internasional Dan Politik Luar Negeri Indonesia Dari Sisi Program Keantariksaan," in *Prosiding Seminar Nasional Kebijakan Penerbangan Dan Antariksa III (Sinas KPA-III)* (2018), https://doi.org/10.30536/p.sinaskpa.iii.12.

[22] Bartosz Ziemblicki and Yevgeniya Oralova, "Private Entities in Outer Space Activities: Liability Regime Reconsidered," *Space Policy* 56 (2021): 1, https://doi.org/10.1016/j.spacepol.2021.101427.

[23] Amimah and Firdaus, "Peluang Komersialisasi Antariksa," 66–67.

during the Cold War. This period was dominated by two major powers: the United States and the Soviet Union, which had conducted over 95 % of space launches up to 1991.[24] The end of the Space Race, as part of the Cold War between the United States and the Soviet Union, resulted in an assumption that the United States became a leader in space technology in both the civil and military areas. Militarily, the United States used a satellite-based Global Positioning System for the first time during the Gulf War. In the civil sector, it led a project to construct the International Space Station, along with 17 other countries.[25] This phenomenon involves not only technological domination but also competition for superiority, as outer space is viewed as a new area to be subjugated.[26]

The next development of activities in outer space comes from European and Asian countries. Europe established the European Space Agency (ESA), aiming to allow states and private corporations to participate in space projects, including the Moon Village. Meanwhile, in the Asia region, there are three big countries—China, Japan, and India—that have space programs and technology developing very rapidly. The conduct of space activities by Asian and European countries has made space a very important asset for both political and economic purposes, along with technological advancements and lower costs of new technology.[27]

Between 1960 and 1989, space technology development underwent a revolution that transformed life into a more advanced one, characterized by the launch of satellites that functioned as communication media to connect the world. The era of satellite communication began with NASA's successful launch of the spaceship called Echo 1. Communication satellites moved quickly to the commercial sector in the last half of the 1960s, and then telecommunication agencies in 18 countries established the International Telecommunications Satellite (Intelsat) in 1964. Intelsat operated and managed a communication satellite constellation, providing an international broadcasting service.[28] In 1964, using NASA's facilities, Intelsat launched Early Bird 1, constituting the first commercial communication satellite on the GSO. Space technology development in the 20th century marked a significant

[24] James Clay Moltz, "The Changing Dynamics of Twenty-First-Century Space Power," *Journal of Strategic Security* 12, no. 1 (2019): 18, https://doi.org/10.5038/1944-0472.12.1.1729.

[25] Amimah and Firdaus, "Peluang Komersialisasi," 66–67.

[26] Sarah Jane Fox, "Policing Mining: In Outer-Space Greed and Domination vs. Peace and Equity a Governance for Humanity!," *Resources Policy* 64, no. October (2019): 2, https://doi.org/10.1016/j.resourpol.2019.101517.

[27] Fox, 2.

[28] Intelsat, "About Us," intelsat.com, accessed March 5, 2023, https://www.intelsat.com/about-us/our-story/.

transition in the field of scientific inquiry regarding outer space.[29] History has proven that the implementation of outer space exploration and use requires sophisticated technology, is costly, and poses significant risks. This means that only large states are capable of undertaking a mission to outer space, while the rights, obligations, and interests of developing countries in the area can be achieved with difficulty.

Justice in Outer Space Exploration and Use

All countries have attempted to achieve justice in the implementation of outer space exploration and exploitation. This can be seen from the enactment of Resolution A/RES/51/122, which contains provisions concerning international cooperation between developing and developed countries in outer space exploration and exploitation. However, the provision is a legal product of the UN General Assembly, which makes the decree a recommendation in nature and not a binding obligation for developed countries.[30]

The gap between developed and developing countries in outer space exploration and use can be reduced and accommodated by measuring justice from a Global Justice Theory perspective. This theory is a tool for analyzing justice across all countries and is used in an attempt to bridge the different conceptions of justice or equality in each country's legal system. The discussion of the legal system will generally focus on each country, and each country determines by itself how to create laws related to what is considered an infringement, how the infringement will be punished, and what civil rights should be protected.[31] The problem related to different concepts of justice in a country's legal system can be accommodated using Global Justice Theory to achieve justice for all countries.

In addition to the different conceptions of justice in each country, some other considerations should be taken into account. The first consideration is the scope of global justice, which makes humans the main holders of rights.[32] Based on Article

[29] Amimah and Firdaus, "Peluang Komersialisasi Antariksa," 70.

[30] Arnanda Yusliwidaka, Kholis Roisah, and Joko Setiyono, "The Implementation of State's Rights and Obligations in Outer Space: Is It Equal?" *Legality: Jurnal Ilmiah Hukum* 32, no. 2 (2024): 426, https://doi.org/10.22219/ljih.v32i2.35312.

[31] Mikaila Lemonik Arthur, *Law and Justice Around the World: A Comparative Approach* (Berkeley: University of California Press, 2020), 246.

[32] Sujian Guo et al., *Conceptualizing and Measuring Global Justice: Theories, Concepts, Principles and Indicators*, *Fudan Journal of the Humanities and Social Sciences*, 12 (2019): 515, https://doi.org/10.1007/s40647-019-00267-1.

1 of the Outer Space Treaty of 1967, outer space is the province of all mankind,[33] and thereby human beings are the primary rights holders in that area. The second consideration is that global justice can address issues whose nature and scope are global, such as problems in outer space.[34] Outer space applies the non-appropriation principle, meaning that the area cannot be claimed for sovereignty by any state.[35] The provision enacted to regulate the area is an international legal instrument, so that the problems occurring are also international/global in nature. The third consideration is that global justice requires conscience of the global community, which encompasses global values, caution, such as the integration of value projections by developed countries into international agreement negotiations, and the need for cooperation.[36] These global values are necessary to achieve justice for all countries, both developed and developing, in the exploration and use of outer space. Additionally, there is a need for developed countries, which have greater value in the exploitation of outer space, to come together in international agreements, and for countries to cooperate in order to achieve fair management of outer space for both developed and developing countries.

The fourth or last consideration relates to global justice, requiring the arrangement and determination of which public necessities at the global level overlap with public necessities at the national and regional levels.[37] This is very relevant, recalling that the international agreement about the law of outer space governs the states' rights, obligations, and responsibilities in the exploitation of outer space, which form the basis for the development of national laws in each country to regulate their national sovereignty in relation to outer space activities. These four considerations are the parameters of global justice, in which there are some differences in justice among countries; therefore, the universal standards of global justice in such issues as human rights, equality, and freedom can be the reference for the interaction between one state and another.[38]

[33] United Nations General Assembly, Resolution 2222 (XXI), "Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies" (1967), Article I.

[34] Guo et al., *Conceptualizing and Measuring Global Justice*, 515.

[35] United Nations General Assembly, Resolution 2222 (XXI), Article II.

[36] Guo et al., *Conceptualizing and Measuring Global Justice*, 515.

[37] Guo et al., 515.

[38] Guo et al., 515.

The discussion of global justice particularly relates to citizens' and governments' obligations in developed countries toward less developed countries.[39] Global justice theory builds on a belief that moral concern should be extended universally to all human beings, regardless of their citizenship or nationality, and beyond national borders, so that there is a moral duty that applies at the global level.[40] Global justice is based on social justice, which is grounded in social structures as the primary subject, or how major social institutions distribute fundamental rights and obligations in determining the distribution of benefits from social cooperation.[41]

The proponents of the global justice concept used two principles: freedom and difference. Freedom gives everyone equal rights to the broadest basic independence in accordance with others' equal rights. Meanwhile, difference is explained as social and economic inequality that should be governed in such a way that everyone benefits reasonably, particularly the disadvantaged citizens.[42] Global justice encompasses justice across and between states, with most of the discussion areas falling within the scope of distributive justice, such as the fair distribution of resources, wealth, and opportunities in society.[43] The concept of global justice can also be explained as the recognition of shared characteristics or values and the presence of governing and supervising institutions. This norm or institution will be capable of guaranteeing standard justice with inherent instruments. These instruments will be viewed as effective if they are only obeyed and applicable beyond the borders of sovereignty.[44]

International law has become more complex today and is excluded from international customs; therefore, in the context of global justice, a global legal authority is required to address this complexity and exercise its jurisdiction at the global scale beyond the borders of states.[45] Just like the very complex activities in outer space, the problem of injustice to developing countries in the implementation of outer space exploration and use results in the need for global institutions to deal with the complexity.

[39] Anne Phillips, "Global Justice: Just Another Modernisation Theory?" in *Empire, Race and Global Justice*, ed. David Bell (Cambridge: Cambridge University Press, 2019), 145. https://doi.org/10.1017/9781108576307.007.

[40] Megan Kime, *Theories of Global Justice: Relational and Non-Relational Approaches* (Oxford: Oxford University Press, 2020), 5.

[41] Guo et al., *Conceptualizing and Measuring Global Justice*, 512.

[42] Marek Hrubec, "The Law of Peoples and Global Justice: Beyond the Liberal Nationalism of John Rawls," *Human Affairs* 20, no. 2 (2010): 135, https://doi.org/10.2478/v10023-010-0015-y.

[43] Thom Brooks, *The Oxford Handbook of Global Justice* (Oxford: Oxford University Press, 2020), 1, https://doi.org/10.1093/oxfordhb/9780198714354.001.0001.

[44] Muhammad Faris Alfadh, "Keadilan Global Dan Norma Internasional," *Jurnal Hubungan Internasional* 2, no. 2 (2013): 172, https://doi.org/10.18196/hi.2013.0038.167-174.

[45] Arthur, *Law and Justice*, 246.

Considering the concept of global justice based on social justice in this research, it can be concluded that in the attempt to distribute the state's equal rights and obligations, a global authority is required to manage such distribution. Cooperation between developed and developing countries will be implemented optimally through the establishment of a global authority for the fair exploration and use of outer space. If included in a concrete provision (in the Outer Space Treaty of 1967) as "*de lege ferenda*" (the law as it should be), this idea should be confirmed with the order containing the basics of the authority to ensure that cooperation in space activity will benefit all countries.[46]

Global Legal Authority in Outer Space

To achieve global justice in the implementation of outer space exploration and use, the establishment of an international authority is proposed. This authority would have the main task of ensuring the distribution of a state's rights and obligations under equal and fair outer space law. The proposal for an international authority to manage international areas (e.g., outer space) is not new. The idea of the establishment of an international authority is not intended to ignore what has been done by space authorities or committees like the United Nations Office for Outer Space Affairs (UNOOSA) and the United Nations Committee on the Peaceful Uses of Outer Space (UNCOPUOS).[47] UNOOSA is mainly in charge of promoting international cooperation and registering space objects launched into outer space,[48] while UNCOPUOS, in its function analysis, is an international organization dealing with outer space issues and problems.[49] UNCOPUOS's basic duty is to encourage countries to exploit outer space for national development and formulate international laws and regulations about outer space exploration and exploitation with a peaceful objective.[50] The two agencies' functions are limited to promoting and encouraging cooperation among countries through several official meetings, and

[46] Detlev Wolter, *Common Security in Outer Space and International Law* (Geneva: United Nations Institute for Disarmament Research, 2006), 93–94.

[47] Icho Kealotswe-Matlou, "The Rule of Law in Outer Space, A Call for an International Outer Space Authority" in *War and Peace in Outer Space*, ed. Cassandra and Matthew Hersch Steer (Oxford: Oxford University Press, 2021), 102. https://doi.org/10.1093/oso/9780197548684.003.0004.

[48] T. Suharti and M. T. Kumala, "The Urgency of Establishment International Outer Space Authority as Embodiment of Outer Space Environment Protection," *IOP Conference Series: Materials Science and Engineering* 434, no. 1 (2018): 4, https://doi.org/10.1088/1757-899X/434/1/012239.

[49] Diogenes Diogenes, "Kewenangan United Nations Committee on the Peaceful Uses of Outer Space (Uncopuos) Dalam Pembentukan Hukum Antariksa Internasional," *Dialogia Iuridica: Jurnal Hukum Bisnis Dan Investasi* 11, no. 1 (2019): 28, https://doi.org/10.28932/di.v11i1.1953.

[50] Diogenes, 28.

neither has the authority to regulate the implementation of outer space exploration and exploitation. This, of course, is less effective, recalling that attempts to achieve consensus in the context of outer space are often hindered by political obstacles in the agencies' meetings and the lack of respect for outer space law. Therefore, an integrated structure is needed to coordinate the entire management process in outer space.[51]

The idea of establishing an international authority can build on the multilateral agreement (the Outer Space Treaty of 1967) adopted by the UN General Assembly, aiming to conduct routine activities in outer space. The instruments that can legitimize the establishment of an authority are Articles 1 and 3 of the Outer Space Treaty of 1967. Article 1 emphasizes that the exploration and use of outer space should be carried out for the sake of all countries' interests, regardless of economic or scientific development level, based on equality, and that outer space should be the province of all mankind.[52] Meanwhile, Article 3 emphasizes that the activities of exploring and using outer space are carried out to maintain international peace and security and to encourage international cooperation and understanding.[53] Both provisions can be the foundation of legitimacy in the establishment of an international authority, which should distribute the states' rights and obligations mentioned in the outer space law equally and fairly, so that the benefits of outer space activities can be used by all states and humanity through international cooperation under the coordination of an international authority to realize an international agreement that creates rights and obligations for the parties involved.

The establishment of an international authority in outer space could be based on the International Seabed Authority (ISA), which was established by the States Parties to UNCLOS 1982 and has a coordinating role in the exploration and exploitation of the seabed area. The seabed area, just like outer space, is governed by the non-appropriation principle. The management of the seabed area, which is not under any state's claim for sovereignty (non-appropriation), also has problems similar to those of outer space. One of them relates to countries that are incapable of managing the area because ownership of advanced and sophisticated technology is a basic requirement for a country to effectively manage the seabed area. This requirement certainly results in the gap between developed and developing countries in the management and exploitation of the seabed area. Therefore, the seabed

51 Kealotswe-Matlou, *The Rule of Law*, 102
52 United Nations General Assembly, Resolution 2222 (XXI), Article I.
53 United Nations General Assembly, Article III.

area is controlled by the ISA.[54] The ISA has effectively influenced the management of the seabed area by distributing the states' rights and obligations, as well as implementing duties and functions in the area, in accordance with the UNCLOS of 1982. Technology sharing and benefit sharing in exploiting the seabed have been well-coordinated between developed and developing countries through the ISA.[55] It is this ISA's authority and function implementation in the seabed area that is then different from either UNOOSA's or UNCOPUOS's in outer space.[56]

The establishment of an international authority, of course, faces some constraints, and so does the ISA. During the establishment of the ISA in 1973–1982, some developed countries, including the United States of America, initially did not agree with it, as it was considered to inhibit the exploitation of the seabed area. Although the United States of America has not yet ratified the UNCLOS of 1982, the country supported the rediscussion concerning the establishment of the ISA from 1990 to 1994, with special discussions on Part XI.[57] Therefore, in the context of fair outer space management, the participating states in the Outer Space Treaty of 1967's commitment are required to rediscuss the importance of establishing an international authority. Recalling that the ISA has functionally been able to address the gap between developed and developing countries in seabed management and exploitation, the establishment of an international authority in outer space is required.

Considering the effectiveness of some attempts made by the ISA in the seabed area, it can be concluded that an international authority established and authorized to manage an international area can really work effectively and efficiently. Collaboration among countries, between states and international organizations, and between states and other parties can be established under an institution's coordination. This coordination function reduces the gap in technology and resources between developed and developing countries in the context of the management of an international area. Therefore, the activities in outer space should accommodate the application of concepts regarding the establishment of an international authority to ensure that the distribution of a state's international rights and obligations in outer space law

54 Arif Satrio Nugroho and Ika Riswanti Putranti, "International Seabed Regime in Southeast Asia: The Lack of ASEAN Member States' Role in Seabed Mining," *Indonesian Perspective* 3, no. 1 (2018): 39–40, https://doi.org/10.14710/ip.v3i1.20177.

55 Arnanda Yusliwidaka, Kholis Roisah, and Joko Setiyono, "Measuring the Effectiveness of International Seabed Area Management in Developing Countries," *Russian Law Journal* 11, no. 2 (2023): 295, https://doi.org/10.52783/rlj.v11i2.665.

56 Suharti and Kumala, "The Urgency of Establishment," 4.

57 Arif Satrio Nugroho, "Posisi Amerika Serikat Terhadap Rezim Da Sar Laut Internasional Otorita Dasar Laut Internasional," *Journal of International Relations* 2 (2016): 133.

runs smoothly. The establishment of this authority is an important requirement in Global Justice Theory to ensure the equality and justice of states in outer space. The measures that need to be taken include the proposal for the development of new legal material in the Outer Space Treaty of 1967, which contains provisions concerning the establishment of an international authority. Then, it also regulates the jurisdiction and function of the authority, its organs, the consultation mechanism, and international cooperation with governmental and non-governmental international organizations.

The international authority proposed is intended to ensure that the exploration and use of outer space can be performed fairly by all countries. The authority inherent in the international authority, such as the management of outer space, will ensure that a state's rights and obligations are implemented effectively. This is intended to achieve the main objective mentioned in the Outer Space Treaty of 1967: to exploit outer space as well as possible for the benefit of all mankind and all countries without exception.[58] The structure of the international authority will mirror the main organic structure of the ISA, comprising the Assembly, the Council, and the Secretariat. The Assembly comprises all countries that are participants in the Outer Space Treaty of 1967, which establishes the basic policy of the international authority. The Council consists of several countries selected by the Assembly and can be divided into several groups in accordance with the international authority's need for managing the outer space area, for example: the Outer Space Environment Protection Division, the Exploration Executive Division, and the International Cooperation Executive Division. The last main organ is the Secretariat, which functions to support and provide a variety of secretarial services to the activities of the main organs of the international authority, led by a Secretary-General.

The development of new legal materials under the Outer Space Treaty of 1967 concerning international authority in outer space can surely be carried out. Juridically, Article XV of the Outer Space Treaty of 1967 stipulates that participating countries can propose amendments to the treaty. The proposed amendments should be accepted by the majority of participating countries of the Outer Space Treaty of 1967.[59] Therefore, this provision presents an opportunity for the participating countries in the Outer Space Treaty of 1967 to establish an international authority aimed at achieving fair management and exploitation of outer space for all countries.

[58] United Nations General Assembly, Resolution 2222 (XXI), Article I.
[59] United Nations General Assembly, Article XV.

If the establishment of an international authority is accepted and accommodated, it will mark a breakthrough in coordinating between developed and developing countries in their missions in outer space. It can be ensured that the activities of exploring and using outer space will be coordinated better and more fairly to developing countries from the perspective of global justice. The developing countries that have not yet been able to exploit outer space will benefit directly from the mission carried out in collaboration with developed countries, as coordinated by an international authority.

Conclusion and Recommendation

To ensure justice in the implementation of outer space exploration and use for all countries, the establishment of an international authority is recommended, with authority over outer space. It is because the activities of exploring and using outer space are entirely intended for the interest of all humankind. Outer space has high risk, high technology, and high cost characteristics, and thereby collaboration between countries (states) is needed to implement the exploration and use of the area. An international authority could facilitate collaboration between developed and developing countries in the exploration and use of outer space. This international collaboration reduces the technological gap that has arisen in the exploration and use of outer space. The international authority will distribute rights and obligations regulated in outer space law fairly to all countries.

Conflicts of Interest

The authors declare no conflict of interest.

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