

O N E

The Search for a Stable Regulatory Framework

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A principal function of the international legal process is the formulation of generally acceptable international legal principles, standards, and rules. These prescriptions contain rights and duties which apply to the conduct of states, international intergovernmental organizations, and other juridical and natural persons. When a state enters into an international agreement it becomes obliged to adopt laws designed to secure the objectives specified in the agreement. In this manner the juridical and natural persons of States are required, pursuant to municipal law, to conform to the international norm. They also acquire rights allowing them to engage in activities of their choice.

It is within the foregoing framework that international space activities will be carried out. Since limitations exist respecting activities in space, it is important that the process for establishing such limitations, and the critical elements of international space law, be identified. Having looked at these matters it will be possible to respond to the question whether a stable regulatory framework exists. One can then proceed to an examination of what ought to happen in order to improve on the present regu-

latory system. In embarking on such an inquiry it must be borne in mind that mankind will increasingly make demands for new space activities.

EXISTING INTERNATIONAL NORMS

Formal international norms relating to the exploration, exploitation, and use of the space environment (outer space, per se, the moon, and other celestial bodies), and the natural resources of the foregoing areas, have resulted from the efforts of the United Nations and the International Telecommunication Union. In the former the role of the Committee on the Peaceful Uses of Outer Space (COPUOS) has been supplemented by the efforts of the Conference on Disarmament (CD). In the latter the periodic meetings of the ITU have been supplemented by international and regional World Administrative Radio Conferences. Five formal agreements of major importance have resulted from the deliberations at COPUOS. The constitution of the ITU, most recently revised in 1982, and the regulations adopted in WARC sessions have also conditioned space activities.

These formal agreements, as augmented by an expanding body of general rules of customary international law, based on accepted common practices of the space-resource states, constitute today's regulatory framework for space activities. This legal structure constitutes an acceptable substantive basis for international satellite activity. However, the legal framework for space activities is incomplete in some important particulars.

In order for the international legal regime for outer space and space activities to be complete, particularly as the commercialization of the space environment and its resources move forward into its next and enlarged phase, there will be a critical need for the establishment of a regulatory institution. The exact nature and function of such an institution will be the subject of much debate, particularly whether it should be charged with the management of all space activities, or given only a limited mandate, while preserving, for example, the present separate rule of the ITU. Such a new international intergovernmental organization

at a minimum should be given the constitutional authority to secure the implementation of the UN-negotiated treaties. Such an institution should also be empowered to promulgate and to apply rules resulting from its own deliberative processes.

Foremost among the existing principles of international space law are: (1) the space environment and its resources are to be used "for the benefit and in the interests of all countries . . . and shall be the province of all mankind";¹ (2) the area and its resources are to be open to free scientific investigation; (3) while states and international intergovernmental organizations may exercise jurisdiction over space activities, neither may establish sovereignty or equivalent authority with respect to such activities; (4) space activities are to conform to international law, including the UN Charter; (5) nongovernmental entities may engage in space activities, subject to the international responsibility of the parent state; (6) liability shall devolve on the parent state for damage caused by space activities; (7) countries may call for consultations in order to resolve concerns respecting the safe and efficient use of the area and its resources; (8) on the basis of reciprocity States may visit national space objects and the facilities of other States located on the moon and other celestial bodies; (9) astronauts, as envoys of mankind, are to be given help when in distress.

The foregoing principles, which have their source in the 1967 Treaty on Principles Governing the Activity of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies (Principles Treaty), must be read in connection with a limited arms control provision appearing in Article 4 of the agreement. In this article the parties have agreed not to place in orbit around the earth nuclear weapons or other weapons of mass destruction. The agreement does not prohibit the orbiting of other types of weapons. Further, Article 4 provides that the moon and other celestial bodies, but not outer space per se, are to be used exclusively for peaceful purposes.

The 1967 Principles Treaty contains basic principles allowing for the development of scientific and commercial uses of the area and its resources. The treaty does not contain provisions designed to limit the kinds of weapons, other than nuclear and

mass destruction weapons, which may be introduced into orbit. It is also deficient in that it does not require that outer space per se be used exclusively for peaceful purposes.

Subsequent treaties have clarified and extended some of the provisions of the Principles Treaty. The 1968 Agreement on the Rescue of Astronauts, the Return of Astronauts, and the Return of Objects Launched into Outer Space requires that assistance be provided for the recovery of endangered astronauts and that they be returned safely to the launching country. It also calls for the recovery of space craft that have made an unprogrammed reentry, and, on request, a return to the launching authority.

The 1972 Convention on International Liability for Damage Caused by Space Objects imposes a duty on a launching State to pay for damages to objects on the ground, to aircraft in flight, or to persons or property in orbit. The agreement imposes liability on national participants and on international intergovernmental organizations for harm resulting from their joint international space activities. It enunciates a formula to be used in fixing the monetary sums to be paid in the event of harm. It also makes provision for the resolution of disputes over damages, including the establishment of a claims commission.

The 1975 Convention on Registration of Objects Launched into Outer Space requires parties to register their launches on a national roster and then to give notice of the launch to the UN Secretary-General. Such notice is to include the date and location of the launch, orbital parameters, and the general function of the spacecraft. Notification must also be given when the space object is no longer in orbit.

FACTORS INFLUENCING COMMERCIAL SATELLITE ACTIVITY

Profitable exploration, exploitation, and use of the space environment and its natural resources will depend on a myriad of influences. Some are presently known; others can only be imagined.

International Considerations

The existence of a stable international regulatory framework for satellite activities will depend on a number of political considerations. At a minimum there will have to be an accommodation between the competing views of the space-resource States and those comprising the developing world, i.e., the less-developed countries (LDCs). The issue here will be the equitable sharing of the benefits derived from the area and its resources. There will also be the need for a balanced approach between the free-enterprise system of the western world and the economic-political formulas preferred in the socialist countries. Somewhat ironically the commercialization of the area and its resources has gone forward concurrently with the evolving militarization of the space environment. In this area the United States and the Soviet Union will be obliged to arrive at positions based on mutual self-interest in order to allow for the maximization of commercial undertakings.

The excessive militarization of the space environment will constitute a hazard to important commercial developments. Governments will be required to provide economic support, at least in the beginning, for private commercial activities. Funds budgeted for military purposes may diminish the sums available for the support of commercial activities. A large number of military launches will burden launching facilities and could preempt radio frequencies required for future space stations, which can be visualized as a convoy of orbiting space objects surrounding a large central facility.

Commercialization will have to take into account frequently expressed Soviet views. Although the Soviet Union agreed to the terms of Article 6 of the 1967 Principles Treaty, which provided that "nongovernmental entities" may engage in space activities, Soviet spokesmen as recently as the October 1984 meeting of the International Institute of Space Law stated that they were not "happy" about the prospects of private commercial activity. This outlook may be based on the existing bias in favor of state-owned enterprises. It may be founded in the view that a large number of commercial launches would result in the occupation of orbital positions and the use of radio frequencies, which

would deny that area to competing launches. It could be that the Soviets have the view that such private launches might serve the intelligence-gathering needs of the launching states, with possible injury to Soviet security requirements. It may also be that the Soviets consider that such commercial launches would solidify the existing relation between earth-based and space-based activities with the possible result that the early users of orbital positions could lay claim to preferences.

Commercialization of the space environment and its natural resources will increase space activity. Commercialization will take many forms. At the present satellites have been successful in augmenting communications. They have been engaged in a variety of sensing or monitoring activities. Agricultural and fisheries yields have been improved. Critically needed weather information has been provided.

The experiments conducted on the space shuttle have measurably advanced materials processing, purification of chemical elements, and the manufacture of pharmaceuticals and medicines. In addition, they have helped to preserve international peace by their ability to verify international arms control agreements.

In the future large space stations will serve as construction bases for specialized space objects designed to exploit space resources. The construction in space of a solar power system will make it possible to capture solar energy for transmission to earth. Other space-built satellites will allow for the mining of the mineral resources located on the moon and other celestial bodies. It has been suggested that such resources could be processed in the space environment so as to provide finished products for space use. Activities of this magnitude would call for the presence of a human population in space. It has even been suggested that the moon might become the situs of a permanent human habitation. Over time, as earth-based resources are diminished, while earth-based requirements are enlarged, a more pressing need for the exploitation and use of space-environment resources will arise.

Pending the proposal for operating space stations during the next decade, the operations being carried out and planned for the space shuttle and comparable foreign undertakings have

necessitated the formation of an appropriate legal regime. Lessons learned will be directly applicable to space stations.

At present it is contemplated that the space station of the 1990s will be the product of cooperative efforts between the United States and friendly European countries. This prospect resulted recently in an international colloquium on "Space Stations, Legal Aspects of Scientific Commercial Use in a Framework of Transatlantic Cooperation" held in Hamburg, Germany, on October 3-4, 1984.² At its annual meeting of the International Institute of Space Law in Lausanne, Switzerland, October 8-13, 1984, several sessions were allocated to a consideration of the international and domestic issues and presented by the prospect of space stations.³ The involvement of many States in joint space ventures of this magnitude will raise many political and legal issues. Some experience has been gained from prior cooperative undertakings between the United States and numerous foreign countries.⁴ The infrastructure created by the European Space Agency will also provide many valuable insights.

Large-scale space station activities, which take place in a hazardous and inhospitable natural environment, will result in a number of physical problems, which can either be prevented or overcome through suitable internationally recognized practices and procedures. Concerns have been voiced respecting pollution, contamination, solid debris, the monitoring of debris, and collision probabilities. In October 1984, it was estimated that the United States was tracking up to 5,300 pieces of debris, almost all of relatively small size. However, there are now in orbit a number of inactive satellites, which pose danger for active and future space objects. These conditions have led to suggestions that through international agreement provision could be made for safe launch corridors and timely notices of launch, although at present the requirement of prior notice does not appear to be practical. If pollution is considered an excessive amount of space clutter and debris, then avoiding such a condition would be desirable. In a positive sense there is a common need to insure that space and its natural resources are used in the most efficient, economical, and equitable manner possible. Failure to make maximum use of space capabilities is as undesirable as physical harm to the natural

environment. From this perspective a stable regulatory framework would prove the wisdom underlying the adage that an ounce of prevention is worth a pound of cure.

National Considerations

As the United States addresses its cooperative role in the establishment of large space stations it will be obliged to consider the municipal legal rules governing internationally sponsored launches and interpersonal relationships on the space station. It will also have to fashion domestic institutions charged with protecting the interests both of participating individuals and the larger public.

Among the substantive areas of law that will have to be dealt with are the internal public order of the space station, including the powers of the spacecraft commander, and the applicable criminal law, the protection of intellectual property, including copyrights and patents, the rights of non-nationals on the space objects, and wide-ranging jurisdictional problems, including the adoption of one or more legal principles, such as the nationality, territoriality, universality, protective, or passive personality principles.⁵ One issue that may require specific attention is the U.S. position on monopolies and restraints of trade, which is addressed from a different perspective by European states.

In the United States at present there are a number of national departments and administrative agencies which possess separate mandates relating to space activity. At the departmental level are the Department of State, the Department of Commerce, and the Department of Transportation. The Department of Defense, including the armed services, also has a natural involvement in space station activities. In order to meet the increase in launching activities the Department of Transportation has created an Office of Commercial Space Transportation. This department also contains the Federal Aviation Administration. The Department of Defense now has a North American Aerospace Defense Command. In addition, the National Aeronautics and Space Administration and the Federal Communications Commission, among others, are critically involved in outer space activities. The development of a coherent set of legal rules relating to large-scale space activity will

require coordination on the part of all these national instrumentalities. It may also be expected that state laws and authorities will have to change their laws and procedures to conform to federal mandates.

The need for the careful orchestration of a clear-cut domestic legal regime should be obvious. American firms are preparing to invest billions of dollars in the science and technology required to make space stations a reality. They are willing to accept the national challenge to explore, exploit, and use the space environment and its natural resources for peaceful purposes. They are being encouraged by present federal policies. To allow for the fulfillment of such expectations it is evident that the government itself, in addition to monetary assistance in suitable circumstances, should make a large investment in time and energy in order to perfect a suitable municipal legal regime. The economic rewards are likely to have a strong impact on the economies of all participants.

THE 1967 PRINCIPLES TREATY AND THE 1979 MOON AGREEMENT: THEIR APPLICATION TO THE COMMERCIALIZATION OF SPACE

A draft Agreement Governing the Activities of States on the Moon and Other Celestial Bodies went into effect in 1984, following its adoption by the UN General Assembly in 1979. Only five countries are now bound by the agreement: Austria, Chile, the Netherlands, the Philippines, and Uruguay. Both the United States and the Soviet Union played an active part in drafting the treaty. At the time it was presented to the General Assembly both countries approved it.⁶

The Moon Agreement is notable in several respects. It foresaw the need to restrict armaments on and around the moon, if commercial activities were to take place there and prosper. Thus, Article 3 provided that parties were not to "place in orbit or other trajectory to or around the Moon objects carrying nuclear weapons or any other kinds of weapons of mass destruction or place or use such weapons on or in the Moon,"⁷ a reemphasis of the funda-

mental obligation contained in Article 4 of the 1967 Principles Treaty relating to orbits around the earth.

The 1979 agreement was equally notable in extending the mankind principle of Article 1 of the Principles Treaty, although with a different emphasis, and with a detailed recitation of goals, on the activities to be carried out in or on the moon. Article 11, paragraph 1, of the Moon Agreement stated that "the Moon and its natural resources are the common heritage of mankind."⁸

Prior to the compromise acceptance by the negotiators of the foregoing formulation many proposals were advanced regarding the legal status of the moon and other celestial bodies, particularly as they related to the appropriation and exploitation of the area and of the natural resources of the area. These views have been summarized:

Some considered that such natural resources could be lawfully exploited; others viewed such activity as an unlawful appropriation. Among those who favored the legality of exploitation of resources were some who reserved this activity to States; others considered such activity to be lawful when pursued by both States and private legal persons. Some held the view that such exploitation should be restricted to scientific activity; others considered that the exploitation might be directed to both scientific and commercial needs.⁹

During the debates at the UN competing juridical doctrines were propounded. It was urged at one time that the United Nations should hold legal title to the area and its resources. One view advanced was that the area should constitute a *res nullius*, subject to the claim of exclusive sovereignty by a state or states. The contrary proposal was also put forward, namely, that the area should be a *res communis*, thereby open to the common uses of all potential explorers and exploiters, and not subject to a regime of exclusivity. The Argentinian space lawyer, A. A. Cocca, urged that the area be subject to a *res communis humanitatus* regime.¹⁰ His proposal ripened into the outer space principle of the Common Heritage of Mankind (CHM).

During the search for a key principle governing the exploitation of the moon and other celestial bodies, including their

natural resources, it was suggested that an analogy might be drawn between the regime for the continental shelf, which was founded on the exclusivity principle, and the regime for the moon and its natural resources. In the end the CHM principle was accepted, since it was based on the *res communis* principle. However, the CHM principle extended the *res communis* principle by calling for a new legal regime designed from moon resource exploitation. Article 11, paragraph 7 (d), in making provision for a new international regime provided:

An equitable sharing by all States Parties in the benefits derived from those resources, whereby the interests and needs of the developing countries, as well as the efforts of those countries which have contributed either directly or indirectly to the exploration of the Moon, shall be given special consideration.¹¹

This provision adopted the theme found in other international agreements in which equitable distributions are to take place. In order to clarify the meaning of "equitable" the United States has indicated in different international gatherings that this term, while conveying the views of fairness and justice, does not mean "equal."

Following the adoption at the UN of the Moon Agreement several American senators suggested that the CHM provisions could be damaging to the national economic and security interests of the United States.¹² This proposition was discounted by Secretary of State Vance, who correctly pointed out that the treaty, and in particular Article 11, paragraph 3, would "permit ownership to be exercised by States or private entities over those natural resources which have been removed from their 'place' on or below the surface of the Moon or other celestial bodies."¹³

To this it should be added that Article 11 stipulates that initially, i.e., in the early stages of the exploitative process, the parties are entitled to retain all of the benefits derived from the commercial uses of the moon and other celestial bodies. The geographical scope of this right extends to "orbits around or other trajectories to or around it."¹⁴

The agreement makes an important distinction between preliminary exploratory and use activities, during which

time all economic benefits would flow to the explorer and user, and a more advanced stage of commercial activity. Thus, at such time as the original commercial activities were to ripen into true "exploitation" of natural resources, which has been taken to mean extensive or large-scale activities, the parties to the agreement are called upon to create a new international legal regime. It would be the function of such a regime to effect a distribution of the "benefits" derived from such large-scale exploitation in accordance with the formula set out in Article 11, paragraph 7 (d).

Such a regime is to be created, according to the terms of the treaty, only by those states that have ratified it. This means that neither the United States nor the Soviet Union would participate in the design of the new legal regime. Since the CHM principle would be applicable only to the participants in the new regime, as implemented by the newly established international organization, nonparties would continue to be governed by the modified *res communis* provisions appearing in Articles 1 and 2 of the 1967 Principles Treaty. Article 9, paragraph 2, of the Moon Agreement adopts the wide-ranging provisions of Article 1 of the Principles Treaty. Article 2 of that agreement provides that "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."¹⁵ Article 11, paragraph 2, of the Moon Agreement applies the same principle to the moon. In the light of these provisions it would be possible for the parties to the Moon Agreement to be governed by a CHM regime, while nonparties would still have to conform to the modified *res communis* regime.

In reaching a policy decision the United States as a space-resource State would have to consider whether it would have more to gain from the specific provisions of the Moon Agreement, including acceptance of the duty to share some of the benefits derived from exploitative activity, or from reliance on the *res communis* principle, which does not require, and has not resulted in, the sharing of specific benefits. While the Moon Agreement does not repeat the terms of Article 1, paragraph 2, of the Principles Treaty providing for the free and equal exploration, exploitation, and use of the space environment, this right is so fundamental

that it would apply to moon activities in any case. Thus, in the future it would be possible, assuming that the United States does not become a party to the Moon Agreement, for it to have recourse to the *res communis* regime. At the same time the States that have ratified the Moon Agreement, none of which are now space-resource states, would be governed by the CHM regime.

This situation would be somewhat akin to the present United States position relating to the 1982 Law of the Sea Convention, to which the United States has not become a party. The 1982 agreement contains many customary principles of general international law upon which the United States can rely without formal acceptance and at the same time the United States has entered into side arrangements with other maritime countries on selected ocean matters.

A parallelism exists between the rights and duties of states relating to the exploration, exploitation, and use of the ocean and its resources and the space environment and its resources. The ocean beyond the limits of national sovereignty has been treated as a *res communis* area and tied to the expression "freedom of the high seas." The 1982 Law of the Sea Convention has established a CHM area, which is subject to constraints when states seek to dispose of benefits resulting from national exploitative activities.

The 1967 Principles Treaty relied by way of analogy on the *res communis* doctrine. This found expression in Articles 1 and 2 of the treaty. Article 1, in referring to the exploration and use of the space environment, provided that such activity was to be carried out for the benefit and interests of all countries and was to be the province of all mankind. Since this departed from the traditional view of *res communis*, the United States Senate Committee on Foreign Relations advanced the following understanding respecting the meaning of Article 1: "Nothing in Article 1, paragraph 1, of the treaty diminishes or alters the right of the United States to determine how it shares the benefits and results of its space activities."¹⁶ The understanding was designed to reinforce the *res communis* principle. Nonetheless, Article 1, by its terms, was not in conformity with a strict view of the principle, since the article placed greater emphasis on the benefits and in-

terests of all countries in the service of mankind than has the traditional *res communis* principle.

The 1979 Moon Agreement, while building on Article 1 of the Principles Treaty, went beyond it in adopting the CHM principle, even though, as noted above, this principle will not be applied until at some future date there is a large-scale exploitation of moon resources. The principle will not be implemented until after the parties to the agreement have established an appropriate institution having the authority to effect the distribution of benefits called for under Article 11, paragraph 7, of the treaty.

Thus, for both the 1982 Law of the Sea Convention and the 1979 Moon Agreement the *res communis* principle has been modified in the specific contexts of the two treaties, subject, as indicated, to future eventualities.

Moreover, just as the Law of the Sea Convention contained many instances of general principles of customary international law, so the 1967 Principles Treaty as augmented by the Moon Agreement also contained references to the traditional *res communis* principle, namely, the present right to explore, exploit, and use the space environment and its resources freely and equally, and to have free access to the area and its resources. Under such circumstances, particularly since the CHM provision constitutes an extension of the *res communis* principle, it would appear that States for policy purposes are free to give their support to the *res communis* principle as it applies respectively to the ocean and to the space environment. Their total commitment to the *res communis* principle would be evidenced by not accepting the 1982 and 1979 agreements. Further evidence would be the acceptance of an agreement or agreements in which their unrestricted support for the traditional *res communis* principle was made known.

While such national policies may be legally supportable, it should be noted that the CHM principle has received very wide-ranging approval. Since the resources that are or will be explored, exploited, and used are situated in the world's commons, it may be that the self-interest of the space-resource states would best be served through the acceptance of the principle. As in most matters the decision will depend on the precise manner in which the sharing of benefits formula of Article 11, paragraph

7, of the Moon Agreement is implemented. In my opinion an equitable sharing of the benefits would give the largest shares to the countries which have produced the benefits.

CONCLUSION

From the foregoing it may be concluded that states are being provided with a choice of international legal regimes for the exploration, use, and exploitation of the moon and other celestial bodies and the resources of these areas. Some eighty-five states, including all of the space-resource countries, have accepted the modified *res communis* principle contained in Article 1 of the 1967 Principles Treaty.

Of these eighty-five countries only five have become bound by the 1979 Moon Agreement, and these five are not space-resource countries. The entry into force of the Moon Agreement among these several states has not served to put the CHM principle into operation. This must await the practical and large-scale exploitation of moon resources. Thus, for the moment there is no practical conflict between the two international agreements. Nonetheless, it is important to realize that over time, and when and if several of the space-resource states become bound by the Moon Agreement, it will be necessary to accommodate the respective international legal regimes. Such an accommodation will be essential to the successful commercialization of space. Over time it is very probable that a new international intergovernmental organization will come into being to aid in maintaining a stable regulatory framework for the space environment and its natural resources.

NOTES

1. 18 UST 2410; TIAS 6347; 610 UNTS 205. The following illustrations are taken from the Treaty. It has been ratified by 85 States including the United States, the Soviet Union, and the Peoples Republic of China.

2. The papers presented at the Conference are to be published in "Studies in

Air and Space Law" under the auspices of the Institute of Air and Space Law, University of Cologne.

3. The papers presented at the international scientific and legal round table and of the Institute are to be published in the Proceedings of the 27th Colloquium on the Law of Outer Space, American Institute of Aeronautics and Astronautics, New York.

4. C. Q. Christol, "Space Joint Ventures: The United States and Developing Nations," *University of Akron Law Reviews* (1975), 8:398-415.

5. C. Q. Christol, "The International Law of Outer Space" (Washington, D.C.: GPO, 1966), pp 416-418.

6. Senate Committee on Commerce, Science, and Transportation, "Agreement Governing the Activities of States on the Moon and Other Celestial Bodies," Parts 1-4, 96th Cong., 2d Sess.; "The Moon Treaty," Hearings before the Subcommittee on Science, Technology, and Space of the Committee on Commerce, Science, and Transportation, 96th Cong. 2d Sess (1980); C. Q. Christol, "The Common Heritage of Mankind Provision in the 1979 Agreement Governing the Activities of States on the Moon and Other Celestial Bodies," *The International Lawyer* (1980), 14:429.

7. U.N. Doc. A/34/664, November 12, 1979; *International Legal Materials* (1979), 18:1434.

8. *Ibid.*

9. C. Q. Christol, "The Common Heritage of Mankind Provision," p. 447.

10. A. A. Cocca, "The Principle of the 'Common Heritage of All Mankind' as Applied to Natural Resources from Outer Space and Celestial Bodies," *Proceedings of the 16th Colloquium on the Law of Outer Space* (1974), p. 174.

11. U.N. Doc A/34/664, November 12, 1979; *International Legal Materials* (1979), 18:1434.

12. U.S. Department of State, "Digest of United States Practice in International Law, 1979" (Washington, D.C.: GPO, 1983), p. 1172.

13. *Ibid.* Secretary of State Vance observed that such removal is also permitted by Article 1, par. 2 of the 1967 Principles Treaty, which states, inter alia, that "Outer space, including the Moon and other celestial bodies, shall be free for exploration and use by all States."

14. U.N. Doc A/34/664, November 12, 1979; *International Legal Materials* (1979), 18:1434.

15. 18 UST 2410; TIAS 6347; 610 UNTS 205.

16. Senate Committee on Foreign Relations, "Treaty on Outer Space," S. Exec. Rep. No. 8, 90th Cong., 1st Sess. (1967), p. 4.