COMMENT

THE "COMMON HERITAGE" OF OUTER SPACE: EQUAL BENEFITS FOR MOST OF MANKIND

“We are the product of 4.5 billion years of fortuitous, slow, biological evolution. There is no reason to think that the evolutionary process has stopped. Man is a transitional animal. . . . All that is clear is that we cannot remain static.”¹

“Space, the final frontier.”²

I. INTRODUCTION

Man has been exploring his surroundings throughout his entire existence. Endurance and adaptation to new environments have been two of his strongest survival skills. Whether the uncharted discipline is geography, science, or philosophy, man has always sought to expand his boundaries. Societies that have “expanded their frontiers” have prospered while those that cease to explore may experience “long term, detrimental effects.”³ Some have described the current era of space exploration as being analogous to the era of Christopher Columbus.⁴ Although the specific benefits of space remain uncertain,⁵

². Star Trek: The Man Trap (NBC television broadcast Sept. 8, 1966); see also The Internet Movie Database, Memorable Quotes from “Star Trek,” http://www.imdb.com/title/tt0060028/quotes (last visited Nov. 27, 2006).
⁴. Id. at 14. Brian Chase, Executive Director of the National Space Society, warned that it is wrong to think of modern space flight as analogous to times of Christopher Columbus, but more like Leif Erikson due to inefficient technology. Id. Because of these technological limitations, Alex Roland, Professor of History at Duke University and former NASA historian, suggested trading manned space flight for automated missions until technology can fly humans more safely into space. Id. at 18 (statement of Alex Roland, Professor of History, Duke University).
⁵. See, e.g., Treaty on Principles Governing the Activities of States in the Exploration
space exploration will certainly change almost every aspect of human life. Satellite communications alone are enabling scientists and researchers to monitor weather, protect endangered species, identify pending disasters, and extend education to remote villages around the world. Benefits to specific industries could also come in the form of new mineral resources, evolving technology, or scientific advancements. In this regard, space exploration is something akin to discovering the New World.

Jurisprudence is now equally entering unknown territory. In recent years, international bodies have begun drafting laws to govern both the exploration and exploitation of outer space. The corpus juris spatialis, the body of space law, is a unique development in international law because it proposes a new structure for international interaction on Earth-based collective efforts in outer space. For example,
while the idea of complete demilitarization of Earth’s terrain may be thought to be impossible, many within the international community are struggling to secure such a mandate in space. One of the most important new principles to pervade every space law document is the idea of “Common Heritage.” This idea has been used before in political rhetoric, but there is no agreement about its precise definition. At least some believe that “Common Heritage” guarantees that all mankind have an equal share in the benefits that will come from reaching into outer space.

Pioneering states will interpret the new rules of outer space according to their own interests and needs. The ways in which humanity will benefit from space will be an area of great controversy between technologically developed countries and those still struggling to make their space debut. But as law-makers begin to draft legislation concerning permissible conduct in space, more and more technology will be tailored towards that same end.

Space law is unique in that it is likely the first time in history that states will generally draft domestic policies based on international norms rather than the reverse. When most states first adopt international space agreements, they will have neither a space program nor any legislation concerning space exploration. This fact will enable more consistent legislation among different states, but will make adap-

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DIRECTIVE NO. 3100.10, SPACE POLICY § 4.13 (Jul. 9, 1999) [hereinafter SPACE POLICY]. (suggesting that international cooperation in space will “forge closer security ties with U.S. allies and friends” and “improve interoperability between U.S. and allied forces”).

10. DELBERT D. SMITH, SPACE STATIONS: INTERNATIONAL LAW AND POLICY 138-39 (1979) (discussing whether “peaceful purposes” means no military activity or just no aggressive actions); see also Petras, supra note 8, at 161-62, 176 (2002) (interpreting the Outer Space Treaty to mandate demilitarization of space and discussing Russia’s expressed desire to prohibit military operations in space).

11. CTR. FOR RESEARCH OF AIR & SPACE LAW, MCGLL UNIV., SPACE ACTIVITIES AND EMERGING INTERNATIONAL LAW 327 (Nicolas Mateesco Matte ed., 1984). This term was put into use by the emerging super-powers in space. Id. at 327. This idea has since become a central theme throughout all space law. See id.

12. See SMITH, supra note 10, at 154-55. Although “Common Heritage” has been proposed before, it has only been accepted as long as there is no interference with political or economic activities. Id. The definition of “Common Heritage” has been steered away from including equal “sharing.” Id.

13. See SPACE ACTIVITIES AND EMERGING INTERNATIONAL LAW, supra note 11, at 327.

14. Manifestation of the “Common Heritage” Principle will most likely ultimately be determined by what language is adopted and what language is rejected. Practice and capacity will change how international actors approach such a principle.

tations to international law difficult in the future because it will potentially require states to redraft their domestic space laws.

As the United States drafts its domestic policies for space exploration and exploitation, the duties and privileges included in the "Common Heritage" Principle must be defined to avoid conflict with international law. This paper will first analyze the history of space exploration to see how the "Common Heritage" Principle has been defined as the field has evolved. It will then look at modern space law to see what the "Common Heritage" Principle means in current legal practice. Finally, in the midst of pending U.S. space legislation, this comment will try to reconcile the ideal of equal sharing and the practice of equal access.

Although many nations are likely looking to advance their own interests, it is critical that the United States recognize that its actions will have a major impact on the space industry because it has been the industry leader. Despite drawbacks, the United States has the biggest independent space program. Because of its unique position, the United States will likely have the largest influence on what legal frameworks are adopted or rejected.


18. Space Hearing, supra note 3, at 3-4 (statement of Marcia Smith, Specialist in Aerospace Tech. Policy from the Cong. Research Serv.). “Why the moon? Why Mars? Because it is humanity’s destiny to strive to seek to find and because it is America’s destiny to lead.” Id. at 4 (quoting George H. W. Bush, U.S. President, 20th Anniversary of Apollo Lunar Landing Speech (July 1989)).
Initially, man's exploration of space was dominated by government initiatives. In the past, civilian programs complimented government projects to explore outer space, but government investments funded the bulk of space research. As a result, space technology has dual-uses: civilian and military. Consequently, space law continues to be highly influenced by the era during which it was first drafted: the Cold War. This has led to a competitive model in space despite efforts to create a cooperative community.

A. The Space Race

In 1957, the United Soviet Socialist Republic (Soviet Union) launched the first satellite named "Sputnik" into outer space as the first step in the Space Race. On the other side of the planet, the United States became alarmed by the prospect of being left behind in the Space Race. President Dwight Eisenhower passed the National Aeronautics and Space Act of 1958 as a civilian component to a renewed national space effort, reserving any military operations in space for peaceful purposes.
space for the Department of Defense. The United States believed it needed to gain the position as the leader in space or risk losing the Cold War. This created a direct connection between outer space exploration and military superiority.

Because of its military nature, space exploration has lead to a myriad of concerns for the entire world. Questions concerning issues such as the precise definition of “peaceful purposes” have become more urgent as new countries reach levels of development where they too have access to space. Groups of countries with similar interests and interpretations have joined together in international agreements and to make declarations over specific issues.

There is one governing body that tries to manage these concerns. The United Nations Committee on the Peaceful Uses of Outer Space (COPUOS) was created to promote the peaceful exploration of space. COPUOS provides guidance and acts as a focal point for the growing variety of alliances. Unfortunately, a mechanism for enforcement has not yet been developed.

28. See generally Space Policy, supra note 9.
29. See Kenneth Gatland, Manned Spacecraft 100 (Macmillan Publ’g Co., Inc. 1976) (1967).
30. To understand the depth of fear the United States was experiencing, one might recall the Ronald Reagan speech about “Star Wars.” See Ronald Reagan, U.S. President, Address to the Nation on Defense and National Security (Mar. 23, 1983), available at http://www.reagan.utexas.edu/archives/speeches/1983/32383d.htm); CNN Cold War – Historical Documents: Reagan’s “Star Wars” Speech, http://www.cnn.com/SPECIALS/cold.war/episodes/22/documents/starwars.speech (last visited Nov. 22, 2006) (explaining that the speech was denoted the “Star Wars” speech because Reagan sought to develop satellite technology that could stop a nuclear attack). For a more personal effect, recall the “duck and cover” drills children performed in elementary schools. See also Limited Test Ban Treaty, supra note 7. This treaty was drafted to reach the “speediest possible achievement of an agreement on general and complete disarmament.” Id.
31. See Outer Space Treaty, supra note 5, proclamation; see also Space Hearing, supra note 3, (statement of Sam Brownback, U.S. Senator). To date, three nations have launched astronauts into space, the United States, Russia, and China. See id. (statement of Sam Brownback, U.S. Senator, that the U.S. and Russia were the only countries sending humans into space as of April 2, 2003); Foust, supra note 17 (confirming that China has launched humans into space).
32. The European Space Agency includes Belgium, Germany, France, Spain, and the United Kingdom. Agreement Concerning Cooperation on the Civil International Space Station, Mar. 27, 2001, 1998 U.S.T. 212 [hereinafter ISS Agreement]. The European Space Agency represents its members in the Agreement Concerning Cooperation on the Civil International Space Station. Id.
33. Gabrynowicz, supra note 19, at 1043.
34. See International Co-operation In the Peaceful Uses of Outer Space, G.A. Res. 1472 (XIV), ¶ A1(a), U.N. Doc. A/1472 (Dec. 12, 1959) (establishing “a Committee on the Peaceful Uses of Outer Space . . . [to review, as appropriate, the area of international cooperation, and to study practical and feasible means for giving effect to programmes in the peaceful uses of outer space which could appropriately be undertaken under the United Nations auspices”);
B. Space Explorers

To date, few nations have achieved "space faring" capability, leaving most states with less developed technology outside of the space industry. Space faring nations currently include the United States, Russia, and China. Indeed, these states have begun a practice of camaraderie by bringing visiting astronauts from other nations into space for scientific purposes. Today, scientific research is not the only reason to accept foreign passengers. Four wealthy entrepreneurs have paid their way onto the International Space Station as the Earth’s first space tourists.

Since the beginning of the Space Race, the United States has been trying to maintain a technological edge over the rest of the world. But the terms of the Space Race have changed. Following virtually

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35. "Space-faring" nations are those that can build and launch satellites into outer space. See Waldrop, supra note 21, at 167.

36. See Nandisiri Jasentuliyana, The Development of the Outer Space Treaties and the Legal Principles from a Third World Perspective, in PROCEEDINGS OF THE FORTIETH COLLOQUIUM ON THE LAW OF OUTER SPACE 57, 59, 63 (Oct. 1997) (stating that developed states have a "quasi-monopoly" in space and that developing states are working towards reducing the "technological gap" that exists between themselves and developed states regarding space technology).


38. For example, Brazil spent millions of U.S. dollars to send the first Brazilian astronaut to board the International Space Station (ISS) in a historic moment for the Brazilian people. See generally Tales Azzoni, Homeland Has Much to Gain from Spaceflight, Brazilian Astronaut Says, SPACE.COM, (Apr. 8, 2006), http://www.space.com/missionlaunches/060408_exp12_pontes.html (last visited Nov. 9, 2006); see NASA Space Station Homepage, available at http://www.nasa.gov/mission_pages/station/expeditions/expedition14. (follow “Read more about Expedition 14” hyperlink). Biographies are available on the crews of the ISS: currently hosting Commander Michael Lopez-Alegria from the United States, Flight Engineer Mikhail Tyurin from Russia, Flight Engineer Thomas Reiter of the European Space Agency from Germany, Flight Engineer Sunita Williams from the United States, and Spaceflight Participant Anousheh Ansari from the United States (and the first member of Iranian decent). Id. Previous crews have consisted of Roberto Vittori from Italy (Expedition 11), and Pedro Duque from Spain (Expedition 8). For more details, see http://www.nasa.gov/mission_pages/station/expeditions/index.html (follow “Expedition 8” hyperlink) (follow “Expedition 11” hyperlink).


40. Space Hearing, supra note 3 (statement of Sam Brownback, U.S. Senator); see also SPACE POLICY, supra note 9.
simultaneous experiments to build national space stations, the United States and Soviet Union joined forces under a growing number of national flags to maintain an International Space Station. The space station is currently hosting astronauts from all over the world.

The policy of joining forces with a potential rival has been employed by the United States before. The United States was afraid that old rockets produced in the Soviet Union would be converted to ballistic missiles, so the United States encouraged Russia and the Ukraine to enter the commercial launch industry in exchange for acceptance of nuclear arms proliferation controls.

However, the United States has a very different role in the development of the space program in the People’s Republic of China. Despite restrictions on the exchange of information, China has developed a successful “space-faring” program based on U.S. technology. As China’s space capabilities increase, some are encouraging the United States to reconsider joint ventures with China.

The United States must now reconsider its relationship with the commercial sector in space exploration as well. It has become increasingly expensive for the United States to continue its shuttle launch program as the primary means of space transportation. Many...

41. Petras, supra note 8, at 136; Gatland, supra note 29, at 221, 230.
42. See ISS Agreement, supra note 32, art. 1(1)-(2).
43. See supra note 38 and accompanying text.
45. Waldrop, supra note 21, at 183. The United States encouraged Russia and the Ukraine to commercialize their industry to ensure peaceful applications for their surplus missile technology. Id.
46. See generally id.; see also Foust, supra note 17. China has also invested in American companies in order to gain access to sensitive data and obtain plans through illegal intelligence operations. H.R. REP. NO. 105-851, vol. 1, ch.1, at 35 (1999). Counterintelligence is even more difficult with China than it was with the Soviet Union during the Cold War because Chinese nationals are able to travel in and out of the United States with ease. See id. at 38-41.
47. See Leonard David, U.S.-China Cooperation: The Great Space Debate, SPACE.COM (Apr. 12, 2006), http://www.space.com/news/060412_china_cooperation.html (discussing the current sentiment among American businesses wanting to collaborate with China); Wheeler, supra note 16. But see Foust, supra note 17 (discussing alarm among U.S. officials concerning China’s space capabilities and intentions, but concluding that their concern is unfounded).
48. See Space Hearing, supra note 3 (statement of Alex Roland, Professor of History, Duke University) (discussing the growing inferiority of the NASA Shuttle). Since its construction, the shuttle has been the major workhorse for NASA missions. Id. But these shuttles are expensive to maintain, and some have been in service for more than twenty years. Id. Their decreasing capacity is evident by the Columbia accident. Id.
countries, including the United States, are looking to private companies for affordable transportation into outer space. With this growing reliance on commercial rockets, private companies are launching satellites and scientific equipment into space that conduct both civilian and military objectives.

Because of developing technology, private companies are in a unique position to create new actors in outer space, intentionally and accidentally. The commercial sector has been responsible for multiple instances of errant technology reaching unauthorized parties.

This comment distinguishes three types of space explorers as actors in the space industry: nation-state have-nots, and private companies. All three of these actors have been shaping space law but have not yet put the law into practice. Vague provisions within international treaties are usually defined by technological capabilities and practice. But there have been two major lessons that will necessarily alter the world’s approach to space exploration. First, universal access to outer space will soon become a reality for many developing states, and such access is beyond the control of any single nation. Second, cooperative efforts are more successful at developing the space industry than are competitive practices. International space law will need to reconcile the “Common Heritage” Principle with a competitive economic model on a playing field that is not anywhere near even.

III. “EXTRANATIONAL” LAW

Like most laws in history, the corpus juris spatialis was created amidst conflict and fear. The Soviet Union and United States were engaged in a race for economic, military, and technological superiority. The fear of a nuclear attack from space has been a growing concern for the international community as a whole. The COPUOS body

49. Waldrop, supra note 21, at 163, 165-66.
50. See id. at 162-63; Agreement on Guidelines for the Transfer of Equipment and Technology Related to Missiles, Apr. 16, 1987, 26 I.L.M. 599 [hereinafter MTCR]. The treaty specifically targets technology that can be dually employed for reusable entry vehicles (shuttles) and as nuclear payload delivery systems (Intercontinental Ballistic Missiles). See id.; see also Gabrynowicz, supra note 19, at 1056 (discussing how the United State is merging many of its military and science programs to minimize costs).
51. See generally H.R. REP. No. 105-851, vol. 1, ch. 2, at 66-95 (1999) (discussing several incidents where Chinese individuals stole technical data from U.S. weapons design laboratories for the Chinese government); see also Waldrop, supra note 21, at 193, 194 (discussing Boeing’s involvement in the unauthorized sharing of missile technology during a joint venture with Russia).
52. SPACE ACTIVITIES AND EMERGING INTERNATIONAL LAW, supra note 11, at 52.
was created at a time of bilateral super-power dominance, but with new participants in space such as China, Japan, and North Korea, the situation is now much more complex. Against this backdrop, nations came together concerning the idea that there must be peaceful cooperation in space separate from any struggles on Earth.

The first international treaty regarding space was the Limited-Test-Ban Treaty. This treaty is an international agreement concerning the banning of nuclear tests in the atmosphere, outer space, and under water. The two major nuclear powers of the day, the United States and the Soviet Union, along with the United Kingdom agreed that there should be a general disarmament and a ban on nuclear testing in environments that could spread radioactive debris. Over 120 other nations agreed to sign the treaty with a few notable exceptions. Because the treaty focuses on use and not presence in space, it is not considered one of the corpus juris spatialis. However, it is an important document because of the novel limitations put on military operations and the new approach to space exploration adopted by the world’s military super powers.

A. Corpus Juris Spatialis

The body of modern law that is considered to govern space law consists of five international treaties: the Outer Space Treaty, the Rescue Agreement, the Liability Convention, the Registration Convention, and the Moon Treaty. While more treaties are coming into existence, these five are regarded by most as the controlling authority for human activities in outer space. The principles of the corpus juris spatialis involve new commitments to international cooperation in order to achieve a shared vision of space exploration.

53. Id. at 55.
54. Limited Test Ban Treaty, supra note 7.
55. Id. art. I(1)(a).
56. See id.
57. See Petras, supra note 8, at 148. France and China refused to ratify the treaty and continue using nuclear altitude testing. This rapprochement has limited the effect of the Limited Test Ban Treaty. Id.
58. See id.
59. Id.
61. See id.
62. See id.
cooperation will become an increasing norm vital to cooperative activities in space. Because the forum in outer space will operate under new concepts of the international community, perhaps the term for this area of law should be changed to “extranational law.”

1. Outer Space Treaty

The Americans, Russians, and British came together in 1967 to write the Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies (Outer Space Treaty). This treaty is the most significant of any because it created the framework from which all international space law is derived.

The treaty begins by recognizing the common interests of all people in the peaceful exploration and use of space; that it should benefit all despite economic or scientific development. The Outer Space Treaty establishes the belief that co-operation in space “will contribute to the development of mutual understanding and to the strengthening of friendly relations between states and peoples.” To date, there is no precise definition of “peaceful purpose.”

Article I of the Outer Space Treaty lists what has become known as the three freedom principles. The “freedom of access” principle ensures that all mankind shall benefit from exploration and use of outer space, despite economic or scientific development. The Outer Space Treaty establishes the belief that co-operation in space “will contribute to the development of mutual understanding and to the strengthening of friendly relations between states and peoples.”

Article I of the Outer Space Treaty lists what has become known as the three freedom principles. The “freedom of access” principle ensures that all mankind shall benefit from exploration and use of outer space, despite economic or scientific development, that outer space “shall be the province of all mankind.” Second, every state shall have “freedom of exploration” and free access to all celestial bodies. This elimination of property rights is similar to the principles in the Antarctic Treaty, discussed later. Finally, all nations have

63. Outer Space Treaty, supra note 5, proclamation.
64. Petras, supra note 8, at 150.
65. Outer Space Treaty, supra note 5, proclamation.
66. Id.
67. See generally Petras, supra note 8, at 168-171 (discussing the evolving interpretation of the term “peaceful purpose”).
68. See Petras, supra note 8, at 153 (listing the three freedom principles as: “(1) freedom of access, (2) freedom of exploration, and (3) freedom of use”). See also Outer Space Treaty, supra note 5, art. I para. 2.
69. Outer Space Treaty, supra note 5, art. I para. 1. Does this mean everyone shall benefit the way everyone does from cancer research, in other words those who can afford it?
70. Petras, supra note 8, at 153.
71. Outer Space Treaty, supra note 5, art. I para. 2.
72. See Antarctic Treaty arts. I(1), II, IV(2), December 1, 1959, 12 U.S.T. 794, 402 U.N.T.S. 71 [hereinafter Antarctic Treaty]. All signatories are forbidden from asserting any new claims of sovereignty over any part of Antarctica, and military use is strictly prohibited,
"freedom of use" for scientific investigation, along with a pledge to facilitate co-operation among states. These principles, while noble, are also very broad and difficult to interpret. Until now, capacity and practice have defined these terms. For example, there has been a debate as to whether the "Common Interest" Principle implies equitable sharing of benefits or simply ensures equal access to space. Historically, the only countries that were affected by this notion were those that could reach space, but the implications are growing with the dissemination of technology.

Article II is similar to the treaties that govern Antarctica, stating that there will be "no national appropriation . . . of sovereignty" over space or any celestial body. This prohibits government appropriation of territory. However, critics have disagreed as to whether this clause extends to private individuals. While there is some indication of what property law in space will be, the extreme inaccessibility of space may require private ventures into space, and that will mean profit incentives. Entrepreneurs will need to know what is to be gained.

Another problem is that the boundaries between outer space and air space have yet to be defined by any specific altitude. Nations already claim airspace for the purpose of controlling airplane traffic,
but this model will not serve in outer space.\textsuperscript{81} As aviation technology continues to improve, the difference between airplane and space shuttle will be relevant to the type of law employed.\textsuperscript{82} As the law stands, there are drastic differences in the legal principles applied to these two situations.\textsuperscript{83}

States also need to know where airspace and outer space border so that nations will know the vertical limits of their territory. Recently, the tiny South-Pacific nation of Tonga created a dilemma by attempting to secure exclusive rights for geostationary orbits.\textsuperscript{84} This right may open the door to a free market in space territory, where states would claim sovereignty over geostationary orbits and then sell them to the highest bidder. After difficult negotiations with the International Telecommunications Satellite Organization (INTELSAT), Tonga was permitted to lawfully retain only six of sixteen orbits.\textsuperscript{85} This outcome shows that there are profitable interests in space that states are willing to forego in the interest of retaining a common heritage in space.

Another critical provision of the Outer Space Treaty is found in Article III, which provides that parties to the treaty will act “in accordance with international law, including the Charter of the United Nations, in the interest of maintaining international peace and security and promoting international co-operation and understanding.”\textsuperscript{86} However, it is uncertain whether all states would agree that this provision is applicable to all aspects of space activities.\textsuperscript{87}

\textsuperscript{81} See supra note 77 and accompanying text (stating that there is no sovereignty in space).

\textsuperscript{82} See 49 U.S.C. § 70102(8) (2006) (“’launch vehicle’ means—(A) a vehicle built to operate in, or place a payload or human beings in outer space; and (B) a suborbital rocket.”); Commercial Space Transportation Reusable Launch Vehicle and Reentry Licensing Regulations; Final Rule, 65 Fed. Reg. 56,617 (Sept. 19, 2000) (defining Reusable Launch Vehicles as those vehicles intended to return from Earth’s orbit or outer space relatively intact). At no point do the regulations make a specific altitude distinction besides that the vehicles are meant to operate in outer space. 49 U.S.C. § 70102(8); see also Commercial Space Transportation Reusable Launch Vehicle and Reentry Licensing Regulations; Final Rule, 65 Fed. Reg. 56,618 (Sept. 19, 2000); Report of the Legal Subcommittee on its forty-fifth session, A/AC.105/871, ¶ 91 (noting legal uncertainty concerning the application of space law and air law).

\textsuperscript{83} Compare Chicago Convention, supra note 80, arts. 1, 6 with Outer Space Treaty, supra note 5, art. II.

\textsuperscript{84} Jonathan Ira Ezor, Costs Overhead: Tonga's Claiming of Sixteen Geostationary Orbital Sites and the Implications for U.S. Space Policy, 24 Law & Pol'y Int'l Bus. 915, 915 (2003). A geostationary satellite is one that orbits the Earth at the same constant rate as the turning of the Earth. This proves useful for creating constant satellite coverage in one area. Id. at 915 n. 1.

\textsuperscript{85} Id. at 915-16.

\textsuperscript{86} Outer Space Treaty, supra note 5, art. III.
ever there are certain principles that cannot apply due to the special environment of outer space, such as those concerning property.

Military activities are absolutely forbidden in outer space by Article IV. The interpretations of this section have been broad. For example, Article IV expressly prohibits military testing and placing nuclear weapons in space, but the wording was intentionally crafted to exclude intercontinental ballistic missiles (ICBMs) and other types of less destructive weapons. Also the use of military personnel for scientific investigation is not prohibited. Thus, the definition of prohibited military conduct remains arguable. The limitations on nuclear testing reiterate the principles of the Limited Test Ban Treaty and extend the limitations to nuclear testing of any kind.

Articles V through VIII of the Outer Space Treaty deal with mutual responsibilities of governments regarding astronauts and launch objects. Astronauts are labeled as "envoys of mankind" and are guaranteed "all possible assistance in the event of an accident..." The same follows for objects launched into space that crash back to the Earth. In the spirit of international cooperation, every state is required to aid in the recovery of astronauts, technology, and to forewarn any parties who might be in danger from objects in space. Any state launching an object into space retains jurisdiction over the object as well as liability for any damage it may cause. Private entities conducting activities in space must receive permission from an appropriate state body that will then oversee the activities. Thus, parties to the treaty that have no space program accept a duty, but it remains to be seen what kind of benefit they will receive in exchange for their aid.

Of these provisions, Article VI contains important language for commercial prospects. Article VI requires all non-governmental enti-

87. Petras, supra note 8, at 156.
88. Outer Space Treaty, supra note 5, art. IV.
89. Id. art. IV para. 1.
90. Petras, supra note 8, at 157-58.
91. Outer Space Treaty, supra note 5, art. IV para. 2.
92. See id.; see also Limited Test Ban Treaty, supra note 7.
94. See id. art. VIII (granting launching states jurisdiction over objects in space).
95. Id. art. V.
96. Id. art. VIII.
97. Id. art. VII.
98. Id. art. VI.
ties to be authorized and supervised by a member state. Thus, the Outer Space Treaty grants governments the power to regulate independent space activities and appears to provide joint liability for such activities.

The Outer Space Treaty includes provisions that attempt to elaborate on "Common Interest" and "Co-operation." Article IX states that parties to the treaty "shall be guided by the principle of co-operation" while keeping "due regard to the corresponding interests of all other States Parties to the [t]reaty." If a planned activity could interfere with other parties' use of space, then States Parties can request an international consultation before the activity occurs. States Parties to the treaty are encouraged to cooperate in scientific endeavors. Specifically, they must allow states equal opportunity to observe space flights, notify the scientific community of any activities conducted in space (including results), and share space stations and equipment on a reciprocal basis. Achieving international consensus on precise definitions for these terms is difficult enough, but it is even more complex due to the dual nature of the technology involved.

The core terms of the treaty conclude by parceling jurisdiction over all activities conducted in space, on the Moon, or on any other celestial bodies. The treaty has been adopted by a majority of the U.N. members and has been accepted as the founding body of international space law.

2. Rescue Agreement

Treaties aiding space endeavors have helped make many developing states a part of space exploration. Through the Agreement on the Rescue of Astronauts, Return of Astronauts and the Return of Objects

100. Outer Space Treaty, supra note 5, art. VI.
101. Id.
102. Id. art. IX.
103. Id.
104. Id. art. X.
105. Id. art. XI.
106. Id. art. XII.
107. See Waldrop, supra note 21, at 175-76.
108. Outer Space Treaty, supra note 5, art. XIII para. 2.
110. See Petras, supra note 8, at 149.
Launched into Outer Space (Rescue Agreement), signatories pledge, among other things, to assist in the safe return of astronauts or space objects to their home country in the event of an emergency landing.\textsuperscript{111} The treaty was drafted to promote international cooperation, and aspire to prevent "international conflict."\textsuperscript{112} Most of the terms in the Rescue Agreement give responsibilities to "contracting parties" that encounter wayward astronauts within their jurisdictions.\textsuperscript{113} While reimbursement is guaranteed,\textsuperscript{114} nowhere else is there any mention of profitable interest for a state that does not participate in outer space activities.\textsuperscript{115} This is an interesting fact since only five of the sixty-six contracting parties are space-faring nations.\textsuperscript{116}

The Rescue Agreement expands on Article V of the Outer Space Treaty and clarifies the duties owed to stranded astronauts and governments trying to recover errant technology.\textsuperscript{117} For the most part, the Rescue Agreement is viewed as being a reaffirmation of principles already established in the Outer Space Treaty.

3. The Liability Convention and the Space Registry

Because many of the technological advancements in space are achieved through trial and error, a great deal of risk must be assumed.\textsuperscript{118} There are now more than 9,000 pieces of man-made space debris floating unfettered in Earth's orbit.\textsuperscript{119} The Outer Space Treaty
addresses liability in Articles VI ("States Parties to the Treaty shall bear international responsibility for national activities in outer space."); Article VII (States Parties to the treaty that launch or procure the launch of any object into space assume liability for damage caused by those objects); and Article IX (States Parties must avoid contaminating or adversely affecting the Earth's environment when conducting activities in space). The Convention on International Liability (Liability Convention) augments these articles in the Outer Space Treaty, and expressly attributes liability for damages to the country that launched the object into space.

This treaty contains a variant of the "Common Interest" Principle, but it is reworded to recognize "the common interest of all mankind in furthering the exploration and use of outer space for peaceful purposes." This language may be narrower than the Outer Space Treaty's, suggesting that perhaps the "Common Interest" is limited to peaceful activities in space. In other words, "Common Heritage" refers to the passive benefit of not being attacked from space. This favors the equitable access interpretation of "Common Interest." The convention also includes a refined definition of who is a state actor, namely any international intergovernmental organization conducting space activities that accepts the rights and duties of the Liability Convention.

To ensure that there is no doubt as to who launched a specific object into space, the Registration of Objects Launched into Outer Space (Space Registry) created a database at the United Nations that requires notification before a launch can take place. The Space Registry and

2006, at 340.
120. Outer Space Treaty, supra note 5, art. VI.
121. Id. art. VII.
122. Id. art. IX.
123. See Petras, supra note 8, at 164-65.
125. Id. Proclamation.
126. Compare Liability Convention, supra note 124 (stating that the treaty recognizes "the common interest of all mankind in furthering the exploration and use of outer space for peaceful purposes" (emphasis added)), with Outer Space Treaty, supra note 5 (stating that the treaty recognizes "the common interest of all mankind in the progress of the exploration and use of outer space for peaceful purposes" (emphasis added)).
127. Liability Convention, supra note 124, art. XXII(1).
128. Registration of Objects Launched into Outer Space, Jan. 14, 1975, 28 U.S.T. 695, 1023 U.N.T.S. 15 [hereinafter Space Registry]. Originally, Article VIII of the Outer Space Treaty appointed jurisdiction of an object in space to the state where the object was registered. Outer Space Treaty, supra note 5, art. VIII.
the Liability Convention require that launching states assume absolute responsibility for damages.129 Again, the "Common Interest" Principle is repeated as is found in the Liability Convention, adding more support to the argument that "Common Interest" is limited to equitable access.130

4. Moon Treaty

There are few states that have the means to begin reaping the benefits of outer space and celestial bodies. Less developed states will probably have access to space one day, but because of their late arrival to the industry, there will be few benefits left untapped.131 To address this concern, two proposed treaties were presented to COPUOS concerning the use of the Moon and other celestial bodies; one from Argentina (backed by the United States), and another drafted by the Soviet Union.132 These drafts were surrounded by controversy concerning the world's less developed nations' desire to preserve the status of "Common Interest" benefits in an industry they could not yet access.133 The Soviet Union's version was adopted as the first draft of the United Nations: Agreement Governing the Activities of States on the Moon and Other Celestial Bodies (Moon Treaty).134

This treaty is meant to govern activities on the Moon so that all states will have equal "use of the moon and other celestial bodies," today and tomorrow, and to ensure that the Moon remains free from international conflict.135 The treaty attempted to create an international regime to oversee exploitation in space as technology developed.136 However, this idea would also constitute a freezing of commercial ex-

129. Space Registry, supra note 128 ("Recalling further that the [c]onvention on international liability for damage caused by space objects . . . establishes international rules and procedures concerning the liability of launching States for damages caused by their space objects"); see also Liability Convention, supra note 124, art. II ("A launching State shall be absolutely liable to pay compensation for damage caused by its space object on the surface of the Earth or to aircraft in flight").

130. See Space Registry, supra note 128.

131. See Art Dula, Free Enterprise and the Proposed Moon Treaty, 2 HOUS. J. INT'L L. 3, 20 (1979) (discussing the idea that industrialized countries' access to space resources should be limited "so that developing countries have a chance to" benefit from those resources).

132. Id. at 7.

133. See Gabrynowicz, supra note 19, at 1046-47.

134. Dula, supra note 131, at 1, 7. The draft that the Soviet Union submitted underwent several revisions before COPUOS adapted it into the Moon Treaty 1979. Id. at 7.

135. See Moon Treaty, supra note 112.

136. See id. art. 11.
The exploitation of the Moon until such a governing body could be created. Through a series of negotiations, the United States was able to convince the U.N. General Assembly to impose neither a moratorium on commercial growth, nor a limit on exploitation done in furtherance of “scientific investigations.” Despite the compromise of the Soviets and other third world countries, the Moon Treaty has not been ratified by the United States and has subsequently received little recognition.

B. Additional International Agreements

There are three prominent international agreements that do not fall under the category of space law but can be viewed as instructive authority due to similarities with the outer space treaties: the Antarctic Treaty; the Seabed Treaty; and the 1998 International Space Station Agreement. These treaties require member states to agree to pursue only “peaceful purposes,” restrict claims of sovereignty in undeveloped environments, and imply a “Common Interest” for all mankind. The Antarctic Treaty is often cited as an indication of what

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137. Dula, supra note 131, at 16 (discussing the limit on commercial development on the Moon by U.S. corporations if the United States ratifies the Moon Treaty).
138. Id. at 10.
139. Id.
140. See Sattler, supra note 78, at 30; Petras, supra note 8, at 167; see also U.N. Committee on the Peaceful Uses of Outer Space, Report of the Legal Subcommittee on its forty-fifth session, held in Vienna from 3 to 13 April 2006, 49th Sess., ¶ 34, U.N. Doc. A/AC.105/871 (2006). The number of members ratifying the five treaties of space law descends with each successive treaty, starting at twenty-seven members of the Outer Space Treaty and only four members for the Moon Treaty. Id.
141. See Antarctic Treaty, supra note 72 (“Antarctica shall . . . be used exclusively for peaceful purposes . . .”); Treaty on the Prohibition of the Emplacement of Nuclear Weapons and Other Weapons of Mass Destruction on the Seabed and the Ocean Floor and in the Subsoil Thereof, opened for signature Feb. 11, 1971, 23 U.S.T. 701, 955 U.N.T.S. 115 [hereinafter Seabed Treaty] (limiting activity on seabed floor to peaceful purposes); ISS Agreement, supra note 32, art. 1(1) (stating that the objective of the agreement is “a permanently [inhabit-able] civil international space station for “peaceful purposes”).
142. See Antarctic Treaty, supra note 72, art. IV(2) (“No new claim, or enlargement of an existing claim, to territorial sovereignty in Antarctica shall be asserted . . . “); c.f. Seabed Treaty, supra note 141, arts. I, II (citing Convention on the Territorial Sea and the Contiguous Zone art. II, Sept. 29, 1958, 15 U.S.T. 1606, 516 U.N.T.S. 205 (generally prohibiting a state from exercising control beyond twelve miles from its coast)); ISS Agreement, supra note 32, art. 2(2)(c) (“Nothing in this Agreement shall be interpreted as . . . constituting a basis for asserting a claim to national appropriation over outer space or any portion of outer space.”) (emphasis added).
143. See Antarctic Treaty, supra note 72 (recognizing interests of all mankind); Seabed Treaty, supra note 141 (recognizing common interests of all mankind); c.f. ISS Agreement, supra note 32 (stating that the international space station will be developed according to first four treaties in the corpus juris spatialis).
“peaceful purpose” might mean in the context of outer space. The 1998 International Space Station Agreement is an ongoing experiment with what can be achieved through an international effort in space.

1. The Antarctic Treaty

The Antarctic Treaty was written to ensure that Antarctica would be used for peaceful, scientific purposes. This treaty also prevents states from making new claims of territorial sovereignty. The “Common Heritage” Principal is reflected in Article III which generally requires that, to the greatest extent feasible, parties to the treaty will openly share information, and personnel, and make scientific observations freely available. This language is repeated in the International Space Station Agreement, but that agreement only requires sharing of information to the extent necessary to assemble and operate the space station.

2. The Seabed Treaty

The Treaty on Prohibition of the Placement of Nuclear Weapons and Other Weapons of Mass Destruction on the Seabed and the Ocean Floor and in the Subsoil Thereof (Seabed Treaty) can be highly instructive for space law. This treaty sought to curb the growing danger of nuclear weapons and to prevent an arms race on the seafloor. The concept of “Common Interest” is clearly set forth at the outset of the agreement, but in this treaty the benefit is specifically limited to “peaceful purposes” as being an end unto itself. According to this

144. See Petras, supra note 8, at 168-69. The Antarctic Treaty “is often cited as the most authoritative aid for the interpretation of the term “peaceful” in the outer space context . . . .” Id.
145. Antarctic Treaty, supra note 72.
146. Id. art. IV(2).
147. Id. art. III(1).
148. See ISS Agreement, supra note 32, art. 19(1)-(2) (requiring the Partners to transfer all data necessary to fulfill responsibilities, but excluding transfer of any technical data or goods that might contravene national laws or regulations).
149. Seabed Treaty, supra note 141.
150. See id.
151. Id. (“The States Parties to this Treaty . . . regoziniz[es] the common interest of mankind in the progress of the exploration and use of the seabed and the ocean floor for peaceful purposes . . . .”).
152. See Ramney, supra note 117, at 65-66, (discussing the “permissible” nature of space law). If an activity is not expressly prohibited, space law assumes that it is permitted. Id. One example is that nuclear weapons are generally prohibited in space, while other weapons of “lesser destructive capabilities” are assumed permitted because a lack of specific pro-
language, respecting "Common Heritage" would be a passive duty for space-faring nations, with peace being the benefit in and of itself.

3. The International Space Station Agreement

The latest agreement that has brought international actors together in outer space is the Agreement Concerning Cooperation on the Civil International Space Station (ISS Agreement) that sets out the rules of the International Space Station. Following early attempts by the United States and the Soviet Union to design national space stations, several international bodies including Canada, the European Space Agency, Japan, Russia, and the United States, set forth an agreement for cooperative efforts in creating an orbiting scientific research station. Because the space station is currently governed by international cooperation, the International Space Station and ISS Agreement serve as experiments on what can be achieved in space with multinational actors working closely together.

The ISS Agreement begins by recalling all of the treaties found in the corpus juris spatialis minus the Moon Treaty. The terms of the ISS Agreement set forth rules for cooperative use. Individual states retain jurisdiction over separate activities while a collective body coordinates station maintenance activities. This agreement is unique because it defines how parties to the agreement should cooperate.

In anticipation of disputes over the sharing of discoveries on the space station, there is an article addressing the exchange of data and goods. The structure of this article is based on the idea that a state retains jurisdiction over the components it has contributed to the space station. All technical data deemed necessary to operate the station must be transferred to the necessary partners of the treaty. States also promise to make “best efforts” to share any data with other part-

153. ISS Agreement, supra note 32.
154. Petras, supra note 8, at 136; GATLAND, supra note 29, at 221, 230.
155. Petras, supra note 8, at 138; see also ISS Agreement, supra note 32.
156. ISS Agreement, supra note 32.
157. See id. art. 1.
158. See generally id. arts. 5-7.
159. See id. art. 7 (requiring managing bodies to be responsible for planning and coordinating activities that will make research and development equally safe and accessible for parties to the agreement).
160. See id. art. 19.
161. Id. art. 5.
162. Id. art. 19 para. 1.
ners to the ISS Agreement, simultaneously agreeing to get the consent of the group before transferring data to parties outside of the agreement.\textsuperscript{163}

This treaty gives two more fixed points of what “Common Heritage” might mean. At a bare minimum, states are willing to openly share necessary benefits to operate joint ventures, and for more sensitive information, there must be national consent.\textsuperscript{164} The International Space Station and ISS Agreement present potential models for future space partnerships. The only problem is that states are required to contribute to the partnership before they can become active beneficiaries of space exploration. What is the common heritage of those that cannot contribute?

\section*{C. United States Space Law}

Being one of the foremost leaders in space exploration,\textsuperscript{165} the United States has the most developed body of legislation and multinational agreements that govern the activities of public and private citizens in space.\textsuperscript{166} Most of the United States’ domestic space law has been aimed at two objectives: to protect U.S. national security interests and to promote commercial space launches in the private sector.\textsuperscript{167} The recognition of these two considerations implies that a balance must be struck between them. The U.S. government does not want to stifle a burgeoning industry, but national security cannot be compromised at the expense of new treaties.

\subsection*{1. Promoting the Commercial Sector of Space Exploration}

One purpose of U.S. domestic space law is “to promote growth and entrepreneurial activity” through the peaceful use of outer space.\textsuperscript{168} Like the development of space law, much of the U.S. legisla-

\begin{itemize}
\item \textsuperscript{163} Id. art. 19 para. 2.
\item \textsuperscript{164} Id. art. 19 para. 2 (stating that partners shall meet the requests for transfers of data, but national laws still apply).
\item \textsuperscript{165} See Space Hearing, supra note 3 (statements of Sam Brownback, U.S. Senator and Marcia Smith, specialist in aerospace technology policy from the Congressional Research Service).
\item \textsuperscript{166} See generally United States Space Laws and Regulations, China Security (produced by World Security Institute), available at http://www.wsichina.org/subprogram.cfm?subprogramid=1&charid=1; see also CSLA, supra note 5.
\item \textsuperscript{168} CSLA, supra note 5, § 401(b)(1)-(4).
\end{itemize}
tion governing space has been enacted out of necessity. As technology changes, the law adapts. As new legislation is being drafted, Congress is careful to leave ample room for private industry to grow.\textsuperscript{169}

\textit{a. NASA}

Space activities have mostly been limited to military operations and a government funded civilian branch, the National Aeronautics Space Administration (NASA).\textsuperscript{170} Passed in 1958, the National Aeronautics and Space Act (NASA Act)\textsuperscript{171} symbolized the United States’ renewed commitment to dominance in space.\textsuperscript{172} But the United States wanted to ensure peace in space as well, so President Eisenhower made a point to separate the United States’ commercial civilian efforts from the Department of Defense’s military research.\textsuperscript{173}

Similar to international space law, the NASA Act opens with a declaration that U.S. activities in space should be “devoted to peaceful purposes for the benefit of all mankind.”\textsuperscript{174} This language suggests that all activities in space should be carried out on behalf of all mankind.

\textit{b. ComSat and INTELSAT}

Another important act aimed at unifying international efforts is the ComSat Act.\textsuperscript{175} The purpose of this act is to develop profitable commercial telecommunications technology\textsuperscript{176} and for the United States to foster and support global commercial communications satellite systems.\textsuperscript{177} The Communications Satellite Corporation (ComSat)
was a private company that provided wholesale satellite circuitry to other communication carriers, including governments of developing nations.\textsuperscript{178} To broaden the impact of such an effort Congress authorized ComSat to take part in the International Telecommunications Satellite Organization (INTELSAT) to help developing nations gain access to telecommunications through subsidies.\textsuperscript{179} It accomplishes this task by offering affordable, uniform rates all over the world for telecommunications network service.\textsuperscript{180} Interestingly, the members of INTELSAT have all agreed not to conduct activities that will harm other members of the corporation.\textsuperscript{181}

c. \textit{Commercial Space Launch Act}

The United States passed its first commercial space legislation in 1984 with the Commercial Space Launch Act (CSLA).\textsuperscript{182} The findings and purposes of this act can be categorized into two distinct interests of the United States:

1) To “protect the public health and safety, safety of property, and national security interests and foreign policy interests of the United States;”\textsuperscript{183} and

2) To “encourage, facilitate, and promote commercial space launches and reentries by the private sector.”\textsuperscript{184}

This legislation anticipates commercial growth and economic prosperity in space, so it tries to regulate only those areas that are a threat to national security and safety.\textsuperscript{185} The only finding that overlaps
both categories is the first, which states that the peaceful use of outer space is of great value to "all mankind." But these benefits will rely greatly on the participation of state governments. By this declaration, the U.S. government has accepted responsibility for the growth of the commercial sector within the country.

To enable its goals, the CSLA gives the Department of Transportation (DOT) the authority to oversee commercial space launches that involve U.S. interests. The DOT is charged with issuing permits and licenses to launch and perform reentry operations in order to "protect the public health and safety, safety of property, and national security and foreign policy interests of the United States." Of the CSLA provisions, § 70104 is particularly notable in terms of defining what might be a benefit of space. Section 70104 impedes U.S. citizen participation in space programs outside of the reach of the United States. This section also requires licenses or permits for U.S. citizens to perform commercial launch or reentry. Any citizen who does not obtain permission from the DOT may not conduct launch or reentry operations inside or outside of the United States, absent an agreement to the contrary between the United States and a foreign government. By this enactment, the United States restricts the availability of human expertise to the rest of the world. Consequently, all states are entitled to develop their human understanding of space, but the United States is not required to share human resources actively.

d. FAA Human Space Flight Regulations

Recently, the U.S. government charged the Federal Aviation Administration (FAA) with the task of creating rules and guidelines for space flight crews and participants. There are specific rules and

186. See id. § 70101 (a)(1).
187. Id. § 70101 (a)(9).
188. Id. § 70101(b)(3) (granting the head of the DOT, the secretary of transportation, the authority to issue licenses or permits for launch and reentry into the atmosphere).
189. Id.
190. Id. § 70104(a).
191. Id.
192. Id.
regulations for flight crews and different rules for ground crews of a space launch operation. The regulations also contain proposed rules for space tourists, the most notable provision being that of the "fly at your own risk" disclaimer. The ultimate goal of the FAA is to regulate the least number of areas possible, while maintaining safety standards; thereby leaving ample room for the space industry to grow safely and responsibly.

Looking at these rules, one can see how space benefits might be shared in a way similar to air space. Planes travel all over the world with varying degrees of technological advancements; they possess dual-use applications, such as tourism and military. Yet, there is international coordination to regulate the use of air space.

2. Protecting National Security Through International Efforts

Part of maintaining national security requires maintaining a competitive edge in space technology. How will scientific discoveries be shared with the rest of the world, particularly those conducted by private entities in space? Under U.S. leadership, two primary technology control agreements designed to keep sensitive technology out of dangerous hands have emerged: the Military Technology Control Regime (MTCR) and the Wassenaar Arrangement.

194. Id. at 77,264 (delineating flight crews, remote operators, and other ground crews).
195. Id. at 77,269 (stating that space flight is inherently risky and requiring space flight participants to waive claims with the FAA).
197. See Michel Bourbonniere & Louis Haeck, Military Aircraft and International Law: Chicago Opus, 66 J. AIR L. & COM. 885, 900 (2001) ("Airplanes have the inherent capacity for dual use. Civil airplanes can certainly be used for military missions and vice versa.").
198. See, e.g., J. Scott Hamilton, Allocation of Airspace as a Scarce National Resource, 22 TRANSP. L.J. 251, 253 n.4 (1994) ("There is already considerable international cooperation in air traffic control.").
199. See Space Memo, supra note 9 ("Achieving space and information superiority will help to counter an adversary's ability to command and control its forces.").
a. *Military Technology Control Regime*

The MTCR was created amidst growing international fears about proliferation of nuclear weapons.\(^{201}\) Negotiated during the Reagan Administration and followed by the United States and other Group of Seven (G-7) states,\(^{202}\) the MTCR is a "voluntary arrangement" which controls the transfer of equipment and technology that could be used to develop nuclear-capable missiles.\(^{203}\) The MTCR lists several factors that should be taken into account when considering applications to transfer controlled items.\(^{204}\) These factors include "nuclear proliferation concerns," as well as capabilities and objectives of an applicant's space and missile program.\(^{205}\) If technology is a benefit of outer space exploration, these factors could be considered as guidelines for what types of technology may be shared among any international states. The MTCR is not intended to hinder space exploration, so exchanges of technology are freely permissible between members of the MTCR and states that can prove peaceful intentions.\(^{206}\) However, this agreement is limited to transfers between governments.\(^{207}\) There is no mention of private entities exchanging information.\(^{208}\)

One major drawback to the MTCR has actually been lack of enforcement and implementation by parties to the agreement.\(^{209}\) Nations that were not members, such as the Soviet Union and China, could easily take advantage of industry demands by unauthorized developing nations.\(^{210}\) To help combat further proliferation, the member states agreed upon a "no undercut" policy, stating that if one state denies transfer of technology to another country, all members should deny them as well.\(^{211}\)

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201. Bowen, supra note 200, at 22-23. 
202. Id. at 23. 
203. Id.; see also Waldrop, supra note 21, at 190; MTCR, supra note 50, para. 1. 
204. MTCR, supra note 50, para. 3. 
205. Id. 
206. Waldrop, supra note 21, at 190. 
207. MTCR, supra note 50, para. 3. 
208. See generally id. 
209. Bowen, supra note 200, at 24-25. 
210. Id. at 25. 
211. Waldrop, supra note 21, at 190.
b. Wassenaar Arrangement

To compliment the MTCR, the Wassenaar Arrangement\(^{212}\) prevents dual-use goods and technologies from reaching terrorists.\(^{213}\) This policy meets the challenges of “post-Cold-War changes in the international environment.”\(^{214}\) This agreement’s value lies in the list of technology that is restricted to certain states, such as rocket technology.\(^{215}\) By restricting the types of technology that can be shared, a legal limitation is placed on “Common Heritage.” Equitable benefits in space do not include potentially dangerous military technology. However, this document has proven of little value because states are not legally bound to comply.\(^{216}\)

IV. MAN’S “COMMON HERITAGE”: A HYBRID OF EQUITIES

Defining “Common Heritage” has been a narrowing process for the international community. The Outer Space Treaty proposed a broad ideal that has been refined and tailored by actors in outer space.\(^{217}\) So is “Common Heritage” a reference to equitable benefits or equitable access? Like most legal questions, the resulting answer is a mixture of both ideas and is dependent upon the situation.

A. The Evolution of “Common Heritage” in Practice

The impetus of space exploration occurred during a time of conflict and fear.\(^{218}\) The world’s superpowers were left in a mindset where technological superiority meant survival.\(^{219}\) When the first agreements concerning outer space were reached, space exploration was conducted in a manner of strict equitable access.\(^{220}\) The Cold War standoff resulted in an understanding that states would have free access to space so long as there were no military intentions.\(^{221}\)


\(^{213}\) Id. at I.


\(^{215}\) See Wassenaar Arrangement, supra note 212, at 8, 18.

\(^{216}\) Dursht, supra note 214, at 1113.

\(^{217}\) See discussion supra Part III.

\(^{218}\) LAUNIUS, supra note 22, at 17-18.

\(^{219}\) See generally id. at 17, 24-26.

\(^{220}\) See id. at 27-28; Gabrynowicz, supra note 19, at 1042.

\(^{221}\) LAUNIUS, supra note 22, at 27-28.
As cooperation in space has progressed, "Common Heritage" expanded from equitable access to a limited form of equitable benefits.\textsuperscript{222} States that can contribute to space development may share equally in benefits so long as that development does not involve sensitive dual-use technology.\textsuperscript{223} The ISS Agreement functions under this scheme.\textsuperscript{224} Where technology is relevant to the direct operations of the space station, sharing is mandatory.\textsuperscript{225} If technical data is classified, all parties to the transfer must reach an agreement.\textsuperscript{226} This aspect of the agreement aligns with the concept that all member states have a national security interest when military technology is being shared.\textsuperscript{227}

B. The Evolution of "Common Heritage" on Paper

Space law has come to reflect an adoption of a blended "Common Heritage" Principle. The Outer Space Treaty purports a broad principle that is increasingly narrowed by subsequent legislation.\textsuperscript{228} The Rescue Agreement is the only international legislation that suggests equitable benefits to all.\textsuperscript{229} Under the Rescue Agreement, responsibility is imparted to all parties,\textsuperscript{230} and where there is a duty there is an implied benefit.\textsuperscript{231} If an astronaut is an envoy of all mankind, then his missions are on behalf of all mankind.\textsuperscript{232} This strengthens every state's duty towards astronauts and their home states.

\textsuperscript{222} See generally discussion supra Part III (describing the evolution of the "Common Heritage" Principle in space law).

\textsuperscript{223} See Waldrop, supra note 21, at 175.

\textsuperscript{224} See generally ISS Agreement, supra note 32 (indicating that the space station is intended to benefit all of the Partners). "The Space Station together with its additions of evolutionary capability shall remain a civil station, and its operation and utilization shall be for peaceful purposes, in accordance with international law." \textit{Id.} art. 14(1).

\textsuperscript{225} See \textit{id.} art. 19(1).

\textsuperscript{226} \textit{Id.} art. 19(3)(c).

\textsuperscript{227} See Waldrop, supra note 21, at 175.

\textsuperscript{228} See supra note 126 and accompanying text (discussing the narrowing of "Common Heritage" to passive benefits); see also discussion supra Part III.B.3 (discussing the conditions for benefiting from the International Space Station).

\textsuperscript{229} See generally Rescue Agreement, supra note 111.

\textsuperscript{230} See \textit{id.} art. 2 (imposing a duty on contracting parties to take all possible steps to rescue a spacecraft in danger).

\textsuperscript{231} All of Space Law is based on positivist theory of international law that states must proactively seek to become members of the agreements. See discussion supra Part III. What incentive would states have to become members of a treaty if they would not receive anything in return?

\textsuperscript{232} Outer Space Treaty, supra note 5, art. V para. 1.
But the Liability Convention and Space Registry begin a process of restriction on the concept of equitable sharing. The language of the Liability Convention is restricted to benefits of "peaceful" uses. This is a passive benefit, meaning that space-faring states do not need to act positively to help less developed nations enjoy any benefits of space. They must simply refrain from aggressive actions. There are no references to any active benefits, like mandatory dissemination of technology information or scientific discoveries, found in the corpus juris spatialis. Active benefits are reserved for parties who can participate in cooperative efforts in space. Language in the ISS Agreement, for example, suggests that many of the benefits of that agreement are only to be enjoyed by "Partners."

For some, the Moon Treaty had been read to define the "Common Heritage" Principle to mean broad equitable benefits. For others, while the Moon Treaty had at least given initial effect to the principle, minimal ratification has rendered the treaty of "relatively little consequence in establishing international space." Instead it seems that equitable access has come to be the prevailing definition. But, cooperative efforts taking place on the space station have left open the possibility of sharing of benefits, at least with respect to those who participate. There is also the occasional effort to share benefits with all mankind, as is evident, for example, by the efforts of "Intelsat." But such efforts are often met with challenges. In sum, the "Com-

233. Liability Convention, supra note 124.
234. Space Registry, supra note 128.
235. See Liability Convention, supra note 124.
236. Compare id., with Outer Space Treaty, supra note 5, art. VII (creating international liability for damage caused by launch); see also ISS Agreement, supra note 32, art. 19(1) (stating that each Partner shall transfer technical data and goods); see also Antarctic Treaty, supra note 72, art. III (1)(a)-(c).
237. See ISS Agreement, supra note 32, arts. 1(3), 9(3), 9(5). Partners may grant permission for non-partner use, but the power to grant is subject to significant limitations. Petras, supra note 8, at 144-45.
238. See Dula, supra note 131, at 20 (suggesting that the Moon Treaty might be construed as calling for not only distribution of financial benefits but technology as well); see also Moon Treaty, supra note 112, art. 4(1) ("The exploration and use of the moon shall be the province of all mankind and shall be carried out for the benefit and in the interests of all countries, irrespective of their degree of economic or scientific development.") (emphasis added).
239. See Petras, supra note 8, at 167.
240. Id. at 152.
241. See supra Part III.B.3.
242. Cf. Parks, supra note 177 ("Intelsat . . . is a global satellite network that provides developing nations with access to communications satellites for domestic communications.") (emphasis added).
243. Id. Parks notes the "difficult challenge of negotiating the often contradictory inter-
mon Heritage” to be enjoyed by all mankind may be seen modernly as a hybrid of: equitable access for all, some equitable benefits for all (excluding non-peaceful purpose technology), and equitable rights to peace in space.

C. “Common Heritage” as Potential Partnerships

The original concept was that space exploration should be carried out for the benefit of all mankind in the most expansive sense of the phrase. The emerging definition places limitations on the types of benefits to be enjoyed by all and suggests distinctions between classes of “mankind” in space. This is dually consistent and contrary to the original concepts of space law.

The Outer Space Treaty states specifically that outer space exploration should be carried out for the benefit of all people “irrespective of their degree of economic or scientific” development. This language suggests that economic and scientific lagging should not prevent the receipt of benefits. However, if the only parties who are privileged to benefit from outer space are parties who may participate in space programs, then the poorest and least developed nations will not see any benefits apart from not being attacked from outer space.

On the other hand, there is nothing in space law that says states may not be excluded because of national security concerns. In the interest of national security, states may seek to limit both access to space and sharing of space technology. If space is to be used for peaceful purposes, it would seem that denying access and technology in these instances would be permissible and would not amount to denial of any recognized benefits of space exploration. So the modified idea of “Common Heritage” ignores the less economically developed nations, but it excludes nations that threaten national security. If this is the case, then the duty of space-faring states to less developed nations should be to offer access to space and an opportunity to participate peacefully, but not to share technology that enables military applications.

244. Outer Space Treaty, supra note 5.
245. See, e.g., supra note 237 (discussing distinctions between Partners and non-Partners with respect to benefits of the International Space Station).
247. See Waldrop, supra note 21, at 177-78, 189.
D. How Should the United States Proceed?

Under modern space law, the United States has a duty to mankind to offer participation in cooperative efforts to any state that does not pose a risk to national security.248 This definition resembles the ISS Agreement.249 If a state wishes to undertake peaceful scientific activity aboard the International Space Station, under international space law it is the duty of the space station’s managing body to permit those scientists aboard, but it is not their duty to conduct the research for any other party.250 It does not matter whether the visiting state is a member of the ISS Agreement so long as a Partner determines that the activities are peaceful.251 The United States must reconcile this duty with its two main interests in space: to promote the commercial industry and to protect national security interests.252

With the introduction of private companies in space, it will not be long before less developed countries will be able to pay for access to space without developing their own space program. Under the standing notion of “Common Heritage,” the home states of private corporations should be as permissive as possible with permits for launch under regulations like the FAA’s.253 Minimizing the barriers that the regulated space industry imposes will encourage foreign space programs to pursue commercial permits.254 Since the United States is seeking to expand the commercial sector anyway,255 the United States should adopt a lenient policy that will encourage the development of affordable space flights for less developed countries. The benefits of a growing space industry will then contribute to the U.S. economy, which is one objective of the CSLA.256

With new actors entering the space industry, it will be increasingly difficult to monitor all activities in space and developments on Earth.257 By establishing a concrete definition of “Common Heritage”

248. See CSLA, supra note 5 (the United States has taken up the responsibility of acting as an example to others in outer space themselves).
249. Compare id., with ISS Agreement, supra note 32, art. 1(1).
250. ISS Agreement, supra note 32, art. 9(3); see also Petras, supra note 8, at 144-45.
251. ISS Agreement, supra note 32, art. 9(3)(a); see also Petras, supra note 8, at 145.
252. See Waldrop, supra note 21, at 163-64; SPACE POLICY, supra note 9, § 4.1.
253. See generally FAA Regulations, supra note 167.
254. See SPACE POLICY, supra note 9, § 4.13 (recognizing the growing practice to enter into joint ventures with nations whose technology may later pose a threat).
255. Waldrop, supra note 21, at 163.
256. See CSLA, supra note 5, §§ (a)(2), (b)(1).
257. Espionage is already resulting in proliferation of space technology. See supra notes 46-49 and accompanying text.
the United States can proceed with an agreement similar to the Moon Treaty; one that oversees all activities in space and on Earth, without concern that a moratorium will be placed over the commercial industry. Other states will share in the interests they were originally trying to protect in the Moon Treaty, so it will behoove more parties to create a governing body quickly, and without putting unnecessary restrictions on a blossoming private sector.

To avoid further entanglements in the private sector, the commercial industry will need to help poorer states. By helping poorer nations develop a space industry, commercial explorers can be classified for research and development. The private industry will profit from space exploration and share tangible benefits with all mankind. Even if it takes a significant amount of time to develop a governing body, the commercial sector will be excluded so the industry will still have room to grow.

To act as a governing body, the United States should look to international organizations already in place. The COPUOS could apply the framework of the ISS Agreement fairly easily. As a result, many nations would be included in the efforts to keep space peaceful and free of military impropriety. A cooperative body will free U.S. resources that were once spent on monitoring other nations for military capabilities. Efforts could then be diverted to research and development projects at NASA, such as the mission to Mars or lunar colonization. Instead of trying to keep other states from developing technology, the United States could seek new advancements as a means of maintaining a competitive edge. Both national security and the commercial industry could benefit from this arrangement inside and outside of the United States. This model would also promote cooperation and understanding between international partners.

V. CONCLUSION

On the television show Star Trek, Captain Kirk and the Enterprise were envoys of Earth, not of any one state or nation.\(^{258}\) The development of a “Common Heritage” Principle was a bold step by international bodies when it was first drafted. It was a symbolic gesture indicating that all should equitably share the benefits of space. Throughout the development of space law, this aspirational clause is being shaped into definite terms. All people are entitled to equal space access, all people are entitled to live under peaceful skies, and

\(^{258}\) Star Trek: The Man Trap (NBC television broadcast Sept. 8, 1966).
all people are welcome to become equal partners in space exploration. This leaves mankind with the same decision it has always faced: to work together or race each other in the pursuit of a common goal. The challenges of space are already as numerous as the stars; it would be counterproductive to add more obstacles such as a competitive structure.

The United States currently finds itself in a unique position. As citizens of a nation born in a new world, Americans know what possibility lies on the new frontier. They also understand what cooperation and competition can do to a growing industry. As the United States drafts its pending legislation concerning space law, it should keep in mind the ideals upon which space exploration was commenced. The United States must find the courage to “boldly go where no man has gone before.”

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