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SYMPOSIUM ON THE NEW SPACE RACE

NEW STATES IN SPACE

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The actors in outer space have changed dramatically, involving not only new states but also private entities including start-ups, universities, and other new market entrants. The topics that require regulation have also changed, moving from broad principles to govern the initial stages of space exploration to much more complex questions with greater interests at stake. These topics include new kinds of activities, made possible by fast technological progress and often involving great potential for commercial gain, and also issues of growing concern for humankind as a whole with regard to the continued exploration and use of outer space. This essay looks at how new state participants view established and emerging international legal principles regulating space activities and highlights potential points of agreement or disagreement in that respect.

The New Space Race

The "old" space race started in 1957 and involved mainly the United States and the Soviet Union. These states led the development of the initial international agreements adopted in the framework of the UN Committee on the Peaceful Uses of Outer Space (COPUOS).[1] Within less than two decades, between 1967 and 1984, five international treaties were adopted and entered into force.[2] At the time, COPUOS had less than twenty-five member states and agreement was reached relatively easily. Gradually, the group of space actors grew, but space activity remained state-centered and involved a relatively small number of states, while private-entity involvement was mostly limited to the telecommunication sector in the United States.

Today, the landscape is entirely different. Not only are more and more states interested and involved in exploring and using outer space, but private entities also have entered the scene, and the trend of privatization and commercialization of space activities is expected to gain more speed in years to come. As the number of states active—or wishing to become active—in outer space has grown, so has the membership of COPUOS, which today counts nearly ninety states.[3] It has thus become more difficult to reach consensus, which has been the working method of

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[1] For general information on COPUOS and its Secretariat, see UN Office for Outer Space Affairs.

[2] *See* Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies, Jan. 27, 1967, 18 U.S.T. 2410, 610 UNTS 205 [hereinafter Outer Space Treaty]; Convention on the Rescue of Astronauts, the Return of Astronauts and the Return of Objects Launched into Outer Space, Apr. 22, 1968, 19 U.S.T. 7570, 672 UNTS 119; Convention on the International Liability for Damage Caused by Space Objects, Mar. 29, 1972, 24 U.S.T. 2389, 961 UNTS 15; Convention on the Registration of Objects Launched into Outer Space, Jan. 14, 1975, 28 U.S.T. 695, 1023 UNTS 15; Agreement Governing the Activities of States on the Moon and Other Celestial Bodies, Dec. 5, 1979, 1363 UNTS 3 [hereinafter Moon Agreement].

[3] *See* Members of the Committee on the Peaceful Uses of Outer Space, UN Office for Outer Space Affairs (listing current COPUOS members).

COPUOS from the start. As a consequence of the growing number and diversity of stakeholders, in recent decades the agreements among states about the use and exploration of outer space have taken the form of principles and other UN resolutions, rather than legally binding treaties.

At the same time, a growing number of new topics require states' attention. With constant advances in technology, new capacities and activities emerge at high speed, such as ever-smaller satellites, large constellations of hundreds or even thousands of satellites, the prospect of suborbital flights, reusable launch vehicles, on-orbit servicing, and the use of resources from asteroids or the Moon. These developments were not foreseen in the early days of space exploration. Although the UN space treaties and resolutions provide the basic legal framework, some form of further elaboration is now needed to provide clear and predictable standards to govern these new activities. Issues such as the continuing congestion of outer space, the problems related to the mitigation and remediation of space debris, the long-term sustainability of space activities, space traffic management, space situational awareness, and the security of critical space infrastructure will also increasingly require the attention of the international community of states.

In this changed landscape with new states, private entities, new activities, and new concerns, it is useful to look at how emerging space nations view the rules that were laid down in the past, the issues that will require regulation in the future, and whether there are any special concerns that influence their positions.[4]

The main principles of international space law are embodied in the Outer Space Treaty of 1967 (OST). The treaty has been widely adopted and states have consistently acted in accordance with its principles.[5] In addition, states have not publicly contested those principles, proposed amendments, or withdrawn from the treaty. Thus, at least parts of the treaty could be considered to have reached the status of customary international law, meaning that they are binding on all states, including nonparties. The following sections highlight principles that are not likely to be contentious for new space states and then identify current principles and future issues that may raise more concerns.

Space Law Principles that are Noncontentious for New States in Space

A number of space law principles raise few or no concerns for new states in space. An important feature of space law is contained, for instance, in Article III of the OST, which provides that activities must be carried out in accordance with international law, including the UN Charter, in the interest of maintaining international peace and security and promoting international cooperation and understanding. This is a typical example of a principle with which all stakeholders agree.

Likewise, Article V of the OST, elaborated in the Rescue Agreement, declares that states should regard astronauts as "envoys of mankind," to whom states parties and astronauts of other states should render all possible assistance.[6] Again, this is not likely to give rise to contentious issues, although the advent of commercial human spaceflight may raise the question of whether private astronauts should enjoy the same status, and what exactly that status entails.

The OST also contains rules concerning state responsibility and assigns liability for damage to launching states.[7] There was initial disagreement among the two space powers on whether to allow private activities in outer space, but a compromise was found in Article VI by requiring such activities to be authorized and continuously supervised by a state. Article VIII confirms that states retain jurisdiction and control over objects launched into outer

[4] For a useful resource on this topic, see Secure World Foundation, Handbook for New Actors in Space (2017).

[5] *See* Status of International Agreements Relating to Activities in Outer Space, UN Office for Outer Space Affairs.

[6] Outer Space Treaty, *supra* note 2, art. V.

[7] *Id.* arts. VI & VII.

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space carried on their registry. Due regard for each other's activities and the duty to avoid harmful contamination are addressed in Article IX. Again, these principles have not caused major disagreement, although it is possible that some of the concepts are too vague to be interpreted consensually, should disputes arise.

The subsequent treaties, except for the Moon Agreement that will be addressed below, mainly elaborate on the principles of the OST and have not created particular concerns for newly space-active nations. Likewise, most of the other legal instruments adopted over the years have not given rise to much controversy. The 1996 Space Benefits Declaration even specifically addresses the interests of developing states along with those of pioneer investors.[8]

Space Law Principles and Future Topics that Are Potentially Contentious for New States in Space

There are also principles whose interpretation raises more concerns, specifically for new states in space. The first and possibly the most important principle of space law is contained in Article I of the OST. It states, inter alia, that the exploration and use of outer space must be carried out "for the benefit and in the interests of all countries, irrespective of their degree of economic or scientific development, and shall be the province of all mankind."[9] Outer space must be "free for exploration and use by all states without discrimination of any kind, on a basis of equality and in accordance with international law," and there must be "free access to all areas of celestial bodies."[10] The problem is that the concepts are not clearly defined and can be subject to varying interpretations. Do they merely provide moral guidance to states, or should they be considered as international obligations whose breach may constitute an internationally wrongful act that could entail state responsibility? For example, the interpretation of the "benefit" principle may affect the participation of new states in space activities.

The second-most important principle of space law is contained in Article II of the OST, which declares that outer space and celestial bodies cannot be subject to appropriation by any means. This means that there can be no sovereignty in outer space, unlike on Earth or in the airspace above the territory of a state. It is prohibited to claim ownership of any part of outer space. Like Article I, Article II can be subject to different interpretations, most recently in the context of space resource activities sometimes referred to as "space mining." An important question in that context is whether ownership of extracted resources is allowed, albeit under certain conditions, or should be considered as "appropriation" under Article II and therefore prohibited.

The former approach seems more realistic and is followed in the 1979 Moon Agreement. It declares celestial bodies and their natural resources the "common heritage of mankind,"[11] provides that neither the surface, nor the subsurface, nor natural resources "in place" can become the property of a state, organization, or entity,[12] and requires a special regime to be established to govern the commercial exploitation of such resources "as such exploitation is about to become feasible."[13] The problem with this treaty is that, although all others have been ratified by a substantial number of states, the Moon Agreement has less than twenty states parties.[14] The main reason for this is the "common heritage of mankind" concept, which is understood by developing states as a legal concept implying communal ownership, but which developed states see as a political or moral idea merely implying

[8] G.A. Res. 51/122 (Feb. 4, 1997).

[9] Outer Space Treaty, *supra* note 2, art. I.

[10] *Id.*

[11] Moon Agreement, *supra* note 2, art. 11.1.

[12] *Id.* art. 11.3.

[13] *Id.* art. 11.5.

[14] The eighteen states that ratified the Moon Agreement do not include any of the "space powers," but the group is not limited to new state actors either. For details, see *supra* note 5.

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some form of joint management of a global commons. As a consequence, legal uncertainty about the regulation of commercial use of space resources continues to exist.

But the advent of "space mining" will require some form of regulation and, as in the past, the views of newcomers may not align with those of the traditional space powers. Two states where private entities are active in this field, the United States and Luxembourg, have enacted national laws in recent years in order to provide legal certainty to these companies and make it possible for them to secure investment.[15] Both these national laws explicitly acknowledge international obligations under the OST.[16] The contentious issue is whether national law is acceptable, even if only as a first step, or international regulation is needed, as also suggested in the Moon Agreement.[17] Several states—not only new state actors—feel that space mining can only be regulated at the international level, within COPUOS, as the sole body with a mandate to draft international rules governing space activities.[18] But agreement among all stakeholders is required, and the problem is that new states in space may not (yet) be part of COPUOS. In addition, the companies involved, which also realize that international legitimacy is essential for their business and which will make important contributions to the debate, have no standing in COPUOS.

In an effort to contribute to reaching an all-inclusive international agreement on the governance of space resource activities, The Hague International Working Group on the Governance of Space Resource Activities was set up in 2015 as a multistakeholder and multidisciplinary forum to address the need for an international governance system for space resource activities, and to lay the groundwork for such a regime.[19] Through inclusive discussions in a nonpoliticized atmosphere and a bottom-up approach, the Working Group has drawn up a set of draft Building Blocks, which were opened for global consultation and which will be finalized by the end of 2019 and submitted to the international community for possible further action.

Another example of a new topic that needs to be addressed by the regulatory community and where new states in space may have different views is the long-term sustainability (LTS) of space activities—i.e.,

> the ability to maintain the conduct of space activities indefinitely into the future in a manner that realizes the objectives of equitable access to the benefits of the exploration and use of outer space for peaceful purposes, in order to meet the needs of the present generations while preserving the outer space environment for future generations.[20]

[15] *See* U.S. Commercial Space Launch Competitiveness Act, Pub. L. No. 114–90, 129 Stat. 704 (2015); Loi du 20 Juillet 2017 Sur L'exploration et L'utilisation des Ressources de L'espace (Lux.) (English trans.).

[16] Neither the United States nor Luxembourg has ratified the Moon Agreement.

[17] For analysis, see IISL/ECSL Symposium on "Legal Models for Exploration, Exploitation and Utilization of Space Resources 50 Years After the Adoption of the Outer Space Treaty," UN Office for Outer Space Affairs, Legal Subcomm., 56th Sess. (Mar. 27 – Apr. 7, 2017); Tanja Masson-Zwaan & Neta Palkovitz, *Regulation of Space Resource Rights: Meeting the Needs of States and Private Parties*, Questions of Int'l L. (Jan. 30, 2017).

[18] *See, e.g.*, Olavo de O. Bittencourt, Reactions to US National Legislation: The View of Emerging Space Powers, (Symposium on Legal Aspects of Space Resource Utilization, Apr. 17, 2016); *see also* Thomas Cheney, Reactions to the US Space Act 2015: Statements at COPUOS, *id.*; Questions and Observations by Belgium on the Establishment of National Legal Frameworks for the Exploitation of Space Resources, Working Paper Prepared by Belgium, Comm. on the Peaceful Uses of Outer Space, 57th Sess., UN Doc. A/AC.105/C.2/2018/CRP.8 (Mar. 29, 2018).

[19] *See* The Hague Int'l Space Resources Governance Working Group, Int'l Inst. of Air & Space L., Leiden Univ.; The Hague Space Resources Governance Working Group, Information Provided by The Netherlands, Comm. on the Peaceful Uses of Outer Space, Legal Subcomm., 57th Sess., UN Doc. A/AC.105/C.2/2018/CRP.18 (Apr. 12, 2018).

[20] *See* Long-term Sustainability of Outer Space Activities, UN Office for Outer Space Affairs.

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Although there is a growing awareness that regulation is needed to preserve the use of outer space for future generations, new space actors may feel it is unfair to impose strict standards on their space missions from the start, whereas the traditional space powers have enjoyed decades of freedom in that respect. The discussions in COPUOS on this topic have been particularly difficult and have not fully concluded, but states agreed on guidelines in June 2018 at the end of the mandate of the Working Group established for this purpose in the Scientific and Technical Subcommittee (STSC) of COPUOS.[21] The process of adopting LTS guidelines was entrusted to the STSC, and not the Legal Subcommittee, but legal experts have always taken part in the work. The same happened with the UN debris mitigation guidelines. Likewise, COPUOS and its Secretariat have stepped up cooperation with the International Telecommunication Union in the field of small satellite activities, and with the International Civil Aviation Organization in the field of sub-orbital flights. This interplay between various bodies no doubt contributes to reaching a well-balanced agreement in these multifaceted fields.

Conclusion

Broad principles and guidelines were agreed in the early decades of the use and exploration of outer space. A limited number of major players was involved in these activities and in the formulation of governing legal principles. Most of these principles addressed issues that were not extremely contentious, and hence their global acceptance has not caused major obstacles. States newly joining the ranks of space-active nations are not likely to face major issues in accepting most of these principles, but the interpretation of Articles I and II of the Outer Space Treaty and the meaning and relevance of the Moon Agreement may raise concerns for new states in space, especially in the context of new commercial space activities.

Such new activities bring new legal challenges. The best way to address these is to adopt an inclusive and interdisciplinary approach; not only should all relevant stakeholders be included in the deliberations, but they also need to involve experts from different disciplines. A "pillar" approach is no longer suitable; the buzz words for the equitable and effective implementation and further development of the principles laid down in the UN space treaties are *inclusion* and *interdisciplinarity*. In addition, *capacity-building* in law and technology is essential to ensure a level playing field for all stakeholders, including new states in space.

[21] *Id.*

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