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COMMENT

A PROPOSED REGIME AND ITS RAMIFICATIONS ON THE COMMERCIALIZATION OF OUTER SPACE

Andrew H. Pontious†

I. INTRODUCTION

Outer Space law is a new and expanding branch of international law. The advent of the technological capabilities necessary to reach outer space has produced a need for new forms of law to regulate states', individuals' and corporate rights in its resources. Thus far, treaties, customary international law political policy decisions have played roles in forming the general principles of law as they exist today. However, state¹ opinions differ concerning these general principles. Thus, more specific regulations governing outer space activities are needed concerning states' participatory² rights to claim, explore, exploit, use or research outer space and its non-renewable resources. International agreements such as the United Nations Charter,³ the 1967 Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space Includ-

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1. "States" in the context of this comment utilizes the international legal definition of a "state" which is any territory satisfying the following criteria: 1) a defined territory and a permanent population, 2) under control of its own government, and 3) engaging in or has the capacity to engage in formal relations with other such entities. RESTATEMENT (THIRD) OF THE FOREIGN RELATIONS LAW OF THE UNITED STATES § 102 (1987) [hereinafter RESTATEMENT (THIRD)].

2. "Participatory" in the context of this paper stands for those rights and benefits accruing to each nation as a result of outer space commercialization and exploitation. Art. II of Treaty on the Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies, *opened for signature* Jan. 27, 1967, 18 U.S.T. 2410, T.I.A.S. No. 6347, 610 U.N.T.S. 205 (entered into force with respect to the United States, Oct. 10, 1967) [hereinafter Outer Space Treaty] provides that celestial bodies are not subject to national appropriation. Consequently, the international debate regarding the regulation of outer space involves the rights and benefits each nation can expect as a result of outer space exploration, commercialization and exploitation.

3. U.N. CHARTER.

ing the Moon and Other Celestial Bodies,⁴ the 1979 Agreement Governing the Activities of States on the Moon and Other Celestial Bodies,⁵ the 1982 Law of the Sea Treaty (LOS Treaty)⁶ and the 1959 Antarctic Treaty⁷ provide the basic foundation in the field of property rights to lands outside national jurisdictions. However, conflicts in interpretation, compliance and the role of custom concerning the aforementioned treaties exist.

The conflicts have consistently included the majority of the developing countries' claim of property or participatory rights in the benefits of outer space through the theory of the "common heritage of mankind" (CHM).⁸ Through this concept, the states without outer space capabilities attempt to reserve for themselves rights to the future benefits in technology, knowledge and profits resulting from exploitation of celestial resources and other commercial activities in outer space claiming that all belongs to mankind. On the other hand, developed nations disagree. They find this principle restrictive, and private industries fear any regulations curtailing their potential for economic benefits.

The following will analyze past terrestrial and extraterrestrial precedents which are potential models for the governing regime of outer space. Each model is based on differing historical, environmental and legal principles making the application to outer space a complex interaction of legal, political, environmental and financial factors. After analyzing the various precedents and their respective effects on the commercialization⁹ of outer space, this comment goes on to summarize the United States' stance, as a major space power,

4. Outer Space Treaty, *supra* note 2.

5. Agreement Governing the Activities of States on the Moon and Other Celestial Bodies, Dec. 18, 1979, U.N. Doc. A/34/20 (1979) (adopted by General Assembly Resolution 34/68 of Dec. 5, 1979, U.N. GAOR, 34th Sess., Supp. No. 46 (A/34/46) p.77) [hereinafter Moon Treaty]. However, the United States has refused to ratify the Moon Treaty due to its incorporation of the common heritage of mankind concept. See *infra* notes 70-73 and accompanying text.

6. United Nations Convention on the Law of the Sea, *opened for signature* Dec. 10, 1982, U.N. Doc. A/Conf.62/122, *reprinted in* 21 I.L.M. 1261 (1982) [hereinafter LOS Treaty].

7. Antarctic Treaty, Dec. 1 1959, 12 U.S.T. 794, T.I.A.S. No. 4780, 402 U.N.T.S. 71.

8. Article 11, para. 1 of the Moon Treaty, *supra* note 5 states, "[t]he moon and its natural resources are the common heritage of mankind" and article 136 of the LOS Treaty, *supra* note 6 states, "[t]he Area and its natural resources are the common heritage of mankind."

9. "Commercialization" is used loosely to denote the activities in exploiting non-renewable celestial resources for experimentation, research and eventual commercial enterprise. Before any actual commercialization of celestial resources can occur, preliminary research into the availability of resources, the cost effectiveness of harvest, and future uses must be examined. Consequently, for the purposes of this comment, "commercialization" will denote

on the commercialization of outer space. Finally, a new regime is offered as a solution to the current conflicts in the regulation of outer space.

II. BACKGROUND INFORMATION ON THE LAW OF OUTER SPACE

A. *Outer Space Treaty*

The basis for outer space law and extraterrestrial participatory rights emerged with the signature of the 1967 Outer Space Treaty.¹⁰ As of January 1, 1990, just under one hundred states were parties to this treaty.¹¹ The treaty codifies the general international principles

the entire sphere of activities necessary to begin actual commercial enterprise in gathering celestial resources.

10. STAFF OF SENATE COMM. ON COMMERCE, SCIENCE AND TRANSPORTATION, PART 3, 96TH CONG., 2D SESS., REPORT ON AGREEMENT GOVERNING THE ACTIVITIES OF STATES ON THE MOON AND OTHER CELESTIAL BODIES 309 (Comm. Print 1980) [hereinafter COMM. PRINT PART 3 1980].

11. TREATIES IN FORCE 379 (1990). The countries are:

Afghanistan	Lebanon
Antigua & Barbuda	Libya
Argentina	Madagascar
Australia	Mali
Austria	Mauritius
Bahamas, The	Mexico
Bangladesh	Mongolia
Barbados	Morocco
Belgium	Nepal
Benin	Netherlands
Brazil	New Zealand
Brunei	Niger
Bulgaria	Norway
Burkina Faso	Pakistan
Union of Myanmar (Burma)	Papua New Guinea
Byelorussian Soviet Socialist Rep.	Peru
Canada	Poland
Chile	Romania
Cuba	St. Kitts & Nevis
Cyprus	St. Lucia
Czechoslovakia	San Marino
Denmark	Saudi Arabia
Dominica	Seychelles
Dominican Rep.	Sierra Leone
Ecuador	Singapore
Egypt	Solomon Is.
El Salvador	South Africa
Fiji	Spain
Finland	Sri Lanka
France	Swaziland
German Dem. Rep.	Sweden
Germany, Fed. Rep.	Switzerland

between states relating to outer space between states and provides the legal framework upon which subsequent outer space agreements will be based.¹² Additionally, with no evidence of any consistently dissenting states and by the majority of the world's ratification of it, the treaty has been transformed into international law binding those non-party states to its terms, thus becoming part of customary international law.¹³ Silence is consent.

However, due to the treaty's general nature,¹⁴ the specific outer space legal structure is primarily controlled by the general principles of customary international law¹⁵ and not by specific international legislation.¹⁶ Article I of the Outer Space Treaty states, "[o]uter space . . . shall be free for exploration and use by all States . . . on a basis of equality and in accordance with international law."¹⁷ As is evident in the world today, "international law" is more of an after-the-fact justification for action rather than having any actual regulatory effect. Consequently, more specific regulation

Greece	Syrian Arab Rep.
Grenada	Thailand
Guinea-Bissau	Togo
Hungary	Tonga
Iceland	Tunisia
India	Turkey
Iraq	Uganda
Ireland	Ukrainian Soviet Socialist Rep.
Israel	Union of Soviet Socialist Reps.
Italy	United Kingdom
Jamaica	United States
Japan	Uruguay
Kenya	Venezuela
Korea	Vietnam, Socialist Rep.
Kuwait	Yemen (Aden)
Laos	Zambia

12. O. OGUNBANWO, *INTERNATIONAL LAW AND OUTER SPACE ACTIVITIES* xvi (1975). "Some multilateral agreements may come to be law for non-parties that do not actively dissent. That may be the effect where a multilateral agreement is designed for adherence by states generally, is widely accepted, and not rejected by a significant number of important states." *RESTATEMENT (THIRD)*, *supra* note 1, § 102(i) ("important" in the context of outer space legislation are those states with the ability to reach outer space). *See also infra* note 110 and accompanying text.

13. *See RESTATEMENT (THIRD)* § 102(i), *supra* note 1 and accompanying text; *see supra* note 12.

14. *See infra* notes 21-25 and accompanying text.

15. *See infra* page 185-86.

16. *Agreement Governing the Activities of States on the Moon and Other Celestial Bodies: Hearings on S. 115 Before the Subcomm. on Commerce, Science and Transportation*, 96th Cong., 2d Sess. 21 (1980) (statement of Robert B. Owen, Legal Advisor, Department of State) [hereinafter *S 115 Hearings*].

17. Outer Space Treaty, *supra* note 2, art. I, para. 2. *See* Statute of the International Court of Justice, art. 38, para. 1(b).

is needed in outer space to specify, in advance of action, exactly what rights exist, what activities are lawful and what states' rights are to future benefits.

1. Underlying Principles of the Outer Space Treaty

International cooperation in achieving the free use of outer space for all states forms the underlying philosophy of the Outer Space Treaty.¹⁸ The United States' policy, as a space power, has been to promote this international cooperative policy as declared in the NASA Act of 1958.¹⁹ In fact, President Nixon enunciated the United States' stance on the world participation in the exploration of outer space in 1969 during his address to the United Nations General Assembly stating that the journey into space is "an adventure that belongs not to one nation but to all mankind, and one that should be marked not by rivalry but by the same spirit of fraternal cooperation that has so long been the hallmark of the international community of science."²⁰ With the United States and the USSR as the only states with the technological ability to explore outer space at that time, this statement emphasizes the underlying philosophy of international cooperation present in the Outer Space Treaty.

2. Reasons for the Outer Space Treaty

The Outer Space Treaty actually grew out of an anticipatory need for space regulation because technology had not yet advanced to the level of celestial exploitation and exploration. Consequently, only a very general legal framework was laid down. Former United States' Ambassador Goldberg, in an address to the United Nations in 1966, stated that the Outer Space Treaty was not to provide "for every contingency that might arise in the exploration and use of space, many of which are unforeseeable, but rather to establish a set of basic rules."²¹

The 1969 lunar landing by the United States created new possibilities in the technological and legal realms of outer space.²²

18. See generally Outer Space Treaty, *supra* note 2.

19. *Hearings on H.R. 85 Before the Subcomm. on Space and Applications of the House Comm. on Science and Technology*, 94th Cong., 2d Sess. 1 (1976) (statement of Carl Q. Christol, Professor of International Law and Chairman, Department of Political Science, University of Southern California) [hereinafter *H.R. 85 Hearings*]. See National Aeronautics and Space Act of 1958, 42 U.S.C. § 2451 (1982).

20. SUBCOMM. ON SPACE, SCIENCE AND APPLICATIONS OF THE HOUSE COMM. ON SCIENCE AND TECHNOLOGY, WORLD-WIDE SPACE ACTIVITIES, H.R. DOC. NO. 352, 95th Cong., 1st Sess. 31 (1977).

21. *H.R. 85 Hearings*, *supra* note 19, at 1.

22. STAFF OF SENATE COMM. ON SCIENCE, COMMERCE AND TRANSPORTATION, PART

With men on the moon, the reality of celestial commercialization and resource exploitation advanced faster than the existing legal regulations. Thereafter, the Legal Subcommittee of the U.N. Committee on the Peaceful Uses of Outer Space (COPUOS)²³ began to study how to govern man's activities on the moon.²⁴ Specifically, COPUOS focused on the question of legal rights to the natural non-renewable resources of the celestial bodies.²⁵ Today, the increase in technological capabilities brings the possibility of celestial exploitation into the near future. Consequently, the Outer Space Treaty needs supplementation to address future rights in outer space and the benefits accruing from outer space exploitation and commercialization.

3. Outer Space Treaty Statutory Rights

Specifically, the Outer Space Treaty declares that exploration of outer space, including the Moon and other celestial bodies, is to be carried out for "the benefit and in the interests of all countries,"²⁶ that such bodies are "the province of all mankind,"²⁷ and shall only be used for peaceful purposes.²⁸ Although appropriation of celestial bodies is forbidden,²⁹ "[o]uter space, including the moon and other celestial bodies, shall be free for the exploration and use by all States. . . ."³⁰ The question of what "use" means arises in the contexts of Articles I, II, III, IV, IX, X, XI, and XIII as well as the meaning of "activities" in Articles VI, IX, and XIII of the Outer Space Treaty.³¹ The United States holds the position that exploitation of celestial resources and its associated activities are included in the definitions of these terms.³² However, at the time of the treaty,

4, 96 CONG., 2D SESS., AGREEMENT GOVERNING THE ACTIVITIES OF STATES ON THE MOON AND OTHER CELESTIAL BODIES 390 (Comm. Print 1980) [hereinafter COMM. PRINT PART 4 1980].

23. The Legal Subcommittee on the U.N. Committee on the Peaceful Uses of Outer Space, hereinafter COPUOS, is a General Assembly organization created in 1959 to study the legal issues in outer space. COMM. PRINT PART 4 1980, *supra* note 22, at 389.

24. COMM. PRINT PART 4 1980, *supra* note 22, at 389.

25. COMM. PRINT PART 4 1980, *supra* note 22, at 390.

26. Outer Space Treaty, *supra* note 2, art. I, para. 1.

27. Outer Space Treaty, *supra* note 2, art. I, para. 1.

28. Outer Space Treaty, *supra* note 2, art. IV, para. 2.

29. Outer Space Treaty, *supra* note 2, art. II.

30. Outer Space Treaty, *supra* note 2, art. I, para. 2.

31. *H.R. 85 Hearings*, *supra* note 19, at 3. The word "exploitation" never actually appears in the Outer Space Treaty causing controversy as to the interpretation of the uses and activities phrases in the Outer Space Treaty.

32. *See* DIG. U.S. PRAC. INT'L L. 674 (1980) (quoting Robert B. Owen, Legal Advisor, Department of State) [hereinafter DIGEST].

technology had not yet advanced to the point of actually carrying out such endeavors. Consequently, discussions on interpretation was held to a minimum leaving open the exact definitions in issue. Other than the few basic guidelines set down, customary international law was to be the governing body.³³

III. LEGAL ISSUES

The legal dilemma of states' rights to exploit and commercialize celestial bodies remains an open question for which no universally accepted solution exists. Various legal precedents are available which could be utilized in the creation of regulations to govern future activities in space and to fill gaps in the Outer Space Treaty. However, due to the unique problems and disagreements created between nations by the proposed application of these precedents, none have yet been applied conclusively to outer space.

Unfortunately, utilization of the precedents to the outer space realm may have ramifications on the United States' commercialization; specifically, non-renewable natural resource exploitation. On one hand, the United States pushes for the adoption of precedents and treaty interpretations protecting states' rights, and consequently, the private sector's rights, to exploit the celestial resources in outer space. On the other hand, the third world countries push for the application of precedents and treaty interpretations declaring that the celestial bodies and their resources are the common heritage of mankind and belong to no one individually but to all the world as a whole. Thus, all benefits and profits resulting from the exploitation of outer space would also belong to all and would be distributed "equitably"³⁴ among all states. Needless to say, the private sector's future investment in outer space seems to depend on the outcome of this conceptual legal battle and the eventual structuring of outer space regulation.

33. *S 115 Hearings*, *supra* note 16, at 21.

34. "Equitably" is often used when speaking of the Moon Treaty and LOS Treaty in conjunction with the CHM concept to define how benefits of future technological advancements are to be distributed to the world. However, nowhere in either treaty is "equitably" specifically defined which raises the issue of how to implement a distribution policy.

IV. TERRESTRIAL AND EXTRATERRESTRIAL LEGAL PRECEDENTS

A. *Antarctica Treaty*

1. Application of Antarctica Principles to Outer Space

The Antarctica Treaty is a substantive legal system which is a potential model for a legal structure regulating outer space. The main issues involved with such application are two fold. One is whether Antarctica and outer space present similar legal and physical environments conducive to applying the Antarctic precedents to that of outer space. The second issue is whether the United States would approve such an application of principles in view of the possible ramifications on the technological advancement of United States' commercial space industries, especially that of celestial exploitation.

In the following discussion, the physical and legal environments of Antarctica and outer space are examined which favor the application of the Antarctica Treaty principles to outer space. Additionally, the United States would favor this application even if the third world states, non-space powers, would not.³⁵

2. History and Background

The Antarctica Treaty of 1959 resulted from four causes: 1) various states' overlapping territorial claims in Antarctica, 2) the conflicts resulting from the United States and the USSR refusing to recognize any of the said claims, 3) fear of military conflict due to the cold war between the United States and the USSR, and 4) the need for cooperative scientific research.³⁶ To accommodate these fears, conflicts and desires, the Antarctica Treaty was entered into by the United States, the USSR, Japan, Belgium, South Africa, the United Kingdom, France, Australia, Norway, New Zealand, Chile and Argentina³⁷ for "two primary goals: 1) to preserve Antarctica as an area for peaceful uses only; and 2) to promote freedom of scientific investigation throughout the continent."³⁸

The governing structure formed by the treaty consists of two tiers, the consultative parties and the non-consultative parties.³⁹

35. See *infra* notes 49-61 and accompanying text.

36. Barcelo, *The International Legal Regime for Antarctica*, 19 CORNELL INT'L L.J. 157 (1986).

37. *Id.* at 156.

38. *Id.* at 157.

39. See generally *Antarctic Treaty*, *supra* note 7 and accompanying text. The consulta-

The consultative parties are those nations which have demonstrated an "interest in Antarctica by conducting substantial scientific research activity there, such as the establishment of a scientific station or the dispatch of a scientific expedition."⁴⁰ Due to their substantial interest and knowledge of Antarctica, these nations make all decisions affecting Antarctica. The non-consultative parties are those states which have acceded to the treaty but have not yet complied with the "demonstrated interest" test.⁴¹ These states may observe the decision making meetings but technically have no vote. Any state belonging to the United Nations may become a non-consultative party.⁴² This two tiered system keeps control of Antarctica and its future in the hands of those states most knowledgeable, experienced and involved with Antarctica.⁴³

However, with the increasing worldwide interest in the conservation of common resources,⁴⁴ third world countries have realized the potential of the Antarctic region in both future resources and also as a strategic military stronghold.⁴⁵ Hence, third world states have begun to demand universal participatory rights in the governing of Antarctica.⁴⁶ These third world countries, through the United Nations, are demanding revision of the Antarctica Treaty subjecting it to the governance of the United Nations and consequently, themselves.

Regardless of the exclusive nature of government in Antarctica, the management by the consultative parties has resulted in

nearly twenty-five years of successful international management of Antarctica, the continuing observance of the freezing of territorial claims, and the remarkable level of cooperation achieved by a nonhomogeneous group of participants, [which] is evidence of the sense of responsibility that the Parties to the Antarctic Treaty maintain toward the international community as a whole.⁴⁷

tive parties are the original parties to the Treaty plus Poland, West Germany, Brazil, India, the People's Republic of China and Uruguay. Barcelo, *supra* note 36, at 159.

40. Antarctic Treaty, *supra* note 7, art. IX, para. 2.

41. Barcelo, *supra* note 36, at 159. The non-consultative parties are Bulgaria, Cuba, Czechoslovakia, Denmark, Finland, East Germany, Hungary, Italy, the Netherlands, Papua New Guinea, Peru, Rumania, Spain and Sweden. *Id.*

42. See Antarctic Treaty, *supra* note 7, art. IX, para. 2.

43. See Hayashi, *The Antarctica Question in the United Nations*, 19 CORNELL INT'L L.J. 275, 283 (1986).

44. See Francioni, *Legal Aspects of Mineral Exploitation in Antarctica*, 19 CORNELL INT'L L.J. 163, 164 (1986).

45. *Id.*

46. See *id.* at 166.

47. *Id.* at 188.

Consequently, the United States or other "club" members are not yet prepared to accept revision of a system which is successful and promotes their own objectives.⁴⁸ For the same reasons, the United States is not likely to change its position on Antarctica due to any pressure from third world countries or the United Nations when the agreement comes up for revision in 1992.

3. Application to Outer Space

Although beneficial to the United States and the international community, only with limited adaptations appeasing some third world desires will the use of Antarctica as a precedent for the development of future legal principles in outer space be likely accepted in the near future. "Antarctica, like space, is an environment of extremes."⁴⁹ Such extreme environmental characteristics and lack of indigenous human inhabitants⁵⁰ seem to dictate the possible application of Antarctica principles to the realm of outer space. This fact is important since the physical characteristics of an environment will necessarily dictate the regulatory needs and the methods for accomplishing any objective set forth. However, since the adoption of the Antarctica Treaty in 1959, the many political and legal changes rather than any environmental changes that have occurred in the international community hinder the application of the Antarctica Treaty to outer space.

A primary political change is seen by the increasing interests in common resources and the third world's recent aggressive assertion of international rights. The majority of developed nations no longer have the free reign of power that existed in earlier decades of colonialism. Therefore, it is unlikely that the third world countries will again allow the formation of a legal system governing territories beyond national jurisdictions, "common spaces,"⁵¹ such as Antarctica, the high seas or the outer space to be under the exclusive

48. Colson, *The United States Position on Antarctica*, 19 CORNELL INT'L L.J. 291, 300 (1986) (the views of the author, Assistant Legal Advisor, Department of State, are his own and not necessarily those of the United States government).

49. Stovitz & Loomis, *Space Law: Lessons Learned from the Antarctic*, PROCEEDINGS OF THE TWENTY-EIGHTH COLLOQUIUM OF THE LAW OF OUTER SPACE 165, 168 (1985).

50. *Id.*

51. Territories beyond national jurisdiction consist of two categories, *res nullius* and *res communis*. The term "common spaces" is synonymous with *res communis* which refers to territories owned by no one but free to use by all. Therefore, *res communis* territories, such as outer space, are not subject to sovereignty claims by any nation just as set out in the Outer Space Treaty. *Res nullius* is the term used for territories in colonialism days where the territories belonged to no one but which could be appropriated and subjected to exclusive control of the sovereign.

control of only a few states. Hence, the controversy of a legal system for outer space acceptable to all remains.

The Antarctica governing system is based on the decisions of a small group of nations with a "substantial and demonstrated interest" in Antarctica.⁵² The majority of these nations, with exception of the United States and the USSR, also have territorial claims to portions of Antarctica. These claims are not recognized by the rest of the world.⁵³ However, Article IV of the Antarctica Treaty reserves the territorial claims made by states before the treaty was adopted.⁵⁴ Specifically:

1. Nothing contained in this present Treaty shall be interpreted as:

(a) a renunciation by any Contracting Party of previously asserted rights of or claims to territorial sovereignty of Antarctica;

(b) a renunciation or diminution by any Contracting Party of any basis of claim to territorial sovereignty in Antarctica which it may have whether as a result of its activities or those of its nationals in Antarctica, or otherwise.⁵⁵

On the other hand, outer space, through the Outer Space Treaty, has already adopted the universal participation approach shown by the involvement of the United Nations.⁵⁶ Today, any treaty on space is subject to the approval of the General Assembly. The Outer Space Treaty specifically states that "[o]uter space, including the moon and other celestial bodies shall be free for exploration and use by all States without discrimination of any kind, on a basis of equality and in accordance with international law, and there shall be free access to all areas of celestial bodies."⁵⁷ Additionally Article II states that "[o]uter space . . . is not subject to national appropriation by claim of sovereignty, by means of use or occupation, or by any other means."⁵⁸ The two treaties directly conflict on the point of "sovereignty" to territories beyond national jurisdiction. The Antarctica Treaty allows territorial claims while the Outer Space Treaty expressly prohibits such claims. If a primary basis of each of the treaties directly conflict, the application of either set of legal principles will not be applicable to the other with-

52. See *supra* notes 39-41 and accompanying text.

53. Hayashi, *supra* note 43, at 279.

54. See Antarctic Treaty, *supra* note 7, art. IV, para. 1.

55. Antarctic Treaty, *supra* note 7, art. IV.

56. See generally Outer Space Treaty, *supra* note 2.

57. Outer Space Treaty, *supra* note 2, art. I

58. Outer Space Treaty, *supra* note 2, art. II.

out some revisions and adaptations. Each is based on a different legal analysis; Antarctica's is one of the past. Today, the third world states will play a much larger part in the governing and decisions regarding areas such as outer space. Consequently, the third world nations will not agree to a legal structure which effectively eliminates their voting power and influence such as the Antarctic Treaty has done.

4. Technological Ramifications of Application

The United States would like to see a legal structure in outer space similar to that of Antarctica because it essentially protects their primary interest in outer space development and non-renewable resource exploitation. A substantial possibility of exploitation of non-renewable minerals now exists in Antarctica.⁵⁹ Moreover, all consultative states are familiar with the environmental and developmental aspects of the region and hold the same commitments of ensuring environmental protection and international cooperation in organization and scientific investigation. Consequently, the Antarctic Regime is a team effort which eases differences and promotes cooperation in antarctic activities such as non-renewable resource exploitation which is currently being addressed by the consultative parties.⁶⁰ Therefore, a similar political and legal approach in outer space would also seem to promote outer space development when that opportunity arises. Hence, the United States should support the use of a governing system like Antarctica's in outer space. A "small group negotiation minimizes the risk of offensive economic rhetoric and confusing detail on access to resources."⁶¹

5. Conclusion

The principles of the Antarctica regime will not be directly applicable to outer space without some adjustments. Although the Antarctica Treaty first addressed states' rights in earth's "common spaces,"⁶² the specific theories and legal rights mentioned are unique to that treaty due to its history of formation after state occupation and claims of sovereignty. Therefore, the specific solutions to political confrontations regarding Antarctica do not directly ap-

59. See Francioni, *supra* note 44, at 165.

60. See generally Francioni, *supra* note 44.

61. Oxman, *Antarctica and the New Law of the Sea*, 19 CORNELL INT'L L.J. 211, 246 (1986).

62. See *supra* note 51.

ply to other situations like outer space without appropriate concessions made to the non-party states. Whatever specific legal conflicts exist over Antarctica, it suffices to say that the advent of the non-party states' challenge to the party states' complete control of the occupied territories and resources signals a trend in international law toward the involvement of world organizations and the application of *res communis*⁶³ principles to those conflicts.

B. *Moon Treaty*

1. Issues

A potential but controversial precedent for outer space regulation is the Moon Treaty of 1979. The foundation of the Moon Treaty and the reason for the controversy is the common heritage of mankind concept which ironically⁶⁴ was first proposed by the United States.⁶⁵ Of additional controversy is the possible existence of a moratorium on exploitation of the non-renewable celestial resources until such a time as an international regime to govern such exploitation is formed.

2. Background

With the lunar landing of 1969 and the new potential of celestial exploitation emerging, the developing nations began a crusade to secure future rights to the benefits of outer space research and exploitation.⁶⁶ Beginning in 1970, Argentina began the crusade by submitting the first draft agreement on principles to govern the activities surrounding the exploitation of outer space on the moon and other celestial bodies.⁶⁷ This draft formed the basis for the Moon Treaty which was then and is now surrounded in controversy. Due to this controversy, it is unlikely that the Moon Treaty will ever be adopted to govern outer space or the exploitation of celestial resources. However, it is possible that some of these controversial themes could find forums in the development of outer space regula-

63. *Supra* note 51.

64. The United States originally proposed the CHM terminology in a 1972 draft proposal for the Moon Treaty as an extension of the legal principles set down in the Outer Space Treaty. The United States intended no curtailment of exploitative rights but just the same, has itself, opened up the bag of worms that has since plagued the negotiations of outer space legislation. See DIGEST, *supra* note 32, at 675-76.

65. DIGEST, *supra* note 32, at 675 (discussing the history of the United States' part in the negotiation of the Moon Treaty).

66. See COMM. PRINT PART 4 1980, *supra* note 22, at 390.

67. See COMM. PRINT PART 4 1980, *supra* note 22, at 390.

tion. Consequently, a watchful eye must be maintained to protect free market interests.

3. Developing Nations Interpretation

The common heritage of mankind principle found its way into the Moon Treaty through Argentina's original draft agreement. In order to secure the developing nations rights to the future benefits of outer space, Argentina proposed that the "natural resources of the Moon and other celestial bodies shall be the common heritage of mankind,"⁶⁸ that the benefits from the use of such resources shall be available to all states and "that the distribution of such benefits should take account of the need for higher standards of living and conditions of economic and social progress and development, in light of the interests and requirements of developing countries and the rights of those using such resources."⁶⁹ In the eyes of the third world nations, this is the basis of the Moon Treaty.

4. United States Interpretation

The United States originally proposed the CHM terminology but only meant it as an extension of the "province of mankind" terminology as used in the Outer Space Treaty.⁷⁰ The United States felt the moon and other celestial bodies were to be available for use and research by all states such that "[o]uter space, including the moon and other celestial bodies, shall be free for exploration and use by all States without discrimination of any kind, on a basis of equality and in accordance with international law. . . ."⁷¹ The United States backed the position that any state could "use" the non-renewable resources of celestial bodies but that no state could claim sovereign property rights in them. However, in no way did the United States propose that the moon and other celestial bodies be designated as "common property" as the developing nations now view it; that all resources and the benefits derived from outer space are the common property of all states to be distributed "equitably" only under an international governing scheme.⁷²

68. COMM. PRINT PART 4 1980, *supra* note 22, at 390 (quoting the original draft agreement on the principles governing activities in the use of natural resources of the Moon and other celestial bodies. A/AC.105/C.2/L.71 and Corr. 1); *see* United Nations, Committee on the Peaceful Uses of Outer Space, Report of the Legal Subcommittee on the work of its ninth session (8 June - 3 July 1970) to the Committee. U.N. Doc. A/AC.105/85 (1970)).

69. COMM. PRINT PART 4 1980, *supra* note 22, at 390.

70. *S 115 Hearings*, *supra* note 16, at 13.

71. Outer Space Treaty, *supra* note 2, art. I, para. 2.

72. *S 115 Hearings*, *supra* note 16, at 11.

The position of the United States is supported by the use of the Outer Space Treaty language repetitively in the Moon Treaty.⁷³ It would seem that the use of the same language in the Moon Treaty as in the Outer Space Treaty would be for the purpose of expressing the identical general principles and not the radically different ones proposed by the third world. After all, the Moon Treaty was to supplement the legal structure of outer space not change it.

5. Effects of Differing Interpretations

a. Generally

With continued negotiations, the passage of the LOS Treaty and its respective use of the CHM concept, the developed nations validly fear that the concept of common heritage of mankind may begin to take on a legal definition.⁷⁴ However, the negotiating states did not intend such a "common property" interpretation in the Moon Treaty evidenced by the clause inserted after the CHM terminology stating that the terms will have a significance independent of other meanings and specifically tailored to the Moon Treaty alone.⁷⁵ "The moon and its natural resources are the common heritage of mankind, which finds its expression in the provisions of this Agreement"⁷⁶ Thus, the use of the CHM terminology in the LOS Treaty should not influence the interpretation of the CHM concept in the Moon Treaty. However, it seems that this has occurred.

In view of the LOS Treaty and its definition of the CHM terminology, the developing third world countries are not backing down. These states strongly assert the precedent set by the LOS Treaty as to the interpretation of the CHM concept. They also see their stance "as a mechanism for forcing the transfer of wealth, technology, and political power" from the developed states to the undeveloped states.⁷⁷ Under this common property view, each state would have one vote, an equal voice in controlling and establishing the commercial uses of non-renewable celestial resources. A strong influential position considering none of the third world states have the technology or necessary experience relating to outer space. To back down from their position would be to abandon their best chance of quick gains in all aspects of international power.

73. See generally Outer Space Treaty, *supra* note 2; Moon Treaty, *supra* note 5.

74. *S 115 Hearings*, *supra* note 16, at 4.

75. *S 115 Hearings*, *supra* note 16, at 5.

76. Moon Treaty, *supra* note 5, art. 11, para. 1.

77. COMM. PRINT PART 3 1980, *supra* note 10, at 325.

The effect of the Moon Treaty as accepted and applied to outer space would also be felt adversely by the third world countries now lobbying for the Treaty, the moratorium, and the equitable sharing of outer space benefits. As the world stands today, private interest groups, especially in the United States and industrialized nations, provide for the technological advances which improve the standards of living, medical prospects and agricultural production of these same third world states. Through the application of the Moon Treaty principles to Outer Space Treaty which forecloses outer space to private sector investment, the third world is in effect cutting its own throat. Without the United States and other industrial nations conducting research in outer space, the benefits of technology for which the third world states wish to reserve rights will never occur.⁷⁸ Without secure financial investment potential, the private corporation will not be willing to even begin scientific research and exploration phases which means no new knowledge or technology will become available in which the third world nations can share.

b. Technical and Financial Effects

The United States will not likely approve the Moon Treaty or the application of its principles to the rest of outer space due to its adverse effect on technological advancement and investment of the private sector in outer space. The concept of CHM is a substantial deterrent to investment of the private sector in areas of space commercialization and celestial exploitation. The fact remains that the exact benefits to be derived from celestial exploitation are yet unknown. Therefore, to lay down specific regulations governing such activity would prejudice the financial potential of the United States' interest.

Additionally, consequently, opponents to the CHM concept fear any use of the term in future agreements will unduly favor the Soviets.⁷⁹ The adoption of the CHM and its resulting moratorium will "erect barriers to free enterprise. . . . The end result is that the Soviets can move forward in the area of resource development at their own pace under the guise of scientific investigation, with no fear of significant competition from the West, which must rely on its industry to provide commercial incentive."⁸⁰ While barriers will always exist, they should be erected by those most familiar with the

78. COMM. PRINT PART 4 1980, *supra* note 22, at 271.

79. COMM. PRINT PART 4 1980, *supra* note 22, at 312.

80. COMM. PRINT PART 4 1980, *supra* note 22, at 312.

environment of outer space and with the greatest investment stake in outer space.

As long as the United States can stay in the company of the world's other industrial nations like Japan, Germany, and the United Kingdom, support for the broad interpretation of CHM as merely an extension of "province of mankind" can stand. These countries retain sixty percent of the gross national product (GNP) and thus, in essence, hold a major role in determining international customary law relating to commercial and industrial practice.⁸¹ While no weighted voting exists in fact, those with a high level of trade have power over those without such trade, at least in the investment arenas.

Supporters of the Moon Treaty in the developing nations feel that the clause in article 11 limiting the CHM concept only to the provisions and the negotiation history of the treaty is authoritative and will counteract the third world's efforts to establish their interpretation of the CHM concept as a legal definition. These supporters feel the United States and other private sector states will still have control over adopting the policies of the international regime to govern celestial exploitation because the terms of the treaty only require a good faith effort at establishing a future regime.⁸² No mandate requires an actual formation of a regime and therefore, the United States is still free to protect its interests.

Specifically, article 11(5) states that "[s]tates Parties to this Agreement hereby undertake to establish an international regime. . . ."⁸³ The wording of the agreement states that only parties to the agreement will undertake the formation of the regime. The supporters of the treaty point to this as also allowing United States to protect its interest by having a hand in the formation. Additionally, the supporters stress that the term "undertake" does not dictate the actual formation, only an effort. This argument supports the fact that the United States must at least have a hand in the establishment of a satisfactory international regime if they are to further protect their interests.⁸⁴ But since few states have yet ratified the agreement, and France is the only space power yet to do so,⁸⁵ the future adoption of this treaty and the legal acceptance of its newly defined concepts of CHM seem unlikely.

81. SIMMONDS, UN CONFERENCE ON LAW OF THE SEA 1982 xxiii (1983). See *infra* notes 112-117 and accompanying text.

82. *S 115 Hearings*, *supra* note 16, at 4.

83. Moon Treaty, *supra* note 5, art. 11, para. 5.

84. *S 115 Hearings*, *supra* note 16, at 14.

85. The Moon Treaty has been signed by Austria, Chile, France, Guatemala, India,

6. Issue of an Implied Moratorium

a. *Third World View*

Further technological ramifications of the application of the Moon Treaty to outer space result from the interpretation of the Moon Treaty as imposing a moratorium on celestial exploitation until an international regime is formed to govern the exploitation. The third world states assert that the CHM concept necessarily implies a moratorium on any celestial exploitation of non-renewable resources until an international regime governing such activities is formed. If one does not own the resources then one may not use them. This moratorium possibility creates additional reasons for the industrialized nations not to adopt the Treaty and to leave the legal regulation of outer space to the Outer Space Treaty and their own national interests.

b. *Developed Nations View*

Private interest groups have raised objections to the proposed moratorium due to the financial impact it will have on private investment. It has been recognized that for the development of non-renewable celestial resources, substantial private investment will be necessary. For such development, long term scientific research, feasibility tests, exploration and marketing will be necessary before any celestial exploitation is possible.⁸⁶ Consequently, instability in the political climate surrounding the space arena will discourage private interests from expending the capital necessary for long term development. Private business must expect a profit from their ventures and the possibility of a moratorium in the near future decreases the likelihood of profitable research investment.

Evidence of decreased profitability is exhibited by the reaction of private corporations in the 1970's to the pending LOS Treaty and its explicit United Nations moratorium resolution. During this time and since, U.S. industry severely cut back its seabed expenditures and disbanded technical teams researching future industrial exploitation of the area.⁸⁷ Consequently, even if the moratorium is not de jure required, it has de facto been implemented. These corporations fear the implementation of the LOS regime in outer space will again threaten their investments and thus will refuse to take the

Morocco, the Netherlands, Peru, the Philippines, Romania and Uruguay. Christol, *The Moon Treaty Enters Force*, 79 AM. J. INT'L L. 163 (1985).

86. COMM. PRINT PART 3 1980, *supra* note 10, at 321.

87. COMM. PRINT PART 4 1980, *supra* note 22, at 270.

risk. If the CHM principles and the implied moratorium on celestial exploitation are applied to outer space by the majority of the world's nations, the private sectors in the United States as well as Japan, Germany and the United Kingdom will have to reevaluate their position on investing capital in an area of political instability and financial insecurity.

7. Conclusion

Even with their vehement opposition to third world claims, the United States and many other industrial nations realize that some sort of governing regime is necessary for future development of celestial exploitation in order to secure the international cooperation in outer space underlying the Outer Space Treaty. However, it is the restrictive and "something for nothing" views of the third world that have caused a roadblock in negotiations for applicable legal principles and a workable regime for outer space. When these underdeveloped states begin to compromise, realizing who it is that is supplying the technology and benefits, then maybe a world organization will be formed. Until then it seems unlikely the industrial nations, as foreshadowed by the LOS negotiations, will foreclose to the private sector financial investment, which is the basis of the these states' economies by accepting the concept of a moratorium.

C. *Law of the Sea Treaty*

The most substantial and recent legal precedent applicable to outer space regulation is the LOS Treaty. However, as with the Moon Treaty, the United States will not recognize its legal significance with respect to outer space due to its one sided benefits to the third world states and its restrictions on the industrialized nations' private enterprise.

1. Treaty Analysis

a. *General Characteristics*

The LOS Treaty is based on the same primary concepts as the Moon Treaty, the CHM concept. However, the LOS Treaty is a more substantial agreement containing guidelines and regulations for an international resource exploitation regime for the deep seabed. It is through this regime that the CHM concepts are put to practical use. As does the Moon Treaty, the LOS Treaty recognizes the interests of the lesser developed countries (LDC) by establishing that the high seas and seabed are not subject to national appropria-

tion⁸⁸ and are to be used for peaceful purposes.⁸⁹ However, the LOS Treaty's precise definition of the CHM and Moon Treaty's declaratory use of CHM are not identical.

Interesting analogies exist between the modern law of the high sea and outer space law. Caution, however, should be exercised in comparing analogous notions. Principles may be identical; details may vary considerably. A case in point is the Common Heritage of Mankind doctrine, as applied differently respectively to the Moon and other celestial bodies on the one hand, and to the seabed beyond national jurisdiction on the other."⁹⁰

b. Organization

The LOS Treaty actually puts the CHM concepts to work through the international organization responsible for governing deep seabed mining, the International Seabed Authority.⁹¹ The International Seabed Authority, through its mining arm, the Enterprise, controls the industrial exploitation of the seabed.⁹² The Seabed Authority regulates industrial exploitation by requiring approval of mining applications in order to conduct mining activities in the deep seabed.⁹³ However, "[u]nder the treaty, the Authority may require any individual, nation, or other organization wishing to develop the resources of the seabed to share its technology and profits with the Authority. The Authority in turn must use these contributions for the benefits of all nations."⁹⁴ This requirement for transfer of technology or profits to the Authority is absolute⁹⁵ which exemplifies the equitable sharing concept of CHM.

Additionally, the Enterprise limits the amount of seabed area a

88. LOS Treaty, *supra* note 6, arts. 137 and 89.

89. LOS Treaty, *supra* note 6, arts. 138, 141 and 88.

90. Haanappel, *Comparisons Between the Law of the Sea and Outer Space Law: Exploration and Exploitation*, PROCEEDINGS OF THE TWENTY-EIGHTH COLLOQUIUM ON THE LAW OF OUTER SPACE 145, 147 (1985) (author is the Associate Dean, Faculty of Law, McGill University, Montreal, Canada, and Associate Professor, Institute of Air and Space Law, McGill University).

91. LOS Treaty, *supra* note 6, art. 157.

92. LOS Treaty, *supra* note 6, art. 158, para. 2, art. 170; COMM. PRINT PART 4 1980, *supra* note 22, at 438.

93. LOS Treaty, *supra* note 6, art. 151, para. 2 and Annex III, art. 3.

94. Note, *Extraterritorial Law on the Final Frontier: A Regime to Govern the Development of Celestial Body Resources*, 71 GEO. L.J. 1427, 1439 n.88 (1983) (analyzing Draft Final Act of the Third United Nations Conference on the Law of the Sea, U.N. Doc. A/conf.62/121 (Oct. 21, 1982)).

95. COMM. PRINT PART 4 1980, *supra* note 22, at 438; see LOS Treaty, *supra* note 6, art. 144 and Annex III, art. 5.

company may mine and the amount of resource it may market.⁹⁶ The area the company chooses to mine must be divided into two sections. One section is reserved for the developing states' use.⁹⁷ However, the industrial company must provide the data and research on both parcels. All these requirements are to preserve the benefits of deep seabed mining for the developing states as dictated by the CHM concept.

The one vote per member decision making process of the Enterprise is another aspect of the LOS Treaty.⁹⁸ Such a voting process has no basis in the levels of investment, experience, or activity in the deep seabed.⁹⁹ The LOS Treaty creates an inflexible decision making process due to the large bargaining power of the LDC's.¹⁰⁰ Consequently, this organization could allow the third world countries, the Group of 77, whose greatest asset is their numbers,¹⁰¹ to take over effective control of the enterprise leaving the industrial nation conducting the actual mining with little or no voice in the affairs of the LOS Treaty.¹⁰² Needless to say, this organization is a materialization of the developing countries interpretations of the Moon Treaty and its proposed international governing regime. Naturally, the LDC's see this system as the beginning of a general acceptance of CHM, as defined by the LOS Treaty, as a legal doctrine.

2. Application to Outer Space

It is unlikely that the acceptance of this governing regime as a supplemental agreement to the substantive legal structure of outer space will occur. Realizing that the LOS Treaty was the unique result of complex negotiations due to the numerical superiority of the Group of 77,¹⁰³ the developed nations must now realize that the acceptance and application in outer space of a negotiation process and regime as used in the LOS Treaty is to release all control in

96. LOS Treaty, *supra* note 6, art. 151, COMM. PRINT PART 4 1980, *supra* note 22, at 438.

97. COMM. PRINT PART 4 1980, *supra* note 22, at 438.

98. COMM. PRINT PART 4 1980, *supra* note 22, at 438.

99. COMM. PRINT PART 4 1980, *supra* note 22, at 438.

100. Haanappel, *supra* note 90, at 147.

101. Note, *The Common Heritage of Mankind Principle in International Law*, 21 COLUM. J. TRANSNAT'L L. 305, 309 (1983).

102. COMM. PRINT PART 4 1980, *supra* note 22, at 439.

103. See generally Danilenko, *International Law of the Sea and Outer Space: Transfer of Technology Problem*, PROCEEDINGS OF THE 28TH COLLOQUIUM ON THE LAW OF OUTER SPACE 124 (1985).

these future economic and scientific regions.¹⁰⁴ “[I]t is unreasonable to presume that any advantage won by the numerical superiority of the Group of 77 in the seabed negotiations will be relinquished under similar conditions in outer space.”¹⁰⁵ On the contrary, the LDC will have to respect the interests of the major space powers if any equitable sharing of the benefits from exploration, exploitation and scientific investigation is to occur.¹⁰⁶ “If that regime (LOS Treaty) is perceived as a threat to commercial development of ocean resources, a similar regime to control extraterrestrial resources might also serve to deter industry investment in the exploitation of extraterrestrial resources.”¹⁰⁷ Possible ramifications on technical investment and the associated loss of control over the governing body and its decision making process are a few reasons why the United States has refused to ratify the LOS Treaty.

Another argument against acceptance of the LOS Treaty by the United States is the fear of the CHM concept taking on a legal definition as a type of customary international law.¹⁰⁸ This possible result is evidenced by the COPUOS representative of Argentina when he stated, “the reaffirmation of the established principle that the Moon and its natural resources were the common heritage of mankind would constitute an important step towards recognizing the rights of developing countries to share in the benefits of technology even when they did not directly possess such technology themselves.”¹⁰⁹ Similar fears are expressed in conjunction with transfer of technology issues. The mandatory provisions of the LOS Treaty on technology transfer “could create a precedent for the international regulation of technology transfer”¹¹⁰ which “‘could find its way into agreements relating to space.’”¹¹¹

104. Note, *supra* note 94, at 1439.

105. Rosenfield, *The Moon Treaty: The United States Should Not Become a Party*, American Society of International Law, Proceedings of the 74th Annual Meeting 164 (1980).

106. Danilenko, *supra* note 103, at 124.

107. COMM. PRINT PART 4 1980, *supra* note 22, at 439.

108. See *infra* notes 112-117 and accompanying text.

109. Danilenko, *supra* note 103, at 123 (quoting U.N. Doc. A/AC.105/C.2/SR 366, pp. 607 (1979)).

110. Danilenko, *supra* note 103, at 123.

111. *Law of the Sea: Hearing Before the Subcomm. on Oceanography and the Comm. on Merchant Marine and Fisheries*, 97th Cong., 2d Sess. 197 (1982) (statement of T. Kronmiller, Department of State).

D. Customary International Law

1. Applicability of Customary International Law to Outer Space

Regardless of any regime adopted or the stance of the United States and other industrial nations, customary international law will have an effect on the future of outer space regulation. The Outer Space Treaty specifically subjects outer space regulation to the principles of international law.¹¹² Furthermore, as dictated by the International Court of Justice, the sources of international law are:

- a. international conventions, whether general or particular, establishing rules expressly recognized by the contesting states;
- b. international custom, as evidence of a general practice accepted as law;
- c. the general principles of law recognized by civilized nations;
- d. subject to the provisions of Article 59, judicial decisions and the teachings of the most highly qualified publicists of the various nations, as subsidiary means for the determination of rules of law.¹¹³

Under the second source of international law, any emerging principle of law, as soon as accepted as a general practice, will have an effect on how outer space is regulated. For example, the CHM could become customary international law if ratified through nations' use and consistently interpreted in future agreements such as the LOS Treaty and the Moon Treaty; the developed states' primary fear. This acceptance would have a major effect on the future financial potential of outer space.¹¹⁴

However, if the industrial nations continue to reject the CHM principle, it will never be accepted as custom and fade out of the outer space regulatory picture. It must be realized that the majority of the 130 nations signing the LOS Treaty were third world countries without the technology to mine the seabed anyway.¹¹⁵ Thus, if custom is measured by the practice of states, the developed states are a determining force as to customary law regarding technological issues since they are the only ones able to "practice."¹¹⁶ Without the approval of the United States and other space powers, the concept is doomed to fail.¹¹⁷

112. See *supra* notes 26-33 and accompanying text.

113. Statute of the International Court of Justice, art. 38, para. 1.

114. See *supra* notes 74-85 and accompanying text.

115. Note, *supra* note 101, at 336.

116. Note, *supra* note 101, at 336.

117. See *supra* note 12.

E. *Conclusion to Precedents Section*

Outer space legal principles should evolve slowly with direct influence by the major space powers. No precedents directly apply. Consequently, outer space needs a unique set of regulations.

While it is possible and advisable to learn from other branches of international law, such law as the law of the sea, which has a much longer tradition and has reached a much greater volume in its growth, any application of experience in other branches should be adapted to a specific approach to problems of space law, which require original and usually unprecedented solutions.¹¹⁸

V. CURRENT U.S. SPACE POLICY

A. *Generally*

In view of the unpredictable future of the outer space regulatory negotiations, the United States has adopted its own unilateral space policy focusing on leadership in space and increased efforts at space commercialization. Through the National Commercial Space Policy (NCSP), NASA has in recent years supported commercial space activities and helped reduce risks of doing business in space.¹¹⁹ NASA's goals are reflected through the NCSP's policies of:

1) to establish new links with the private sector; 2) to not interfere with private investment decisions despite the government's view of the projects feasibility; 3) to encourage the private sector to operate a space project if the private sector can do so more efficiently than the government; 4) to invest in research and facilities to encourage private investment, but NASA will not spend tax dollars for plans that private enterprise is willing to expend; and 5) to contribute significantly to a private commercial endeavor, if the private sector has significant capital at risk and there are potential benefits for the nation.¹²⁰

The NCSP regulates private space activities in compliance with international outer space responsibilities but encourages commer-

118. Kopal, *Analogies and Differences in the Development of the Law of the Sea and the Law of Outer Space*, PROCEEDINGS OF THE TWENTY-EIGHTH COLLOQUIUM ON THE LAW OF OUTER SPACE 151, 154 (1985).

119. Note, *United States Commercial Space Policy: Impact on International and Domestic Law*, 13 SYRACUSE J. INT'L L. & COM. 129, 140 (1986).

120. See National Aeronautics and Space Administration, *Commercial Use of Space Policy* (Oct. 29, 1984) [hereinafter NCSP].

cialization in the face of international discord.¹²¹ This may cause conflicts with specific international regulations depending on the interpretations of the applicable outer space legislation but emphasizes the fact that the United States will not again lose control of negotiations involving future business opportunities as in the LOS Treaty.¹²² As Soviet legal scholar Gregory Tunkin said, “[a]ccording to the principle of sovereign equality of states, no state or group of states can create norms of international law binding upon other states. The actual state of international relations nowadays would make it futile for any group of states to attempt to dictate rules of conduct to other states.”¹²³ As of January 5, 1988, the specific goals of NASA were:

(1) to strengthen the security of the United States; (2) to obtain scientific, technological, and economic benefits for the general population and to improve the quality of life on Earth through space-related activities; (3) to encourage continuing United States private-sector investment in space and related activities; (4) to promote international cooperative activities taking into account United States national security, foreign policy, scientific, and economic interests; (5) to cooperate with other nations in maintaining the freedom of space for activities that enhance the security and welfare of mankind; and, as a long-range goal; (6) to expand human presence and activity beyond Earth orbit into the solar system.¹²⁴

Although “exploitation” does not appear in the goals or programs of the U.S. space policy to discourage international dissent from third world states. However, NASA’s policy is obvious. It prepares the United States for the commercialization of space whether or not an international governing regime is formed. Furthermore, the U.S. government has implemented programs to facilitate the achievement of these space policy goals and commercialization.¹²⁵

B. *Legality of U.S. Policy*

The legal justifications for the U.S. space policy and actions

121. See Note, *supra* note 119, at 148.

122. See Note, *supra* note 119, at 149.

123. Note, *supra* note 97, at 335 n.112 (quoting Tunkin, *International Law in the International System*, 4 *RESUEIL DES COURS* 9, 130 (1975)).

124. Office of the Press Secretary, Presidential Directive on National Space Policy (Feb. 11, 1989).

125. See HOSENBALL AND REEVE, UNITED STATES SPACE LAW: NATIONAL AND INTERNATIONAL REGULATION, A PREFACE TO U.S. SPACE LAWS AND POLICIES, 15 (1989); see generally San Jose Mercury News, Jan. 11, 1990 at 5A, col. 4 (concerning Vice President Quayle commenting on President Bush’s new plans for space commercialization).

follow from their interpretations of the legal principles set down in the Outer Space Treaty. Since the United States has not yet ratified the Moon Treaty, it is not subject to the specific set of regulations and principles set out in that agreement.¹²⁶ Therefore, the United States is able to interpret the general terms of the Outer Space Treaty in a light most favorable to their goals.¹²⁷ Additionally, the Outer Space Treaty can be used as international law is normally used, as after-the-fact justification for action. Political conflict is a separate issue.¹²⁸

The legality of private action in outer space presents yet another issue needing definitive resolution. The Outer Space Treaty addresses states' actions in restricting certain activities in outer space.¹²⁹ Article VI of the Treaty imposes responsibility on the states for any actions of its nationals.¹³⁰ Therefore, in promoting the commercialization of space by U.S. private sectors, the United States is responsible for all results, legal or illegal. Nevertheless, this paternal attitude and the U.S. policy encouraging private enterprise in outer space will increase activity and alleviate fears of lost investments and legal battles over activities. The promotion of private interests by the United States evidenced by the shouldering of responsibility for private actions should promote faith in the industries' expectations of outer space commercialization.

VI. AN INTERNATIONAL REGIME FOR GOVERNING OUTER SPACE

A. *A Need*

By promoting private enterprise, the United States still recognizes the need for a cooperative association to regulate outer space activities.¹³¹ The political and financial desirability of such an association is enormous and must be continually monitored by the United States.¹³² Technologically, "there appear to be no other insurmountable technological impediments to the exploitation of extraterrestrial resources."¹³³ From the viewpoint of the United

126. See *supra* note 12 and accompanying text.

127. Note, *supra* note 115, at 129.

128. *Supra* notes 125-127 and accompanying text.

129. See generally Outer Space Treaty, *supra* note 2.

130. Outer Space Treaty, *supra* note 2, art. VI.

131. See generally Raclin, *International Cooperation in Commercial Activities in Outer Space: Is it Necessary, Desirable or Feasible?*, PROCEEDINGS OF THE THIRTIETH COLLOQUIUM ON THE LAW OF OUTER SPACE 234 (1987).

132. See generally *id.*

133. See Raclin, *supra* note 131, at 236-37.

States, international cooperation in the governance and regulation of outer space would be both politically and financially beneficial.¹³⁴ However, as discussed earlier, a regime similar to LOS will not be accepted.¹³⁵

Politically, the exclusion of all but the few developed nations capable of outer space development would cause international resentment and consequently, "complicate significantly terrestrial political relationships."¹³⁶ In order to ease future international tensions and to promote international cooperation in other aspects of world endeavors, "the developed countries must now recognize, at least to some extent, the developing countries' demands to have a voice in the development and exploitation of outer space resources."¹³⁷

Financially, few nations have the actual resources to undertake such a massive enterprise as outer space exploration and exploitation.¹³⁸ Furthermore, even the nations with such resources are realizing that international cooperation is financially superior in that duplicative programs of nations are avoided.¹³⁹ The United States, especially, is finding political obstacles to continued escalating outer space development costs. Consequently, the United States will and does support international financial cooperation as well as opening up space development to private agencies outside the U.S. government.

These political and financial factors combined with the confusion over private enterprises' rights in space commercialization and the associated risks and costs of such undertakings point toward renewed need for international governmental cooperation and involvement in future outer space development. The mitigation of private fears of loss of capital and lesser developed states' exclusion in outer space activities is a must for future advancement.

B. *Formation*

There is nothing more difficult to plan, more doubtful of success, nor more dangerous to manage than the creation of a new system; For the initiator has the enmity of those who would profit by the preservation of the old system and merely lukewarm

134. See Raclin, *supra* note 131, at 234 (quoting 5115 Hearing, *supra* note 16, at 54).

135. See *infra* notes 103-111 and accompanying text.

136. Raclin, *supra* note 131, at 236.

137. Raclin, *supra* note 131, at 236.

138. Raclin, *supra* note 131, at 236-7.

139. Raclin, *supra* note 131, at 237.

defenders in those who would gain from the new one.¹⁴⁰

In forming the regime, it will be necessary to account for the risks and hazards undertaken by the space powers in actually developing the space frontier. Consequently, a regime similar to but not identical to that of Antarctica should be adopted. While it is realized that the third world states will not give up all their perceived rights in future benefits from outer space, especially in view of CHM, the only regime acceptable to world space powers will be one under their control. This type of regime may be acceptable to the third world states if certain specific benefits and rights are reserved for them. Alternatively, the major space powers could be given a weighted vote over the non-space powers to allow those taking the risk the most control while also giving the non-space powers some say in governing outer space activities.

A regime fashioned after the International Monetary Fund (IMF) voting arrangement is a potential solution to the dispute over outer space regulation. Under the IMF, the voting procedures are undertaken through two decision-making organs, the Board of Governors and the Executive Board.¹⁴¹ The Board of Governors are responsible for the major decisions and only meet once a year.¹⁴² Each member state appoints one governor and one alternative to the Board of Governors.¹⁴³ The governor votes for its member state through the votes allotted to that state. Each member state has a minimum number of baseline votes. Additional votes are allotted to each state weighted according to the amount of monetary contribution made to the IMF. "Each member shall have two hundred and fifty votes plus one additional vote for each part of its quota equivalent to one hundred thousand special drawing rights."¹⁴⁴ However, in order to correct for inequalities during the major impact votes, special majorities may be required which require higher percentages of majority to pass a resolution.¹⁴⁵

140. Hammar skjold, *Conceptual Evolution Caused and-Necessitated-by Technological Advancement: Transition to Information-Based Society-A Case on Point*, 11 ANNALS OF AIR AND SPACE LAW 205 (1986) (quoting Niccolo Machiavelli 1469-1527).

141. Articles of Agreement of the Fund, art. XII, § 2(a).

142. Articles of Agreement of the Fund, art. XII, § 2(c).

143. Articles of Agreement of the Fund, art. XII, § 2(a).

144. Articles of Agreement of the Fund, art. XII, § 5(a).

145. See the following sections of the Articles of Agreement of the Fund requiring 75% majority: art. III, § 3(d); art. V, §§ 7(e), 8(d), 9(c) and 12(j). See the following sections requiring 70% majority: art. V, §§ 7(g) and 9(a); art. XII, §§ 6(d), 6(f)(vi), 6(f)(ii) and 8; art. XV, § 2; art. XIX, § 6(b). See the following sections requiring 85% majority: art. III, § 2(c); art. V, § 12(d); art. XII, § 1; art. XXVI, § 2(b); art. XXIX(b); art. IV, § 2(c); art. V, §§ 7(c), 7(d), 12(f)(ii), 12(f)(iii) and 12(g); art. XV, § 2; art. XVII, § 3; art. XVIII, § 4(d); art. XX,

The Executive Board conducts the daily business of the IMF through twenty-one directors.¹⁴⁶ Five directorships are awarded to the nations with the largest quotas, are non-elected and permanent.¹⁴⁷ Two directorships are awarded to the two largest creditors, are non-elected and permanent.¹⁴⁸ The rest of the directors are elected.¹⁴⁹ The Executive Board also votes on the weighted method.

Using the IMF as a model, a voting arrangement based on the amount of a states' monetary investment in the commercialization of outer space may be acceptable to all states. First, a baseline number of votes would be allocated to each state with an interest in outer space. This "baseline interest" could be signified by a minimum amount of investment. This will allow all interested states a voice in the regulation of outer space activities. The world's total monetary investment in outer space commercialization programs will be calculated. The total world's investment should be calculated as an average over the previous ten years of investment. Additional votes would be awarded for each percentage point of this average held by a participating state. Each state's percentage of the world's investment will also be averaged over that ten year period. This averaging will hinder any one time "dumping" of cash into an outer space program for the sole purpose of influencing specific outer space votes through a one time increased percentage of world investment. The averaging will determine the seriousness of a state's interest in the commercialization of outer space while allowing time for that state to become familiar with all aspects of outer space regulation before increased voting rights accrue. As with Antarctica, those states with large voting rights will have the most experience and interest in outer space commercialization.

As with the IMF, two voting organs could also be utilized; one, like the Board of Governors, to pass on resolutions, policies and legislation regulating outer space. The second, the Executive Board will carry out the daily business of implementing the regulations set down by the Board of Governors. Similarly, each state contributing to outer space commercialization could appoint one governor to the Board of Governors. As for the Executive Board, the five nations with the largest investment in outer space and the two nations with

§ 7(b); art. XXIII, § 1; art. XXVII(a). See the following sections requiring 100% majority: art. XXVI, § 1; art. III, § 2(d); Sched. C. para. 6.

146. Articles of Agreement of the Fund, art. XII, § 3(b).

147. Articles of Agreement of the Fund, art. XII, § 3(b).

148. Articles of Agreement of the Fund, art. XII, § 3(c).

149. Articles of Agreement of the Fund, art. XII, § 3(b)(ii).

the smallest contributions to outer space investment could appoint permanent directors to the Executive Board. The two directors from the smallest contributors will allow the less developed nations participatory rights in the regulation of outer space while also assuring that their views will be heard. The states with the smallest contributions must still have contributions above the minimum amount qualifying for membership. Another 14 directors would be elected from the ranks of those experts in outer space issues who also have citizenship in member states. Again, special majorities could be used in major decisions of both boards. However, it will be necessary to structure such majority percentages to foreclose the Group of 77 from acting collusively in hindering the purpose of the regime. This may entail lower majorities than used in the IMF.

While a voting arrangement fashioned after the IMF may cause discord among less developed nations and those nations with less investment capabilities, the right to vote is ultimately left up to them. With increased investment, these less developed nations can have as large of a voice as they feel necessary. This solution may seem to ignore the major problem of outer space commercialization and non-renewable resource exploitation, which is the difficulty of the third world nations coming up with the capital to invest. While it is conceded that the lack of funds is a problem, it should not overshadow the premise that the nations expending the capital, time, resources and risk must have some security in their investment. Additionally, these same nations, as with Antarctica, are the nations best fitted to determine what is and is not legislation for outer space.

The arguments against the voting system in the IMF do not apply to the realm of outer space. Opponents of the IMF system cite lack of equity in proportion to population. These opponents feel the distribution of monetary aid is in the control of the few who need the aid the least. They feel the weighted system is unfair in that those with the need should have more say. However, in the outer space situation, the roles are reversed. The ability to direct outer space development and activities is in the hands of those with an interest. Population is not a determining factor. This situation involves a free market system of future technology, not the necessities of life. Consequently, no lack of equity exists. Those with the interest have the most control.

The investment of capital and its associated risks will force the investing nations to act conservatively and only after careful examination of all the related factors. Too large a danger of inexperience

and improper judgement exists in giving a large voting contingent to nations without the knowledge of or interest in the future of outer space. Consequently, the weighted voting system will allow the less developed nations some say but will not allow them to band together in frustrating the purpose of such a regime as has happened with the LOS Treaty.

Regardless of the procedure in giving power to those who bear the risk, certain requirements of the regime should include: 1) a call for regulation of activities only by those undertaking the activities (albeit with the input of non-participant members); and 2) it must not require the transfer of specific amounts of resources, benefits, or technology, to countries not undertaking the risks of development; and 3) must allow for some express distribution of benefits to all member countries. These requirements have resulted from the experience of successes and failures with the LOS Treaty, the Moon Treaty and the Antarctic Treaty. Each international agreement has used various principles in governing and developing territorial lands outside national jurisdiction, and each has contributed to international experience in governing and developing common spaces. However, the unique nature of outer space and the benefits of hindsight points toward the need to fulfill these few above objectives. Successful fulfillment of such should be beneficial and acceptable to all involved. Consequently, an Antarctic form of regime complete with an IMF type voting arrangement is necessary whether its principles are obsolete or not in view of today's international political climate.

VII. CONCLUSION

The Outer Space Treaty created a general legal framework for outer space regulation. With the approach of significant international activity in outer space, new specific regulations must fill the gaps left in the legal structure of the Outer Space Treaty. Legal precedents such as the Antarctic Treaty, the Moon Treaty and the LOS Treaty present some possibilities to the legal dilemma in outer space but provide no concrete answers. Application of each precedent's legal basis produces controversial effects in the international political community, the international scientific community and to the technological development of outer space. For the United States, the technological issue looms large as any efforts at curtailing U.S. private interest groups hinder U.S. goals in technological advancement and development as well as being a leader in outer space.

Of all the precedents, Antarctica is the best system after which to model an outer space legal structure. The Antarctic environment and legal structure best correlates with the environment of outer space and the general legal structure already in place. However, changes must be made in the outer space version to accommodate the role of the non-space parties in these days of international cooperation and assistance. Hence, the legal system, while resembling that of Antarctica, will basically give primary control to the space powers through the implementation of a voting regime fashioned after the IMF which will still allow the non-space powers their voice.

The distribution of future benefits will have to fall in favor of the space powers' needs to promote private investment and development. This does not dictate exclusion of the non-space powers. Simply, for the system to function, the space powers must realize a return on their investments. A regime fashioned after the Antarctic Treaty and the IMF can be formed which includes benefits to all states. Consequently, all the benefits of outer space can be realized by all while fulfilling the prerequisite requirements of any investment oriented endeavor such as the commercialization and development of outer space and its celestial resources.