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Law in a Vacuum: The Common Heritage Doctrine in Outer Space Law

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I. INTRODUCTION

The success of the space programs of the United States and the Soviet Union has demonstrated the feasibility of space use and has spurred the development of economically practical space activity. While space activity has increased, the world community has had increasing difficulty agreeing on specific rules of conduct to govern space use. Existing space law is based on broad theoretical principles contained in the first international agreement governing space use sponsored by the United Nations. These broad principles were sufficient to guide space use during the formative years of the space age, but as space activity has flourished, space law has lagged behind. Specifically, states attempting to formulate rules to govern specific space activities have not agreed on the meaning of space law principles.

One of the earliest declarations concerning the legal status of outer space was that all states are free to explore and use space. This broad declaration, however, has not proved workable for space activities functionally related to earth. For example, while all states may operate satellites, the world community has not accepted unrestricted satellite use for remote sensing of the earth surfaces or direct broadcasting of television programs. Another early declaration of space

2. Ambassador Peter Jankowitsch, chairman of the United Nations Committee on the Peaceful Uses of Outer Space, noted some of the possible uses of outer space at the committee's 1979 session:
   We are now seriously considering daily flights into orbit which might serve and supply large technical facilities such as research laboratories, ... manufacturing facilities, or communications centers. We are also considering ... erecting large structures in space ... that could be part of a large solar experiment. And, finally, we are examining the possibility of setting up large, earth-like communities several hundred thousand miles up in space.
6. See infra § III.A.
8. See infra § III.A.2 for a discussion of remote sensing satellites.
9. See infra § III.A.1 for a discussion of direct broadcasts by satellite.

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law was that the exploration and use of outer space is the province of mankind. This idea is repeated and expanded in the proposed Agreement Governing the Activities of States on the Moon and Other Celestial Bodies, which states that the moon and other space resources are the common heritage of mankind. From each of these declarations flows the proposition that benefits from space shall accrue to all mankind. The principle of common heritage, however, has not received worldwide acceptance.

This Comment focuses on the difficulties the world community has had in interpreting and applying space law principles. In particular, the author discusses the problems arising from states' differing interpretations of the principle of freedom of outer space and the principle of common heritage. The author explores the viability of these principles in the context of current political and economic world realities and suggests that the principles may yet become functional rules of international law.

II. THE ORIGIN AND DEVELOPMENT OF SPACE LAW

A. Efforts by the United Nations

The space age was born in an atmosphere of international cooperation and cold war tension. The first U.S. and Russian satellite programs were undertaken as part of International Geophysical Year, (IGY), when more than seventy states cooperated in scientific experiments around the world. During

10. Outer Space Treaty, supra note 4, art. I.
12. Id. art. XI.
13. See infra § III.B.2.
14. "International Geophysical Year, commonly known as IGY, was the 30 month period from July 1, 1957, to December 31, 1959, during which a worldwide program of geophysical research was conducted." 12 Encyclopedia Britannica 414 (W. Benton ed. 1970).
15. Id. at 414. "IGY represented an unparalleled enterprise in international scientific cooperation. More than seventy nations and 30,000 scientists and observers participated in operating several thousand scientific stations reaching from pole to pole. IGY was directed toward a systematic study of the earth and its environment and included eleven fields of geophysics. In addition, two novel programs, rocketry and artificial earth satellites, were involved." Id.

"An enormous amount of data was collected during IGY, much of which was immediately applicable to such fields as meteorology and atmospherics. Important discoveries were made concerning the composition and structure of the earth and the earth's atmosphere. The discovery of the Van Allen radiation belt through the use of space probes and satellites provided the basis for a unified description of variations of the earth's magnetic field, the aurora, and solar particles." Id. at 417. "IGY was the basis for the Antarctica Treaty, which consecrated the polar region to scientific, peaceful uses — the first instance in which such a portion of the earth has been set aside;" Id. at 418. See generally S. Chapman, International Geophysical Year: Year of Discovery (1959); F. Ross, Partners in Science; The Scientific Discoveries of the International Geophysical Year (1961).
the thirty month IGY interval, the United States and Russia launched twelve satellites and five space probes, providing significant data on cosmic rays, magnetic fields, solar radiation, cloud cover and composition of the ionosphere. The successful launch by the Soviet Union of the first earth orbiting satellite, Sputnik 1, on October 4, 1957, however, also marked the beginning of the space race between the Soviet Union and the United States.

1. The Ad Hoc Committee on the Peaceful Uses of Outer Space

Following the launch of Sputnik 1, the United Nations recognized the need for an international forum to discuss matters relating to outer space. On December 13, 1958, the General Assembly of the United Nations adopted a resolution, over Soviet bloc dissent, establishing the Ad Hoc Committee on the Peaceful Uses of Outer Space (the Ad Hoc Committee). The purpose of the committee was to report on the legal problems which might arise in relation to space activities. In addition, the committee was to report on international ventures which could appropriately be brought under the auspices of the United Nations.

The Ad Hoc Committee convened in May 1959, despite announcements by


Explorer 1, (the first American satellite), was more than a technological triumph. It symbolized the emergence of a new determination in a country that, having been knocked off its feet, (by the Soviet launch of Sputnik 1), was picking itself up to run what it perceived to be a long-term race.

Id.

18. The regular session of the United Nations General Assembly, in Fall 1958, was the first occasion when substantial numbers of states expressed official positions on the status of outer space. As early as March 17, 1958, the Soviet Union had submitted a proposed agenda item, U.N. Doc. A/8818 (1958), banning the use of space for military purposes and calling for international cooperation in the study of space. The Soviets also proposed a United Nations agency to serve as a world center for the collection, mutual exchange, and dissemination of space related information. See Taubenfeld, Consideration at the United Nations of the Status of Outer Space, 53 Am. J. Int'l L. 400, 400 (1959).

20. Jessup & Taubenfeld, The United Nations Ad Hoc Committee on the Peaceful Uses of Outer Space, 53 Am. J. Int'l L. 877, 877 (1959). Although the Soviet Union was among the first states to propose United Nations discussion of outer space, see supra note 18, the General Assembly rejected the Soviet proposal since the committee envisioned by the Soviet proposal consisted predominantly of Soviet satellite states and other Soviet allies. Taubenfeld, supra note 18, at 41. The resolution finally adopted was based on a draft proposal submitted by twenty nations, including the United States. Id. at 402. The Soviet dissent was thus presumably motivated more by cold war politics than by Soviet disagreement with the content of the resolution. See generally Taubenfeld, supra note 18, at 402.

22. For a text of the resolution, see YEARBOOK OF THE UNITED NATIONS 1958, at 22-23 (Office of Public Information ed. 1958).
23. The Ad Hoc Committee consisted of Argentina, Australia, Belgium, Brazil, Canada, Czechoslovakia, France, India, Iran, Italy, Japan, Mexico, Poland, Sweden, Russia, the United Arab Republic, England, and the United States.
Czechoslovakia, Poland, and Russia that they would not attend. The committee finished its work and approved its report to the General Assembly on June 25, 1959. In its report, the Ad Hoc Committee stressed the need to find ways of enabling all nations, at all levels of development, to participate in space programs. The committee also recommended the creation of a special committee of the General Assembly to study measures to facilitate international cooperation and to provide a focal point for such cooperative activities. The Ad Hoc Committee concluded that action by the United Nations relating to space activities should be limited to promoting and coordinating international cooperation.

2. The United Nations Committee on the Peaceful Uses of Outer Space

On December 11, 1959, twelve powers submitted a draft resolution to the United Nations, which recognized the common interest of mankind in furthering the peaceful uses of outer space and which called for the establishment of a standing committee to work toward this end. One day later, on December 12, 1959, the General Assembly unanimously adopted the resolution and established the United Nations Committee On the Peaceful Uses of Outer Space (UNCOPUOS). The resolution requested that UNCOPUOS study the nature of legal problems which might arise from the exploration of outer space and facilitate an international convention of scientists to exchange information relating to space activity.
Following a procedure adopted by the Ad Hoc Committee,39 UNCOPUOS established two subcommittees: the Technical and Scientific Subcommittee and the Legal Subcommittee.40 The purpose of the Technical and Scientific Subcommittee was to provide a framework for the discussion and dissemination of the results of space research and to assist UNCOPUOS on questions of science and technology.41 The purpose of the Legal Subcommittee was to study the nature of legal problems arising from space use and to formulate agreements in response to the problems perceived.42 The close working relationship between the two subcommittees has facilitated the development of legal principles responsive to the needs of law, science, and technology.43

Decisions of UNCOPUOS and its subcommittees are made on the basis of consensus.44 UNCOPUOS realized that the most authoritative manner of proceeding in this new area of human activity would be through common appreciation of problems and common agreement on solutions.45 As a result, UNCOPUOS adopted consensus as the most acceptable procedure for decision making.46 The principle has worked well to date,47 notwithstanding the fact that UNCOPUOS includes countries with different systems of jurisprudence, political philosophy, social customs, and levels of economic development.48 The success of consensus as a method of decision making seems to indicate at least roughly parallel interests among member nations in securing outer space for peaceful purposes.49

39. See Jessup & Taubenfeld, supra note 20, at 878.
40. See Hosenball, The United Nations Committee on the Peaceful Uses of Outer Space: Past Accomplishments and Future Challenges, 7 J. SPACE L. 95, 96 (1979). All member states of UNCOPUOS are represented on both subcommittees. Id. The subcommittees report to the parent committee at the end of each session. Id.
41. Id. at 97.
44. Galloway, Consensus Decision Making by the United Nations Committee on the Peaceful Uses of Outer Space, 7 J. SPACE L. 3, 3 (1979). Consensus decision making should be distinguished from unanimous voting requirements. Consensus is achieved through negotiation and compromise without voting, whereas voting is required for a unanimous record. Id. at 3.
45. Hosenball, supra note 40, at 96.
46. Id. Consensus is also desirable as a means of achieving international accord because: (1) the process of seeking agreement continues with mutual give and take; (2) adoption of a course of action by simple majority could not be successfully implemented if dependent on participation by states not in favor; (3) group solidarity in decision making ensures maximum compliance in maintaining activity directed toward general benefit. See Galloway, supra note 44, at 5.
47. Hosenball, supra note 40, at 96. Through the process UNCOPUOS has formulated four space treaties which have entered into force. For full names and citations, see infra notes 51-53. This record seems to indicate the success of consensus decision making within UNCOPUOS, but the process has been criticized as increasingly cumbersome and as adding to the stagnation of international space law. See Haanappel, supra note 5, at 150.
49. Id. at 97.
From 1958 to 1974, the Legal Subcommittee produced four space treaties which have entered into force. These are The Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies (the Outer Space Treaty); The 1968 Agreement on the Rescue of Astronauts, the Return of Astronauts, and the Return of Objects Launched into Space; The 1972 Convention on International Liability for Damage Caused by Space Objects; and The 1974 Convention on Registration of Objects Launched into Outer Space. Of the four treaties, the Outer Space Treaty is the most important because it articulates the fundamental principles of outer space law and is generally accepted as the basic charter or constitution governing outer space.

B. The Outer Space Treaty

The early work of UNCOPUOS resulted in General Assembly Resolution 1721, of December 1961, which commended three guiding principles to states. The resolution declared that international law and the charter of the United Nations should apply in outer space, that space is free for exploration and use by all states, and that outer space is not subject to national appropriation. Six years later these principles were codified in the Outer Space Treaty.

The Outer Space Treaty states, “outer space shall be free for exploration and use by all states,” and “parties to the Treaty shall be guided by principles of cooperation and mutual assistance and shall conduct their activities in outer space with due regard for the corresponding interests of all other states party to the Treaty.” In addition, the treaty states: “The exploration and use of outer

54. Hosenball, supra note 40, at 98.
56. Id.
57. Id.
58. Id.
59. Outer Space Treaty, supra note 4. To date, over ninety countries have ratified the Outer Space Treaty, leading one writer to conclude:

In a remarkably short time after the first Sputnik was launched in 1957, a universal consensus was reached on the two fundamental principles that were to govern this new medium, namely, that outer space is free for exploration and use and is not subject to national appropriation. See Goedhuis, The Changing Legal Regime of Air and Outer Space, 27 Int’l & Comp. L. Q. 576, 582 (1978).
60. Outer Space Treaty, supra note 4, art. 1.
61. Id. art. 1X.
space shall be carried out for the benefit and in the interest of all countries . . . and shall be the province of mankind."62 Furthermore, the treaty states: "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."63

The Outer Space Treaty represents the first attempt to establish rules of conduct guiding mankind's passage into a new dimension.64 As a result of the previous conquest of the earth's physical environment65 on the high seas and in the air, ideas and concepts for the governance of outer space existed before the first spacecraft was ever launched.66 Outer space itself, however, was a legal vacuum, devoid of preexisting rules and presenting mankind with a unique opportunity to explore new legal and political frontiers. The Outer Space Treaty is remarkable for its attempt to establish a firm foundation upon which to build a legal framework to foster international cooperation and peace in outer space.67

C. The Conceptual Basis of Space Law

The realization that "anarchy in space could be more dangerous than anarchy on earth"68 made clear to the United Nations the need for rules governing space.69 The sources UNCOPUOS drew on in formulating the Outer Space Treaty reflect a broad international consensus that outer space and celestial bodies are to be free for exploration and use for the benefit of mankind; that the principles of international law are applicable thereto; that celestial bodies are to be devoted exclusively to peaceful purposes, and weapons of mass destruction are to be banned from outer space; that assistance is to be rendered to astronauts; that states are to be held responsible for their activities in space and liable for the damage caused thereby; that ownership of objects is not changed by their presence in outer space; that harmful contamination of the environment of the earth, outer space, and celestial bodies is to be avoided; that information gathered from activities in outer space is to be broadly disseminated; and that stations, installations, etc. on celestial bodies are to be open for inspection.


62. Id. art. I.
63. Id. art. II. The complete principles contained in the Outer Space Treaty have been summarized as follows:

The treaty reflects a broad international consensus that outer space and celestial bodies are to be free for exploration and use for the benefit of mankind; that the principles of international law are applicable thereto; that celestial bodies are to be devoted exclusively to peaceful purposes, and weapons of mass destruction are to be banned from outer space; that assistance is to be rendered to astronauts; that states are to be held responsible for their activities in space and liable for the damage caused thereby; that ownership of objects is not changed by their presence in outer space; that harmful contamination of the environment of the earth, outer space, and celestial bodies is to be avoided; that information gathered from activities in outer space is to be broadly disseminated; and that stations, installations, etc. on celestial bodies are to be open for inspection.


64. See generally Manual, supra note 43, at 1-51.
65. Lachs, Some Reflections on the Law of Outer Space, 9 J. SPACE L. 3, 5 (1981). "The journey into outer space . . . was inevitable. It was man's urge to penetrate the universe and to discover the secrets of life — that urge as old as history, recorded by the ancients in the writings of Heraclitus and Polibius." Id.
67. As noted by U.S. President Lyndon B. Johnson, in a special message on transmitting the Outer Space Treaty to the U.S. Senate:

The future leaves no option. Responsible men must push forward in the exploration of outer space, near and far. Their voyages must be made in peace for purposes of peace on earth. This Treaty is a step — a first step, but a long step — toward assuring the peace essential for the longer journey.

1 Public Papers of the Presidents; Lyndon B. Johnson 150 (1967).
Treaty, however, are not obvious. The principles articulated in the Outer Space Treaty are not based on traditional rules of geopolitics. In particular, the historical concept applicable to discovery and exploration of land masses on earth, namely, the obtaining of sovereignty upon effective occupation of *terra nullius*, is conspicuously absent from the treaty.

One writer has concluded that the basis for precluding sovereign control in space is not to be found in the nature of space itself, but rather in the general consensus that by denying states sovereign control over outer space, the interest of the world community is best served. The ideal of a cooperative search for common good found expression in the desire to avoid extending existing legal systems with their imperfections and ideological limitations into a universe that "potentially offers vistas of a new age for man, an age of peace, cooperation and advancement in the fields of science, medicine and philosophy."

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70. This is not to deny that previously established rules for other media, i.e., air and sea, are applicable to certain space activity, or that they will be used. For example, maritime and aviation regimes for international carriage provide important references for the development of a code for future space transport. See generally DeSaussure, Maritime and Space Law Comparison and Contrast (An Oceanic View of Space Transport), 9 J. Space L. 93, 93 (1981).

71. *Territorium nullius*: territory which is not under the jurisdiction of a subject of international law. G. Schwarzenberger, A Manual of International Law 644 (5th ed. 1967). "Under international customary law, a state may extend its sovereignty by the effective occupation of territories which are not under the jurisdiction of any other subject of international law." Id. at 122.


73. Goedhuis, supra note 59, at 582. As another writer has noted: "To imagine the opposite of this principle, that each state could, and would, make sovereign claims, is to deduce instantly the resulting chaotic international situation and to conclude that the framers of the 1967 Treaty were especially gifted with foresight in dealing with the question of sovereignty ...." Galloway, supra note 3, at 23.

74. The concept of a political community embracing all states with a common civilization dates back to antiquity "Schemes of international organizations in Europe are as old as the amphicytonic leagues of the Greek cities." From the later middle ages onward, European thinkers were preoccupied "with the mutual relations of states conceived as a wider community, a preoccupation which gradually developed into a search for an institutional framework of peace." C. Jenks, The World Beyond The Charter 21-23 (1969).

The United Nations is founded on the concept of a world community. Its charter states: "The United Nations shall be a center for harmonizing the actions of nations in the attainment of a common end." U.N. Charter, Preamble. The original purpose of the organization was to maintain international peace and security, to develop friendly relations among nations, and to achieve cooperation in the solution of economic, social, and humanitarian problems. Yearbook of the United Nations 1947-48 at 3 (Office of Public Information ed. 1959).

75. Haley, Parameters of Space Law: Present and Future, in World Peace Through Law — The Washington World Conference 158 (1967), quoted in N. Matte, Aerospace Law 43 n.97 (1969). A less theoretical basis for the development of cooperation in space law can be advanced. Man's passage into space from the outset has depended upon science and technology. Consequently scientists and technicians have played a critical role in space programs. As one writer has noted, "(t)he technical experts and representatives to international conferences may have more in common with each other than with their respective foreign ministries. In view of their common technical background and education, shared professional concerns and goals are understandable." Lieve, Essential Features of INTELSAT: Applications for the Future, 9 J. Space L. 45, 47 (1981). The first satellite programs of the
III. Modern Conflicts in Space Law and Space Use

The fundamental principles contained in the Outer Space Treaty are broad declarations of international ideals. The drafting of the Outer Space Treaty took place during the formative years of the space age, and the drafters of the treaty did not directly address specific space activity. In addition, space technology has progressed beyond the level achieved at the time of the Outer Space Treaty. In attempting to formulate specific rules for current space activities, states have disagreed on the meaning of the broad declarations of space law. In particular, the use of satellites for earth related purposes and the “mankind” provisions of the Outer Space Treaty and the Moon Treaty have engendered controversy among nations.

A. Satellites and State Sovereignty

Attempts by the world community to establish rules governing satellites used for activities functionally related to earth have been frustrated by the concern of some states for their sovereign inviolability. Satellites, presently the most common form of space use, can be used for purposes of both communication and detection. Satellites can effectively monitor a state’s territory or broadcast radio signals over it, and the subject state is virtually powerless to stop the invasion of its sovereignty. This powerful capability, coupled with the current political tension between developing and developed nations, as well as between the United States and the Soviet Union, has given rise to problems in formulating rules for satellite control. While the Outer Space Treaty declares that space is free for use by any state, the world community has not accepted that freedom as absolute.

United States and Russia were “dominated by mission minded scientists and engineers dedicated to international cooperation for peaceful purposes. Political policy makers were able to garner a quick harvest of ideas to incorporate in the first formulation of space law.” Galloway, supra note 3, at 22.

77. That modern space capability is moving increasingly toward a level previously only envisioned in science fiction stories is evidenced by this report.

In a spectacle of bravery and beauty, two American astronauts flew out, up and away from the space shuttle Challenger today. Free of any lifelines and propelled into the dark by tiny jets, they became in effect the first human satellites.

The successful test of the propulsion packs — a wireless high wire act 170 miles above the earth — was an important step toward future operations to repair and service orbiting satellites and to maintain large space stations.


78. See infra § 111.A.2 for a discussion of remote sensing.
79. See infra § 111.A.1 for a discussion of direct broadcasting by satellite.
81. Outer Space Treaty, supra note 4, at art. 1.
1. Direct Broadcast Satellites

Direct broadcast of television signals by satellite (DBS) is one example of current satellite capability. Direct broadcast satellites are stationed in orbit to receive transmissions from earth and then transmit the signals directly to home or community receivers, thereby eliminating the need for intermediary earth-based relay stations. DBS has the potential to reach larger geographical areas at less cost than conventional broadcast systems and is not susceptible to earth-based jamming techniques. Nations could use DBS to enhance global peace by expanding the exchange of information between countries and improving the educational levels of peoples throughout the world. Potentially, DBS could promote peace, friendly relations, and understanding among the nations of the world.

The reluctance of some states to allow broadcasting freely into their territory, however, has created problems in formulating rules for DBS. Although the Outer Space Treaty would seem to allow states unfettered use of space for any purpose, many states do not accept such a broad interpretation of the treaty. Some states have asserted an interest in controlling the message content of programs broadcast over their territory, particularly if the programming represents a threat to national security. In addition, developing countries, whose people lack exposure to the influence of mass media, view DBS as a threat to their cultural integrity.

84. Id. at 331.
85. Id.
86. Id.
87. Id. at 335. For example, medical training, environmental control, resource planning, and other social services could be provided. The Indian Satellite Instructional Television Experiment (SITE), the first major use of telecommunications satellites in a developing country, followed this idea. For four hours a day, programs in eight languages were broadcast to residents of remote villages who had never before received television. Topics broadcast included family planning, modern agricultural techniques, and health and cultural integration. See Report on the Joint UN/UNESCO Regional Seminar on Satellite Broadcasting Systems for Education and Development, U.N. Doc. A/AC.105/160 (1975).
89. Note, supra note 85, at 336.
90. Article I of the Outer Space Treaty declares space to be free for use by all states.
91. E.g., the Soviet Union. See infra text accompanying note 97.
The United States, as an advocate of the free flow of programming, draws support from Article 19 of the Universal Declaration of Human Rights. That article states: "Everyone has the right . . . to seek, receive, and impart information and ideas through any media regardless of frontiers."

The Soviet Union, by comparison, has taken the position that recipient nations should have total control of programming content. The Soviets would require the consent of a receiving state before broadcasts would be permitted over its territory, and certain types of programming would be expressly forbidden. The Soviets maintain that any violation of these provisions would allow a state to use any means to counteract the illegal broadcast.

UNCOPUOS has been the forum for heated debate over the control and use of the new technology, and a working group within the committee has formulated a set of draft principles to govern DBS. Although consensus has been reached on several provisions, a fundamental conflict remains. That conflict centers on one issue, namely, whether the prior consent of a receiving state must be obtained before any program can be broadcast over its territory. The sensitive nature of the problems posed by DBS and the disagreement by states over the fundamental principles involved make any simple solution unlikely.

2. Remote Sensing Satellites

The remote sensing of the earth's surface is another area that has engendered controversy over guidelines for the control and use of satellites.

94. The United States, treating direct broadcast as a broad opportunity for increased exchange of world views, advocates no prior consent requirements or other restrictions on direct broadcast. The United States encourages the "free and open exchange of ideas" and the "opportunity for all states to send as well as receive broadcasts." Draft Principles on Direct Broadcast Satellites, U.N. Doc. A/AC.105/WG.3(v)/CRP.2 (1974).


96. Id. The concept of free flow of information is a corollary of an evolving right to communicate. See EVOLVING PERSPECTIVES ON THE RIGHT TO COMMUNICATE (L. Harms & J. Richstad eds. 1977). "Another American concern . . . is an overly optimistic, and perhaps somewhat simplistic desire to attain First Amendment protection of freedom of speech in international satellite broadcasting." Comment, Direct Satellite Broadcasting, 14 HARV. INT’L L. J. 601, 607 (1973).

97. In 1972, the Soviet Union presented a Draft Convention on Principles Governing the Use by States of Artificial Earth Satellites for Direct Television Broadcasting. The draft treaty did not mention free exchange of information, but vested total control of communication in the recipient nation. See U.N. Doc. A/8771 (1972). See also Comment, supra note 96, at 607.


99. This would presumably include military retaliation. See Comment, supra note 96, at 610.

100. Note, supra note 83, at 329.


103. Id.

104. Id.

sensing by satellite is a new technology for the acquisition of information about objects or phenomena in the surficial environment of the earth through sensory devices orbiting in space. The sensing satellite uses reflected electromagnetic radiation to gather data about conditions on earth. The satellite then transmits the data to ground stations for computer processing and analysis. The United States launched the first remote sensing satellite in 1972, and since that time both the United States and Russia have launched several additional satellites.

The detection of natural resources and conditions on earth is of great practical value. Remote sensing provides data on otherwise inaccessible areas and can provide information on a wide variety of phenomena such as acoustical energy, nuclear radiation, and force fields. Many nations have already benefitted from the data provided by remote sensing for such projects as resource management, urban monitoring, and coastal mapping. In a few years, remote sensing is likely to become a major industry.

The central controversy over remote sensing turns on the rights of states to control sensitive information about their own natural resources. Two basic positions on this issue have evolved. The first position is represented by Argentina, Brazil, France, and Russia. These states maintain that only the "sensed" state may determine if, and how, information gathered about it may be disseminated. Proponents of this restrictive theory fear that allowing free access to data may threaten the sovereign rights of states to control their own

107. Recent Development, supra note 106, at 454.
108. Id.
109. Id.
110. Id. at 454-455.
111. Hahn, supra note 76, at 422.
112. See SHORT & LOWMAN, supra note 106.
113. E.g., Bangladesh has used remote sensing data to map land accretion in the Bay of Bengal, Egypt has used remote sensing data to prospect for iron ore, Iran has employed data to monitor growth in Tehran, Thailand now manages its forests with the aid of satellites, and Australia has used the technology to map its reefs and shoals. See Ifti & Doyle, Scientific and Legal Aspects of International Cooperation in Remote Sensing, in PROCEEDINGS OF THE 21ST COLLOQUIUM ON THE LAW OF OUTER SPACE 271, 273 (M. Schwartz ed. 1979).
114. Recent Development, supra note 106, at 453.
115. Id. at 457.
116. Id.
117. The sensed state is the state whose territory is monitored by satellite.
118. Recent Development, supra note 106, at 457.
resources. Developing nations in particular are susceptible to this threat because the technology of remote sensing makes possible the collection of information about the disposition of natural resources on a global scale. Such knowledge is a source of international power because it enables a state to evaluate the resources and capabilities of other states. In addition, states and transnational corporations can use data on global resources to direct their foreign trade policies or to acquire development rights to resources of which the host state is unaware.

The opposite view on remote sensing is represented by England, the United States, and West Germany. These states adhere to an open data theory which assumes all states should be free to make use of any information gathered through remote sensing. The proponents of the open data theory argue that any state may use satellites to sense other states without prior permission.

The United Nations has been unsuccessful in formulating guidelines reconciling the two positions. It is unclear whether the Outer Space Treaty was intended to govern remote sensing satellites, and argument on this point continues within UN COPUOS. To support their position, proponents of the open data theory rely on the guarantee of freedom of space for use by all in the Outer Space Treaty. The United States, acting on its belief that the Outer Space Treaty vindicates its action, has made data obtained from its remote sensing program available on a worldwide basis.

Proponents of the restrictive theory find little support for their position in the Outer Space Treaty. Instead, these states rely on traditional concepts of state sovereignty as reasons for limiting the activities of sensing satellites. The

119. Id. at 456. As one author has noted, "what is really at stake is the right of disposal of information concerning natural resources, with widely divergent interpretations of state sovereignty at the center of the controversy." See Polier, Remote Sensing and State Sovereignty, 4 J. Space L. 99, 106 (1976).

120. Recently, many Third World countries have shifted strategies aimed at development. Formerly the main focus was on attempts to use imported capital to industrialize rapidly. Due to disappointing results, however, developing nations have shifted economic policies in favor of natural resource development. Crucial to the success of these programs is the establishment of accurate inventories of the countries' untapped resources. See Ambrosetti, The Relevance of Remote Sensing to Third-World Economic Development, Some Legal and Political Aspects, 12 N.Y.U. J. INT'L L. & POL. 569, 577 (1979).

121. Hahn, supra note 76, at 422.

122. Id.

123. Id.

124. Recent Development, supra note 106, at 459.

125. Id.

126. Id.

127. Ambrosetti, supra note 120, at 461.

128. Recent Development, supra note 106, at 461.

129. Id. at 459.

130. Id. at 460.

131. Id. at 458.

132. Id. at 459.
Soviet Union has taken the position that the principle of freedom of outer space should not be used as a pretext for violating state sovereign rights on earth. 133

The Legal Subcommittee of UNCOPUOS has tentatively agreed upon a set of draft principles to govern remote sensing activity. 135 The draft principles 136 would establish a supervisory role for the United Nations in the remote sensing field 137 and ensure that data concerning a state's natural resources obtained through remote sensing would not be made generally available without the prior consent of the sensed nation. 138 UNCOPUOS has worked on the draft principles since 1976, 139 but despite tentative agreement on some provisions, 140 the basic disagreements have not yet been resolved. 141

3. The Geosynchronous Orbit

A third satellite related activity which has given rise to controversy is the use of the geosynchronous orbit. The geosynchronous orbit lies 22,000 miles above the earth, encircling the globe directly above the equator. 142 Objects placed in this orbit and matching the rotational speed of the earth remain fixed above a point on it. 143 Thus, to an observer on the earth, the object will appear stationary. 144 This characteristic is unique to the geosynchronous orbit and is of great value for certain satellite programs. 146 Communication satellites in particular are most useful when placed in this orbit, 147 and the future holds promise of even greater

133. Id. (quoting Vereshetin, On the Principles of State Sovereignty in International Space Law, 2, ANNALS AIR & SPACE L. 429, 436 (N. Matte ed. 1977)).
134. See supra text accompanying notes 30-54.
135. Recent Development, supra note 106, at 462. The working group of UNCOPUOS was instructed by the General Assembly to initiate the “drafting of principles in regard to those particular areas where common elements in the views of states are identified.” G.A. Res. 3388, 30 U.N. GAOR Supp. (No. 34) at 14, U.N. Doc. A/10034 (1975).
138. Id. Principle XVI; Annex II appendix at 10.
139. Recent Development, supra note 106, at 462.
140. Id. at 463.
141. Id. at 467.
144. Id.
145. Id.
146. Id. at 141-46.
147. Id. Radio waves travel in straight lines. Thus, radio signals cannot be picked up by receivers located beyond the line of sight horizon of the transmitter. Although it is possible to communicate around the curvature of the earth by “bouncing” radio waves between the earth and the ionosphere, the quality of the signal is poor. A communication satellite, however, can act as a relay station for signals, greatly improving their quality. While the satellite remains in a fixed position overhead, continuous high quality, long distance communication is possible. See generally id.
benefits from the orbit. Solar power stations, for example, placed in the geosynchronous orbit could produce electric power in space and beam the energy to earth in the form of microwaves. The value of the orbit, however, has caused competition among states and a clamor for regulation of the orbit. At present, there is no system for allocating orbital space. Instead, nations have unilaterally claimed sectors as needed.

On December 3, 1976, a group of equatorial states, led by Colombia, issued a declaration stating that the geosynchronous orbit was subject to the sovereign control of the subadjacent states. The claim was based on a theory linking the characteristics of the orbit to the gravitational force of the earth. In addition, the equatorial states argued that the geosynchronous orbit is not mentioned in the Outer Space Treaty and thus prohibition against claims of sovereignty over space contained in the treaty does not apply to the orbit.

The claim is rejected by almost all other states for two reasons. First, a satellite’s path through space is affected by a variety of factors other than the gravitational pull of the earth. Second, while the boundaries of outer space have never been clearly defined, the geosynchronous orbit must be considered part of outer space and within the purview of the Outer Space Treaty.

The declaration by the equatorial states reflects more than a dispute over the physical boundaries of outer space. The declaration reflects a deeper concern by the equatorial states, which are primarily undeveloped states, over the domina-
tion of a limited resource by a few developed states. The geosynchronous orbit is becoming saturated with both functioning and nonfunctioning satellites, and the equatorial states fear that by the time they are able to launch their own satellites, the orbit will be too crowded for safety. The equatorial states fear that under the existing system, the principle of freedom of outer space means their interests will not be sufficiently protected.

B. The Common Heritage Doctrine and The Moon Treaty

The controversy over appropriate guidelines for satellite use concerns the meaning to be given to the guarantee of freedom of use of space contained in the Outer Space Treaty. Opinion is divided on whether freedom of use means total freedom or whether states must conduct their space activity with regard for traditional notions of state sovereignty. Another example of the controversy which has arisen over the meaning and scope of a principle of outer space law is the criticism some states make of the common heritage provision in the Moon Treaty. States have not agreed on the precise meaning of the common heritage principle, and so some states have been reluctant to ratify the treaty.

1. The Agreement Governing the Activities of States on the Moon and Other Celestial Bodies

The decision by the United Nations General Assembly to formulate an agreement governing states' activities on the moon was the result of proposals by Argentina and Russia. In response to the proposals, the General Assembly adopted a resolution requesting that UNCOPUOS consider the development of a draft treaty as a matter of high priority. During its 1972 session, the Legal Subcommittee formulated a draft agreement, but was unable to reach consensus on a final form for it. During the 17th session of UNCOPUOS' Legal

163. The demand on the geosynchronous orbital belt during the last quarter of this century will unquestionably be expanded, possibly in excess of the supply of orbital positions. Theoretically, the orbit can hold about 1800 satellites without danger of collision. This number is limited by some important factors. First, satellites must be placed where they are needed: a satellite must be within direct line of sight to the area it serves in order to do its work. Second, there is also the problem of "dead" satellites in the orbit taking up room. Together these factors reduce the availability of the orbit for any one state. See Comment, supra note 143, at 140.
164. Id.
165. Goedhuis, supra note 59, at 588.
166. See infra § III.A.
167. Moon Treaty, supra note 11.
170. Griffin, supra note 168, at 735.
172. Griffin, supra note 168, at 735.
Subcommittee in 1979, the Austrian delegation made a special effort to bring about consensus within the subcommittee through informal discussion with other members. A new draft resulted from these discussions, and the proposed agreement was finally submitted to the General Assembly. On December 5, 1979, the Moon Treaty was adopted by unanimous vote of the General Assembly. It was opened for ratification on December 18, 1979.

The Moon Treaty is similar in form and scope to the Outer Space Treaty and reiterates some of the same general principles. The stated purpose of the Moon Treaty is to provide, on the basis of equality, for the cooperation of states in exploring the moon and other celestial bodies, to prevent the moon from becoming an area of conflict, and to define and develop existing agreements relating to the moon and other celestial bodies.

The provision of the Moon Treaty concerning the disposition of lunar natural resources was responsible for the seven year negotiating period. At first, the Legal Subcommittee could not agree whether provisions relating to natural resources should be included in the treaty. The Soviet Union took the position that since exploitation of the moon would not be economically feasible for some time, provisions for such exploitation were premature. The United States favored the inclusion of such provisions because it believed that future conflicts could be avoided by present action.

The most important language in the Moon Treaty relating to natural resources is in Article XI. That article states: "The moon and its resources are the common heritage of mankind."

173. Id. at 735.
175. Griffin, supra note 168, at 735.
176. Id.
177. For example, the Moon Treaty provides that space use and exploration are for the benefit of all mankind. Moon Treaty, supra note 11, art. II.
178. Id. at Preamble.
179. Id.
180. Id. A full discussion of the provisions of the Moon Treaty is beyond the scope of this Comment. For a thorough discussion of the treaty, see generally Note, Space Law — Agreement Governing the Activities of States on the Moon and Other Celestial Bodies, 21 Harv. Int'l L. J. 579 (1980).
181. Griffin, supra note 168, at 743.
182. Id.
183. Id. at 743-44.
184. Id.
185. Moon Treaty, supra note 11, art. XI. The paternity of the common heritage concept is often attributed to the Permanent Mission of Malta to the United Nations in a Note Verbale of 17 August 1967 (U.N. Doc. A/6695 (1967)), yet this is not quite accurate. It was in the United Nations Committee on the Peaceful Uses of Outer Space, and not in the Note Verbale, that the expression was first used and explained. See Cocca, The Advances in International Law Through the Law of Outer Space, 9 J. Space L. 13, 15 (1981).
becomes feasible. The regime's task will be to oversee the "equitable sharing by all states . . . in the benefits derived from the moon."

2. Controversy over Common Heritage

Although the Moon Treaty should have little difficulty winning support from developing countries, acceptance by the Soviet Union and the United States is more problematic. Both the Soviet Union and the United States disagree with certain principles set forth in the Moon Treaty. In light of the prominence of these two nations in the field of space exploration, the Moon Treaty without their support would be of no practical significance.

Soviet jurists agree with the principle stated in the Moon Treaty that the moon and other celestial bodies are not subject to national appropriation. They distinguish, however, between nonappropriation and exploitation of natural resources. Arguing that nonappropriation does not preclude exploitation, the Soviets draw an analogy to the compatibility of nonappropriation of the high seas with the freedom to use its resources. One Soviet writer has stated that the use of valuable resources on the moon and other planets "will be an important factor on the way to prosperity and progress of the society." While the Soviets believe that there should be freedom of exploitation of space resources, they argue there is a need to protect space resources from "irrational and rapacious utilization," particularly by "western monopolists."

The Soviets believe that the exploitation of space entails responsibility toward future generations. They have, however, opposed from the outset the proposition that space is the common heritage of mankind. Soviet writers argue that the concept has no juridical meaning. Instead they propose that space be "an international area for common use."

186. Moon Treaty, supra note 11, art. XI, para. 5.
187. Id. art. XI, para. 7.
188. Id. at 503.
189. Id. at 504 (quoting Vassilevskaja, Notions of "Exploration" and "Use" of Natural Resources of Celestial Bodies, in PROCEEDINGS OF THE 20TH COLLOQUIUM ON THE LAW OF OUTER SPACE 473 (M. Schwartz ed. 1978)).
190. Jaksetic, supra note 190, at 505 (quoting Vassilevskaja, The Development of the Moon, Some Prospects for Regulation by Law, 10 Soviet L. & Gov't 362, 365-66 (1972)).
The Soviets are apparently seeking a middle ground between the preservation of space as the common heritage of mankind and what they perceive as the U.S. desire for commercial exploitation of outer space.200 The Soviets are unwilling to allow laissez-faire capitalist exploitation of space, but they do appear to accept the use of natural resources for nationalistic ends.201

The position of the United States with regard to the common heritage provision is less clear than that of the Soviet Union. While the U.S. government supported the Moon Treaty during the initial drafting process,202 the strong opposition of several special interest groups within the United States has caused U.S. support of the treaty to falter.203 Opponents of the treaty argue that the treaty would impose a moratorium on the commercial exploitation of extraterrestrial resources pending the establishment of an international regime.204 Opponents further contend that the treaty would establish guiding principles for the international regime inimical to the interests of private enterprise,205 thereby giving other countries political control over commercial exploitation of the moon.206 Opponents also express the fear that Third World countries, by seeking to vest control in an international regime, are taking the first step toward a major redistribution of the world's wealth.207 Some special interest groups in the United States have charged that the treaty is, in effect, an attempt to socialize the moon.208

Due to opposition to the Moon Treaty, the United States has postponed a final decision on ratification of the treaty, pending a thorough evaluation of the principles contained in it.209 The U.S. reversal in policy toward the Moon Treaty has caused confusion within the international community.210 Should the United States fail to ratify the treaty, the United States would lose a measure of credibility and goodwill with some states.211 To avoid this result, the American Bar

200. Jaksetic, supra note 190, at 505.
201. Id.
203. Id. at 751. Some of the groups within the United States opposing the Moon Treaty are the National Association of Manufacturers, the Aerospace Industries Association, the National Ocean Industries Association, and individual corporations including United Technologies Inc. and Kennecott Copper. Id. at n.167.
204. Id. at 750.
205. Id.
206. Id.
207. Id. at 753.
208. Id. at 754.
210. Griffin, supra note 168, at 759.
211. Id.
Association has proposed a set of declarations and understandings which could bring the Moon Treaty into closer alignment with U.S. interests. Opposition to the Moon Treaty by the Soviet Union and the United States has led to the basic dilemma of the Moon Treaty. Without the common heritage provision, the Moon Treaty is largely a reiteration of existing treaties. With the provision, however, the treaty loses its appeal to both the United States and the Soviet Union. The success of the treaty thus turns on the willingness of the United States and the Soviet Union to accept the common heritage provision.

C. Political Factors Influencing Space Law

There are several geopolitical factors exacerbating the controversy over the scope of the Outer Space Treaty and the Moon Treaty. Mention has already been made of some of the political factors involved in the debate over satellite use and exploitation of lunar resources. In addition, there are two further factors influencing the development of outer space law, namely, the failure of the United Nations as a forum for international dispute resolution and the conflict of national interests among segments of the world community.

1. The United Nations as an International Forum

The effectiveness of the United Nations as an international forum for the development of space law has declined over the past decade. The structure and purpose of the United Nations has changed since its inception. The organization is currently dominated by Third World nations seeking to modernize quickly and hoping to win concessions from the industrialized states to assist their modernization. Additionally, developing countries fear monopolistic control of the world's resources by the more developed states. Thus, much of

213. For the full text of the ABA draft proposal, see id. at 90-91.
214. Note, supra note 180, at 584.
215. Id.
216. Id.
217. Id.
218. See supra § III.B.
219. Haanappel, supra note 5, at 149.
220. Lay, supra note 162, at 517.
221. Id. "The communications discussions recently held at UNESCO provide an example of this philosophy. The underdeveloped nations demanded that the industrialized nations provide for them, at no cost, the physical facilities for satellite communications and the education to enable them to utilize the facilities." Id.
222. Goedhuis, supra note 59, at 582.
the current work of the United Nations is aimed at protecting the interests of underdeveloped countries.\textsuperscript{223}

Consequently, a situation has arisen in which developed nations are hesitant to negotiate at the United Nations since the developing states are in the majority there.\textsuperscript{224} Increasingly, the major powers negotiate bilaterally, later enlisting other countries to give the appearance of United Nations consensus to accomplished agreements.\textsuperscript{225} The reduced importance of the United Nations as an effective forum for settling international problems is illustrated by the stance adopted by the organization on the issue of remote sensing. Due to a lack of progress toward a comprehensive treaty governing remote sensing, the United Nations has “assumed a role of monitor rather than supervisor of the technology.”\textsuperscript{226}

2. Conflict of National Interests

The failure of the United Nations as an international forum is related to, and aggravated by, the divergence of national interests within the world community. Negotiations over space law reveal the differences among western industrial nations, the Soviet Union and other socialist states, and the Third World group of developing countries.\textsuperscript{227} In negotiations in the international arena, each of these groups seeks a result consistent with its own internal political requirements.\textsuperscript{228}

The positions taken by these major groups on international issues generally reflect the ideological system to which each group adheres.\textsuperscript{229} This ideological alignment is demonstrated by the positions the groups take in the debate on the common heritage doctrine. While the United States seeks laissez-faire industrial exploitation of space resources,\textsuperscript{230} the Soviets seem to favor limited space exploitation by the state.\textsuperscript{231} By comparison, Third World countries claim, on the basis of common ownership, an equal share of any benefits accruing from space exploitation.\textsuperscript{232} The entrenchment by states on these issues has served to intensify the debate over the scope and application of the provisions of the Outer Space Treaty and the Moon Treaty.

In short, outer space law attempts to create a supranational legal framework

\textsuperscript{223. Id.}
\textsuperscript{224. Id.}
\textsuperscript{225. Lay, supra note 162, at 516.}
\textsuperscript{226. Recent Development, supra note 106, at 469-70.}
\textsuperscript{227. Lay, supra note 162, at 517.}
\textsuperscript{228. Recent Development, supra note 106, at 468.}
\textsuperscript{229. Recent Development, supra note 106, at 468-69.}
\textsuperscript{230. Griffin, supra note 168, at 763.}
\textsuperscript{231. See Jaksetic, supra note 190, at 505.}
\textsuperscript{232. See Griffin, supra note 168, at 753.}
governing the international community.\textsuperscript{233} This supranational authority, however, would imply a permanent limitation on independent national control, a result the world community has not yet accepted.\textsuperscript{234}

IV. CURRENT STATUS OF THE COMMON HERITAGE DOCTRINE

The problems which have arisen in drafting rules of conduct for satellite use seem to indicate a failure of space law. Many states have become parties to the Outer Space Treaty,\textsuperscript{235} yet the provision of the treaty which states that outer space shall be free for use\textsuperscript{236} has not been accepted by states as a controlling principle.\textsuperscript{237} Similarly, the reluctance of the major space powers to accept the common heritage concept has effectively prevented the Moon Treaty from entering into force and has arrested the development of international space law.\textsuperscript{238} As space activity continues to flourish, however, there is an increasing need for rules governing the use of outer space. It is therefore important for the world community to accept space law principles as viable rules of conduct.

The principles of freedom of outer space and common heritage can become effective legal principles. Space law principles already have a positive effect on the world community as expressions of fundamental moral ideals guiding the world community toward increased international cooperation.\textsuperscript{239} More importantly, in light of additional provisions of the Outer Space Treaty and the Moon Treaty, it may be possible for states to accept the principles of freedom of space and of common heritage as workable provisions of international law.

A. Space Law Principles as Moral Ideals

The majority of legal writers are of the opinion that the common heritage doctrine is primarily a reflection of a political aspiration and moral commitment which does not represent substantive international law.\textsuperscript{240} While at present the


\textsuperscript{234} Id. at 22.

\textsuperscript{235} Eighty-one countries are currently signatories to the treaty. See TREATIES IN FORCE 345 (Dept. of State ed. 1981).

\textsuperscript{236} Outer Space Treaty, supra note 4, art. 1.

\textsuperscript{237} See infra § III.A.

\textsuperscript{238} See supra § III.B.

\textsuperscript{239} See infra § IV.A.

\textsuperscript{240} For example, D. Goedhuis, Chairman of the Space Law Committees of both the International Law Association and the World Peace through Law Organization, rejects the view that outer space is now recognized as the common heritage of mankind. He argues that an interpretation of this kind would oblige every state to share with every other state the advantages and benefits flowing from their space activities. In Goedhuis' view this would mean states have "surrendered vital sovereign powers . . . and have agreed to a fundamental change in the political structure of international society." See Goedhuis, supra note 59, at 583. Additionally, he notes, as it is considered highly likely that there are other planets in the universe on which intelligent life exists, a claim by earth inhabitants to a property right over all planets "could at the very least be described as hubris." Id.
doctrine seems to be merely a vague statement of ideals, vague terms and phrases may ultimately ripen into rules of conduct.241 There are two processes through which this ripening can take place, the assimilation of international concepts into domestic policy242 and the evolution of political realities.243

1. Assimilation into Domestic Law

Even without a "supranational legal framework"244 governing the international community, space law concepts can influence states' sovereign powers by shaping domestic law and policy.245 States, through international agreements, may relinquish sovereign power in favor of international bodies or for the realization of international purposes.246 In addition, states, in recognition of international aspirations, may repeal, create, or alter domestic law and transform international ideals into national policy.247 Thus, states have the power to assimilate and effectuate international concepts.

The United States National Aeronautics and Space Act of 1958248 (NASA) provides an example of this process. A provision249 of that act states: "The Congress declares that it is the policy of the United States that activities in outer space should be devoted to peaceful purposes for the benefit of all mankind."250 Another section of that act declares that one objective of the U.S. space program is "cooperation by the United States with other nations . . . in work pursuant to this act and the peaceful application thereof."251 These provisions reflect a convergence of national legislation with international space law principles.252
2. Evolution of Global Politics

As long as the world is divided into sovereign states, national interests will continue to dictate foreign policy. But, the space age has given rise to an overriding interest in both the interdependence of states in space activities and the growing convergence of their interests. States can reap immense benefits from outer space if the priority of independent sovereignty is lessened. The traditional system of coexistence may be supplemented by the emergence of an international system of cooperation. The common heritage doctrine, even if it remains only a philosophical aspiration, indicates that mankind is moving slowly toward this goal.

There is evidence that the two major space powers have partly accepted a new order for outer space. To date, the space age has been characterized by a remarkable spirit of international cooperation. From the outset, the original space powers, Russia and the United States, did not seek to monopolize space. In the 1960's, the United States opened access to its launch facilities to all nations for peaceful purposes. In addition, both countries have made the results of space research available to the United Nations to be shared with other states. Thus, the major space powers seem to have accepted as a general policy that all states should have free access to outer space. Moreover, during the Apollo/Soyuz law of the land. But, as Vereshchetin points out, "there is a rule whereby federal statutes prevail over existing statutes and treaties." Vereshchetin, supra note 245, at 38. Thus, U.S. domestic legislation can override and repeal international agreements. By comparison, under Article 29 of the Constitution of the Soviet Union, "relations with other states are based on fulfillment in good faith of obligations arising from principles and rules of international law, and from international treaties." This means that all organs of state government in the U.S.S.R. are bound by their own constitution to respect rules of international law and international treaties. Thus, even without specific domestic legislation, Soviet space organizations are bound by international principles of space law. See generally Vereshchetin, supra note 245, at 38-40.

254. Id.
255. Id. It is worth repeating that the early declaration that space is not subject to national appropriation demonstrates the ability of states to relinquish sovereign rights in favor of international goals. It is precisely this sort of action which symbolizes the hope of mankind that through lessons learned in space, solutions can be found for problems on earth. It is for this reason that space law has been characterized by one writer as "the definitive stage of the development of man within the community." See Cocca, supra note 185, at 13.

256. The power of ideas to gradually shape mankind's affairs has been noted by John Maynard Keynes: "The ideas of . . . political philosophers, both when they are right and when they are wrong, is more powerful than is commonly understood. Indeed, the world is ruled by little else. I am sure that the power of vested interests is vastly exaggerated compared with the gradual encroachment of ideas." M. Stewart, Keynes and After 21 (1967) (quoting J. M. Keynes, General Theory of Employment, Interest and Money (1936)).
259. Galloway, supra note 3, at 24. LANDSAT data, for example, has been used by more than 100 countries to date. See supra text accompanying note 122.
program, Soviet and American astronauts successfully completed a rendezvous of their spacecraft while in orbit, thereby establishing a precedent for future cooperative efforts. In short, the world community appears genuinely committed to reserving outer space as a truly international resource. Having begun the space age in this fashion, states may well continue to adhere to this ideal.

B. Common Heritage as a Legal Principle

More important than the moral implications of space law concepts is the possibility that the world community may accept the principles of freedom of space and common heritage as viable principles of outer space law. The principle of freedom of space has not been accepted by states because unrestricted freedom of space use for satellites would violate traditional state sovereign interests on earth. Similarly, the common heritage concept has not been accepted because the principle appears to violate some states' property interests. In both cases, the difficulty countries have had accepting the principles flows from the apparent breadth of the principles. Thus, states could accept both principles if their potential application were not so broad. Such a compromise can be accomplished within the context of existing space treaties and is a necessary step for the development of outer space law.

A possible resolution of the controversy over the freedom of space provision of the Outer Space Treaty would be for states to interpret the principle with reference to traditional notions of sovereign interests on earth. This interpre-
tation should be possible for two reasons. First, the Outer Space Treaty declares
that "in the exploration and use of outer space . . . states shall conduct their
activities with due regard for the corresponding interests of [other states]."\textsuperscript{266} Thus, the treaty itself seems expressly to limit the freedom of space use.

Second, a distinction can be made between "pure" space use and space ac-
tivities functionally related to earth.\textsuperscript{267} Outer space law may have abrogated
sovereign claims in outer space, but it has not eliminated state sovereign control
on earth.\textsuperscript{268} Earth related activities should recognize existing principles of state
sovereignty and be limited accordingly.\textsuperscript{269} As one author has noted:

Functional freedom of space does not mean the right to do anything
one wishes in it without paying attention to consequences, nor does it
mean the absence of legal rules. Functional freedom should be
understood as liberty given only in view of certain functions such as
humanitarian, scientific, exploratory, etc. Similar to national
sovereignty which is not an absolute power over all man's activities, is
freedom conceived according to certain determined functions pre-
supposing a limited control.\textsuperscript{270}

Thus, for example, satellite use for direct broadcasting or remote sensing would
need to be limited to allow states to exercise control over media broadcast into
their territory and information about their resources.\textsuperscript{271} Such limitations on
satellite use would preserve states' existing rights to protect their independent
sovereignty from external intervention and would prevent satellite technology
from becoming a source of international conflict.\textsuperscript{272}

The principle of common heritage can also be narrowed and made more
acceptable to its critics. Both the Soviet Union and the United States have been
reluctant to accept the common heritage principle because the principle, on its

\textsuperscript{266} Outer Space Treaty, supra note 4, art. IX.

\textsuperscript{267} But see DeSaussure, supra note 105 (argument that such a distinction would only create new
problems of definition).


"Traditional aspects of territorial sovereignty are the ones that have been abolished in relation to outer
space. The functional aspects, the exercise of sovereign rights and similar manifestations continue to be
recognized." Id.

\textsuperscript{269} Cocca, The Supreme Interest of Mankind vis-
à-vis the Emergence of Direct Broadcasting, 2 J. SPACE L.

\textsuperscript{270} Matte, supra note 75, at 63.

\textsuperscript{271} Busak, supra note 80, at 149. As Busak notes:

Restrictions on broadcast transmissions have a legal basis in international documents. Articles
32 and 33 of the Montreux International Telecommunications Convention of 1965, 18 U.S.T.
575, T.I.A.S. No. 6267, permit suspension of international telecommunications and stopping
information which is dangerous to the security of a receiver state or contrary to their laws,
public order, or decency . . . . [The Convention] fully respects the sovereign rights of the
contracting states in the sphere of information.

\textit{Id.} at 148-49.

\textsuperscript{272} Id. at 144.
face, represents a departure from traditional property law. These two countries have failed to recognize that outer space is an area res communis, requiring new ideas about ownership. Moreover, the principle of common heritage need not be interpreted as confiscatory or unfair. Just as the provision dealing with the freedom of space can be limited by traditional principles of state sovereignty, so the concept of common heritage may be limited by the principle of equity.

The provision of the Moon Treaty which contains the common heritage provision also establishes an international regime to "oversee the equitable sharing of benefits ... derived from the moon." While the equitable sharing provision has been criticized by one writer as open to subjective interpretation, another writer has stated:

The key concept for realizing the use and benefits of space is equity. Benefits cannot flow to the indolent. Non-contributors can take no measure of satisfaction from the labors of others. Opportunities must be nondiscriminatory and there must be a possibility for all to contribute to and share in endeavors in space. But returns must reflect contributions. There is no "free lunch."

Further clarification of equitable sharing can be drawn from the Moon Treaty itself. The provision establishing the regime to oversee equitable sharing declares that "the interests and needs of developing countries as well as the efforts of countries which have contributed either directly or indirectly to the exploration of the moon shall be given special consideration." Thus, equitable sharing would mean a state's investment in space programs would be taken into account in determining that state's share of space benefits. It would also mean that no state wishing to participate in space programs could be prevented from

273. See supra § III.B.
274. "Res communis: In the civil law, things common to all: that is, those things which are used and enjoyed by everyone, even in single parts, but can never be exclusively acquired as a whole. E.g., light and air." BLACK'S LAW DICTIONARY 1173 (1979).
275. Matte, supra note 75, at 361. A special status must be given economic uses of space . . . . Here also the old ideas of law . . . . must make way for a new law, conceived by new mentalities and on bases which do not stop at the frontiers of states. We must envisage a new law which should be transnational and international at the same time.
276. Equity is used in this sentence to mean an overall system of fair distribution, rather than in reference to the specific Anglo/American system of equity jurisprudence. This meaning for equity can be defined as "the giving or desiring to give to each man his due." See WEBSTER'S NEW TWENTIETH CENTURY DICTIONARY 618 (2d ed. 1966).
277. Moon Treaty, supra note 11, art. XI.
278. Griffin, supra note 168, at 762.
279. Doyle, supra note 258, at 110.
280. Moon Treaty, supra note 11, art. XI.
281. Id. at para. 7(d).
doing so, and that states with space capabilities would have some duty to share that technology with other states. 282 In short, the requirement of equitable sharing could limit the common heritage concept sufficiently to make the principle acceptable to states with existing space program, while preserving opportunities for developing countries to participate in the benefits of outer space.

The world community is on the threshold of a great expansion in the exploitation of celestial resources. 283 Rather than each state unilaterally determining its obligations to other states in space, fundamental principles are needed to guide space activities uniformly. 284 The common heritage concept, limited by the principle of equitable sharing, could provide the necessary guiding principle. The United States, as a major space power, should take the lead in formulating understandings 285 on the meaning of common heritage. By doing so, the United States could secure its own interests in the commercial exploitation of outer space and facilitate acceptance of the Moon Treaty by the world community. Acceptance of the Moon Treaty would ensure the continued international cooperation which has characterized the space age from the outset and which has distinguished space law as a truly revolutionary chapter in the affairs of mankind. 286

V. Conclusion

Outer space law developed as a result of efforts by the United Nations following the successful launch of the first earth orbiting satellite by the Soviet Union in 1957. The General Assembly of the United Nations established a standing committee to provide an international forum for discussion of matters relating to space and to oversee the exclusive reservation of outer space for peaceful purposes. The early work of the committee resulted in the first international agree-

282. Lachs, supra note 241, at 28. That the United States has already accepted these basic ideas is demonstrated by the fact that the United States has shared space benefits and space technology with other states. See supra text accompanying notes 257-60.

283. Menter, supra note 2, at 65.

284. Id.

285. These understandings could take the form proposed by the American Bar Association for the Moon Treaty, namely, understandings of the meaning of treaty provisions included with ratification. See supra text accompanying notes 212-13.

286. The world community can only benefit from continued international cooperation in outer space. As one writer has noted:

What is the legacy of the quarter-century (since the launch of Sputnik I)? If I can put it into one word, it is globalism. Forced into our unwilling minds has been a view that presents Earth and humanity as a single entity. . . . Globalism offers us the hope of a greater, wider and better civilization, with more versatility and flexibility, drawing on larger resources, and no longer imprisoned on the surface of a single world.

If we consider the alternatives — localism and death versus globalism and life — it may be that one or two of us will join the sane minority and choose life. And if enough of us do so, the sane may not even be a minority and may enforce the choice — and that will be the legacy of the Space Age.

ment government space use, the Outer Space Treaty, which is widely accepted as the basic charter for outer space.

Although the Outer Space Treaty is commendable for its attempt to foster international cooperation, the subsequent growth of space law has faltered. The advent of extensive satellite programs during the 1970s has given rise to conflict among nations attempting to formulate specific rules for space activity. Some states have not accepted as absolute the broad declaration of the Outer Space Treaty that space is free for use by all states. This is particularly so in the area of satellite use for earth related purposes. Instead, some states have taken the position that space activities functionally related to earth must be carried out with respect for traditional notions of state sovereign control over territory. These difficulties of interpretation have resulted in a deadlock between nations seeking to formulate rules governing direct television broadcasting and remote sensing by satellite.

A similar problem of interpretation has arisen over the Moon Treaty. The Moon Treaty is a recent attempt to expand the scope of outer space law by declaring that the natural resources of outer space are the common heritage of mankind. The broad principle of common heritage, however, has not been unanimously accepted by the world community. Developed states have been reluctant to accept what they see as an attempt by developing states to force a division of benefits accruing from space exploitation. Uncertainty over the meaning of common heritage has caused both the Soviet Union and the United States to defer ratification of the Moon Treaty, thereby effectively preventing the treaty from entering into force.

Despite the controversies over the principles of freedom of space and common heritage, a resolution of the problems consistent with existing principles of space law is possible. The author suggests that space activities functionally related to earth should respect traditional notions of state sovereign control over territory. Similarly, the division of benefits accruing from space exploitation should be in accordance with traditional notions of equity. There is support for these suggestions in the literature on space law and in the language of the Outer Space Treaty and the Moon Treaty. These requirements could reduce the conflict which has arisen over the interpretation of space law principles. Moreover, they would ensure the flexibility which space law needs to remain a viable branch of international law and to meet the future challenges arising from mankind's continued exploration and use of outer space.

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