

*Article****NON-PROLIFERATION AND FREE ACCESS TO OUTER SPACE: THE DUAL-USE conflict between THE OUTER SPACE TREATY AND THE MISSILE TECHNOLOGY CONTROL REGIME******Barry J. Hurewitz*** †

Outer space . . . 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. . . . There shall be freedom of scientific investigation in outer space . . . and States shall facilitate and encourage international cooperation in such investigation.¹

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I. INTRODUCTION

The Charter of the United Nations guarantees all nations the right to pursue "higher standards of living, full employment, and conditions of economic and social progress and development."² In the 1967 Outer Space Treaty, this promise of progress was extended skyward. Article I of the Outer Space Treaty guarantees all nations, regardless of their size or level of development, the right to peacefully explore and use outer space.³

More recently, however, fears of mass nuclear annihilation have led to strict controls over the international exchange of the commodities and technologies necessary for a renegade state to launch an attack. To coordinate these controls, the leading industrial states implemented the multilateral Missile Technology Control Regime (MTCR). Often, the technologies used to build sophisticated weaponry are "dual-use"-similar or even identical to the technologies required for civilian space programs. The dual-use nature of these technologies has led created tension between the right of states to use and explore outer space and the need to control weapons proliferation. The MTCR, particularly as applied by the United States, heavily favors non-proliferation goals at the expense of newly emerging civilian space programs.

This Article questions the United States' application of the MTCR to the extent that it impedes the legitimate national space programs of developing nations. First, this Article asserts that the 1967 Outer Space Treaty remains binding international law. The treaty guarantees all states the right to engage in non-aggressive activities in outer space, without discrimination of any kind and which prohibits the appropriation of space by any state. Second, this Article discusses the MTCR and its implementation in domestic U.S. law. Third, this article demonstrates that the MTCR, as implemented by the United States, handles dual-use space launch technologies in a manner which is inconsistent with the legal obligations set forth in the Outer Space Treaty and which also fails to fully address articulated national security and foreign policy goals of the United States. Finally, it examines recent MTCR developments and proposes modifications of the MTCR to bring that agreement into compliance with the goals of the Outer Space Treaty.

II. FREE ACCESS PRINCIPLES OF THE 1967 OUTER SPACE TREATY

International law guarantees all nations the right of access to outer space for "peaceful purposes."⁴ The Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space Including the Moon and Other Celestial Bodies,⁵ widely considered the fundamental document of international space law,⁶ contains several provisions which are designed to safeguard peaceful space launch programs. Prior to this agreement, outer space was not formally addressed in an international treaty. The Outer Space Treaty extended the scope of general international law into space⁷ and set forth additional principles to govern national activities in space, including the right of all nations to explore and use outer space without discrimination.⁸ In addition to access, the treaty promotes international cooperation, prohibits national appropriation of space, and protects the right to use military technologies for peaceful purposes in space.

A. Evolution of the Right of Free Access to Space

All states are entitled to conduct peaceful activities in outer space. The basic principle of free access to outer space is articulated in Article I of the Outer Space Treaty, which provides in part 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"⁹ This principle has a long history which supports a liberal interpretation of its scope.

Early space law was the province of the United Nations Committee on the Peaceful Uses of Outer Space (COPUOS), which was established by the U.N. General Assembly in 1958.¹⁰ In its first report, COPUOS acknowledged the emergence of "a generally accepted rule to the effect that, in principle, outer space is, on conditions of equality, freely available for exploration and use by all in accordance with existing or future international law and agreements."¹¹ This free access principle was further developed in General Assembly Resolutions 1721¹² and 1962,¹³ adopted in 1961 and 1963 respectively.

Unrestricted access to outer space became the unambiguous, articulated policy of the United States during the period leading up to the 1967 Outer Space Treaty. The United States strongly favored the nondiscrimination principle adopted in the earlier resolutions.

Speaking before the General Assembly after the adoption of Resolution 1721, U.S. Ambassador Adlai Stevenson acknowledged that "small nations have an overriding interest in seeing to it that access to space and the benefits of space science are not preempted by a few nations" ¹⁴ Four years later, President Lyndon Johnson declared that among the "essential elements" of the nascent Outer Space Treaty were "freedom of scientific investigation," ¹⁵ international cooperation, and a prohibition of claims of sovereignty in space. ¹⁶

The access principles of Resolutions 1962 and 1721 were incorporated into the 1967 Outer Space Treaty without much debate. ¹⁷ However, the history of the negotiations that led to the treaty demonstrate that its free access provision was intended to protect the rights of countries that did not yet have space capabilities. For example, during discussions about the treaty's free access clause, the United States initially argued that the phrases "on the basis of equality" and "without discrimination of any kind" were redundant. However, the Americans were persuaded that the inclusion of both phrases would appropriately emphasize the rights of all countries to freely enter and use outer space. ¹⁸ Ultimately, then-U.S. Ambassador Arthur J. Goldberg expressly endorsed the apparent redundancy, which, he said, would

make clear the intent of the treaty that outer space and celestial bodies are open not just to the big powers or the first arrivals but shall be available to all, both now and in the future. This principle is a strong safeguard for the interests of those states which have, at the present time, little or no active space program of their own. ¹⁹

Complementing the nondiscrimination principle is a second component of the right of free access to outer space. Article II of the Outer Space Treaty provides that "[o]uter space, including the moon and other celestial bodies, is not subject to national appropriation by claim of sovereignty, by means of use or occupation, or by any other means." ²⁰ By banning all claims of sovereignty in space, the treaty's drafters strengthened the free access provision, for "[i]f an individual nation cannot claim sovereignty to any particular area of outer space . . . , it cannot deny access to that area." ²¹ Significantly, there was no debate over the meaning of the phrase "any other means," leaving open the question of what actions may constitute an illegal appropriation of space. ²²

The Outer Space Treaty also contains other provisions that support the rights of all states to freely enter and use outer space for civilian or peaceful military purposes. Article I promotes the notion of international cooperation, stating that "States shall facilitate and encourage international cooperation in [scientific] investigation [of outer space]." ²³ Article III provides that activities carried on "in the exploration and use of outer space" ²⁴ must be peaceful and in accordance with international law. ²⁵ Although this provision regulates behavior in space, it does not restrict any state's *access to* space.

B. Dual-Use Technologies Are Not Prohibited in Space

Whether a particular technology is permitted in space depends both upon the intended use of the technology and whether it is to be used in the vacuum of outer space or on the surface of a celestial body such as the moon. ²⁶ The military origin or potential military use of a particular technology is not a factor. ²⁷ Thus, under the Outer Space Treaty, all spacefaring states are entitled to utilize military technologies in their peaceful space activities. ²⁸ Weapons of mass destruction are considered aggressive and are therefore prohibited in space and on celestial bodies. ²⁹ However, non-aggressive military uses of outer space (as opposed to celestial bodies) are *not* prohibited, ³⁰ and military equipment and personnel may be used for peaceful purposes even on the moon and other celestial bodies. ³¹

The question of whether to permit military equipment and personnel in space and on celestial bodies sparked a lively debate at the Outer Space Treaty conference. Several delegations, including that of the Soviet Union, initially opposed even the peaceful use of military assets on celestial bodies. ³² The United States, however, maintained that "the use of military personnel and equipment for scientific research or any other peaceful purpose should not be prohibited" ³³ because military resources "played an indispensable role [in space activity] and would continue to be an essential part of future space programmes." ³⁴ The British delegate agreed, arguing that equipment should be judged only by its actual end-use, because "[m]ilitary needs frequently [lead] to important technological advances" and "[t]he fact that a piece of equipment owed its origin to military development should not preclude its use for peaceful purposes foreseen by the treaty and apparent to all as peaceful purposes." ³⁵ Ultimately, the Anglo-American view prevailed. The final treaty embodied the understanding that the actual end-use of a piece of equipment used in space is more important than its military origin or potential military capabilities. ³⁶ Thus, the practical effect of Article IV is that under the Outer Space Treaty, "dual-use" equipment with both military and non-military applications may be deployed for peaceful purposes anywhere in space. ³⁷

C. The Free Access Principle As International Law

Although treaties are generally said to bind their signatories as a matter of international law, ³⁸ it is sometimes unclear whether a

particular treaty provision states a legally binding obligation or merely a hortatory policy pronouncement. The free access principles articulated in the Outer Space Treaty, however, constitute legally binding, self-executing international law under both American and international textual analyses, or alternatively, as customary international law.³⁹

In matters of treaty interpretation, the United States Congress, courts, and agencies "are generally more willing than [courts] of other states to look outside the instrument to determine its meaning."⁴⁰ There is no indication in the legislative history of the ratification of the Outer Space Treaty that the free access provision was ever considered hortatory. During its hearings on the matter, the U.S. Senate questioned whether a portion of Article I created a binding obligation on the part of the United States. Its concerns focused on the first paragraph of Article I, which provides that the exploration and use of space shall "be carried out for the benefit and in the interests of all countries"⁴¹ and shared among all nations as the "province of all mankind."⁴² Specifically, Sen. Albert Gore, Sr., feared that these clauses would obligate the United States to make its communications satellites available to all nations.⁴³ Ambassador Goldberg responded that "Article I, paragraph 1 of the space Treaty does not . . . create legal obligations with respect to the terms of international cooperation on any existing or future space projects."⁴⁴ The discussion, however, was limited to the paragraph containing the clauses about using space "for the benefit of mankind," and did not touch on the notion of open, nondiscriminatory access to space.⁴⁵

The free access provisions have been even more broadly interpreted by other members of COPUOS in the years since the Outer Space Treaty. Some COPUOS delegations have gone so far as to propose a formal Committee declaration that spacefaring states are affirmatively obligated by Article I to promote "the development by all States of *indigenous capability* in space science and technology and their applications."⁴⁶ To this end, the proposal calls for space powers to "promote and facilitate the exchange of expertise and technology" as well as "material and equipment . . . within just and equitable parameters of price and payment."⁴⁷

Finally, the free access principles articulated in the Outer Space Treaty constitute binding international law independent of the Outer Space Treaty. Commentators have noted that, based on the behavior of states in the international community, there is ground for the assumption that "all the members of the international community are bound by the fundamental principles and rules contained in [the Outer Space Treaty] because these principles and rules have acquired the status of general customary [international] law."⁴⁸ Customary international law applies to all states, including those not parties to the Outer Space Treaty.⁴⁹

For a principle or practice to become recognized as customary international law, three basic conditions must be met. First, the practice must be widespread.⁵⁰ Second, it must arise from a sense of legal obligation.⁵¹ Finally, it must be long-standing in practice,⁵² as determined by an appropriate international authority.⁵³ The first requirement-widespread adherence to an international norm-may be satisfied by states' explicit acceptance of the rule or by states' acquiescence to it.⁵⁴ The right of free and equal access to space is widely recognized under this standard, since most of the world's nations explicitly accepted the norm by voting for Resolutions 1721 and 1962 and by signing the Outer Space Treaty.⁵⁵

With regard to the second requirement, the free access principles set forth in the Outer Space Treaty were generally considered to be legally binding obligations even before the treaty was drafted. Subsequent statements by signatories indicate that the treaty is commonly viewed, in large part, as a codification of principles which had already evolved into binding customary international law.⁵⁶

Some commentators have questioned the continued vitality of the third traditional requirement-that a rule be "long-standing" before rising to the level of customary international law.⁵⁷ Given the rapid and open development of national activities in space, "the development of customary legal principles has become an accelerated process rather than a gradual evolution."⁵⁸ Consequently, "[t]he passage of only a short period of time after the beginning of the . . . exploration and use of outer space did not prevent the customary norms of the international law of outer space from coming into existence."⁵⁹

Thus, the fundamental principles set forth in the Outer Space Treaty, including freedom of use and exploration, prohibition of national appropriation, and non-prohibition of military equipment, bind *all nations* as customary international law, notwithstanding any one state's interpretation of the terms of the treaty.⁶⁰ These concepts had crystallized into customary international law even before the drafting of the 1967 treaty.⁶¹

To summarize, the 1967 Outer Space Treaty articulated pre-existing norms of customary international law, including the right of all states to enter space freely for exploration, use, and scientific investigation, without discrimination or national appropriation, and in accordance with general principles of international law. Moreover, the treaty established that states are free to employ any technology, civilian or military in origin, for peaceful activities in space or on celestial bodies. The United States fully supported all of these principles and is bound by them either as a treaty signatory or under customary international law.

III. THE DUAL-USE PROBLEM OF NON-PROLIFERATION, Space exploration and export controls

At first glance, attempts by some nations to stem the proliferation of nuclear weapons may appear unrelated to the rights of other countries to develop civilian space programs. In fact, however, the nuclear powers' non-proliferation goals collide head-on with the rights of emerging countries to obtain space technologies as a result of trade restrictions intended to prevent the international transfer of certain militarily significant equipment and technologies. Export control regulations either prohibit or impose restrictive export licensing requirements on international transfers of certain commodities and technical data in order to promote foreign policy, national security, or economic objectives. However, due to the "dual-use" nature of many technologies, export controls aimed at military systems may also restrict the flow of civilian space technologies.

A. Summary of U.S. Technology Export Control Laws

The present state of U.S. technology export controls results from both national security and foreign policy concerns. The national security concerns arose from the technology-driven arms race that occurred during the Cold War.⁶² Foreign policy considerations generated the non-proliferation movement which sought to contain the scope of the arms race by ensuring that it remained a largely bipolar affair.⁶³ Both policy objectives have been addressed by restricting the international availability of numerous technologies with potential military applications.

U.S. export control law is divided into two major branches. First, exports of purely military articles and services are controlled by the Arms Export Control Act (AECA).⁶⁴ The AECA is administered by the State Department's Office of Defense Trade Controls (ODTC),⁶⁵ which promulgates International Traffic in Arms Regulations (ITARs).⁶⁶ The ITARs list specific military articles and services for which potential exporters must obtain export licenses.⁶⁷

The Export Administration Act of 1979 (EAA) established the second major branch of U.S. export controls.⁶⁸ The EAA is administered by the Commerce Department's Bureau of Export Administration (BXA), which is responsible for regulating the flow of a vast category of technologies not covered by the ITARs. The BXA promulgates Export Administration Regulations (EARs),⁶⁹ which reflect decisions to restrict particular technologies that may be used for undesirable purposes, such as contributing to the proliferation of nuclear or other weapons of mass destruction.⁷⁰

B. Dual-Use Technology Export Controls

The EARs contain the Commerce Control List⁷¹ which sets forth certain technologies which, while not inherently military in nature, are deemed to have potentially undesirable applications for either national security or foreign policy reasons.⁷² These so-called "dual-use" technologies, which have both civilian and military applications, potentially include "[m]ost commercial technology,"⁷³ including civilian space launch vehicles and components.

In the national security area, the EAA authorizes dual-use export controls where necessary "to restrict the export of goods and technology which would make a significant contribution to the military potential of any . . . countries which would prove detrimental to the national security of the United States."⁷⁴ Historically, these controls have been directed at Eastern Bloc nations.⁷⁵ Until recently, the content and scope of the Commerce Control List has been determined in cooperation with the Coordinating Committee for Multilateral Export Controls (COCOM), an organization of Western nations created to restrict the flow of Western technologies to communist countries by harmonizing national security-based export control policies.⁷⁶

The EAA also authorizes BXA to impose export controls which "further significantly the foreign policy of the United States."⁷⁷ Export controls to promote policy objectives such as non-proliferation are authorized by this section.⁷⁸ Just as the Western industrial powers facilitated large-scale international coordination of national security-based export controls through COCOM, they have similarly tried to harmonize their diverse restrictions on the international transfer of missile technologies. The Missile Technology Control Regime is the result.

IV. THE MISSILE TECHNOLOGY CONTROL REGIME

In 1987, the governments of the leading industrial nations adopted the Missile Technology Control Regime (MTCR)⁷⁹ in order to coordinate their export controls aimed at controlling nuclear proliferation.⁸⁰ The then-existing non-proliferation system, largely based on the 1968 Nuclear Non-Proliferation Treaty,⁸¹ was intended to keep strategic nuclear materials out of the hands of developing countries. Responding to the apparent inadequacy of the earlier non-proliferation regime, the seven initial MTCR adherents⁸² informally agreed in an exchange of letters to "address the problem of global nuclear proliferation through export controls on weapons

delivery systems, rather than on nuclear materials and technology,"⁸³ in order to "[control] transfers that could make a contribution to nuclear weapons delivery systems other than manned aircraft."⁸⁴ Thus, the MTCR added a second level of restrictions to supplement already existing controls on the transfer of nuclear materials and technologies. The new two-tiered approach to non-proliferation was based on the premise that even renegade nuclear-armed countries cannot threaten world peace if they lack the technical means to strike at their adversaries.⁸⁵

A. MTCR Provisions

The MTCR places strict controls on exports of space launch vehicles, components, and the production technologies used in civilian space programs. Under the MTCR, all "missile-related" technologies are divided into two categories, that distinguish the most strictly controlled articles from less restricted ones.

Category I, the most restricted group, includes "[c]omplete rocket systems (including ballistic missile systems, *space launch vehicles*, and sounding rockets) and unmanned air vehicle systems . . . [of a certain range]⁸⁶ as well as the specially designed production facilities for these systems."⁸⁷ Category I also includes "complete subsystems usable in"⁸⁸ such rocket systems.⁸⁹

Category I technology transfers, and thus all proposed transfers of space launch vehicles, components, and production facilities, are strictly controlled under the MTCR. The regime imposes a "strong presumption to deny" export applications for the listed Category I items.⁹⁰ This presumption may be rebutted only when the recipient state provides binding assurances that "[t]he items will be used only for the purpose stated"⁹¹ and that the item will not be retransferred without permission.⁹² The exporting state, in turn, must "assume[] responsibility for taking all steps necessary to ensure that the item is put only to its stated end-use."⁹³

Category II comprises an extensive list of dual-use technologies which may have potential uses in MTCR-controlled projects, such as propulsion components, propellants, structural materials, communications equipment, avionics equipment, and certain computers.⁹⁴ These transfers are presumptively permitted, provided they do not contribute to a "project of concern."⁹⁵ Projects of concern are identified case-by-case by evaluating the risks of nuclear proliferation, the status of the recipient state's missile and space programs, whether the transfer will contribute to the development of a delivery system, the proposed end-use of the item, and any other "relevant multilateral agreements."⁹⁶ Transfers which may contribute to projects of concern may still be approved if the recipient state provides sufficient assurances of the end-use and end-user.⁹⁷

B. The Dual-Use Problem of Missile and Space Technologies

Although the MTCR Guidelines "are not designed to impede national space programs or international cooperation in such programs [which] could not contribute to nuclear weapons delivery systems,"⁹⁸ nothing in the MTCR Guidelines expressly excludes purely civilian or non-aggressive military space projects from export controls.⁹⁹ The MTCR's stringent Category I controls have been strictly applied, particularly by the United States, with respect to space launch vehicle projects. The dual-use nature of space launch technology ensures that virtually all national space launch vehicle programs may be found to contribute to nuclear weapons delivery systems.¹⁰⁰

As a technical matter, there is no bright line between military "missiles" and civilian "space launch vehicles." In fact, early civilian space projects simply adopted military technologies.¹⁰¹ The U.S. strongly argued in 1967 that military technologies were essential to all aspects of space activity.¹⁰² More recently, the dual-use nature of space launch technology has generated more cautious commentary:

The only essential differences between [a civilian space launch vehicle] and a ballistic missile are its trajectory and the payload it carries. Suppliers cannot "denature" space-launch technology and be certain that it will be used only for civilian purposes. Once a nation has the ability to place a satellite in orbit it is, at most, only a few years from being able to launch an intermediate range ballistic missile. . . . The differences relate to intentions, not capabilities.¹⁰³

Astronaut John Glenn reportedly told President Kennedy that the difference between his manned rocket and a ballistic missile was nothing more than "[a]ttitude."¹⁰⁴

The notion that ballistic missile systems are inherently indistinguishable from civilian space launch vehicles is widely held, but not universally accepted. Differences between space launch vehicles and missiles include "trajectory, rocket size, guidance, propulsion, launch facilities and infrastructure, . . . payload,"¹⁰⁵ and the use of heat shields on missiles, which are unnecessary on most unmanned

space launch vehicles.¹⁰⁶ Nonetheless, the more cautious view, that the differences between missiles and space launch vehicles are minimal, has prevailed in the formation and application of non-proliferation policy.

C. The Strict American Interpretation

The potential for diversion of dual-use space technologies has resulted in a strict and cautious U.S. interpretation of the MTCR. Because of the dual-use problem and the perceived difficulties in ascertaining the intentions of potential recipient states, "[t]he U.S. does not export equipment and technology for space launch vehicles to countries with ballistic missile programs."¹⁰⁷ This approach ignores the purported end-use of the transferred technology. The U.S. has attributed its rigid stance, which may impede even purely civilian projects in some states, to findings that "civilian space programs have been used as a conduit for materials and equipment destined for ballistic missiles."¹⁰⁸ Thus, in practice, the U.S. has limited the scope of its international cooperation in space activities by selectively denying some states access to space launch technologies.¹⁰⁹

In 1990, Congress codified much of the U.S. implementation of the MTCR.¹¹⁰ The 1990 law articulated the U.S. policies of discouraging transfers of technology which "can deliver weapons of mass destruction,"¹¹¹ and strengthening multilateral arrangements such as the MTCR.¹¹² It also amended both the AECA and EAA to allow sanctions against U.S. or foreign persons or firms which transfer MTCR-related technologies without prior U.S. approval.¹¹³ As a result, the U.S. interpretation of the MTCR may be applied extraterritorially, since foreign firms which refuse to adhere to the U.S. view can be shut out of the lucrative U.S. market.¹¹⁴

Congress further clarified its strict interpretation of MTCR-related export controls in the 1994 National Defense Authorization Act.¹¹⁵ The 1994 Act included a "Sense of Congress" statement that reiterated the Congressional view that "[m]issile technology is indistinguishable from and interchangeable with space launch vehicle technology,"¹¹⁶ and that all emerging national space programs should be unequivocally opposed.

In the 1994 Act Congress also noted that "[i]t has been United States policy since agreeing to the guidelines of the [MTCR] to treat the sale or transfer of space launch vehicle technology as restrictively as the sale or transfer of missile technology"¹¹⁷ and that "it has been [U.S.] policy not to increase the number of nations acquiring space launch vehicles"¹¹⁸ In addition, the Act states that "[t]he United States has successfully dissuaded other MTCR adherents, and countries who have agreed to abide by MTCR guidelines, from providing assistance to emerging national space launch vehicle programs in the Third World."¹¹⁹ However, Congress also acknowledged the need to offset the blunt U.S. refusal to cooperate in emerging space launch vehicle programs: It found that the United States has "successfully dissuaded countries from pursuing space launch vehicle programs by offering to cooperate with them in other areas of space science and technology."¹²⁰

Thus, through its codification of the "strict interpretation"¹²¹ of the MTCR with regard to space launch technologies, Congress has clearly stated its opposition to all emerging national space launch vehicle programs.

V. MTCR AND THE OUTER SPACE TREATY

While the Outer Space Treaty and the MTCR are not, by their explicit terms, related, the two documents are in fact connected by the practical reality that MTCR-controlled technologies include dual-use space launch vehicles and components. But the debate concerning the future of emerging national civilian space programs cannot be limited to the question of whether space launch technologies are inherently dual-use-most technologies are. Rather, we must further ask whether dual-use potential alone justifies the selective denial of access to technologies needed by countries-including those willing to provide end-use assurances-in order to realize their rights to explore and use space under the 1967 Outer Space Treaty.

The Outer Space Treaty recognized the dual-use nature of space technology. The treaty prohibits weapons of mass destruction from space, but permits the use, for peaceful purposes, of military equipment in space and on celestial bodies.¹²² Under the treaty, access to space may not be denied solely on the basis of the dual-use nature of the technologies sought to be used. During the treaty negotiations the U.S. took the position that military technologies are legitimate, if not essential, components of civilian space activities.¹²³ The present U.S. interpretation of the MTCR ignores this reality, and it also overlooks the caveat of the MTCR Guidelines, which provide that the MTCR is "not designed to impede national space programs"¹²⁴

In short, the critical question is whether, by lumping together "good" and "bad" space projects (and denying technology transfers to both), the United States has fulfilled its obligations under the 1967 Outer Space Treaty to promote open, non-discriminatory access to space, without regard to the nature of the technologies used, and to facilitate international cooperation to achieve that end.¹²⁵

A. Relative Status of the MTCR and the Outer Space Treaty

The most important feature of the MTCR's relationship to the Outer Space Treaty is that, unlike the Treaty, the MTCR does not represent international law. Even if MTCR controls are deemed to be justified under the U.N. Charter as necessary international security measures, the MTCR itself is neither a "treaty" nor even an international "agreement."¹²⁶ It has instead been described as a "set of identical policies . . . to be implemented in parallel."¹²⁷ Thus, as a matter of international law, the MTCR does not supersede either the Outer Space Treaty or the customary international law articulated by the treaty.¹²⁸

The MTCR Guidelines are, however, binding U.S. domestic law. MTCR policies have been incorporated into federal law in the EAA and AECA. U.S. constitutional law dictates that treaties and statutes have equal status as enforceable domestic law.¹²⁹ When a U.S. statute conflicts with a treaty, the later-promulgated instrument controls.¹³⁰ Under this last-in-time rule, MTCR-related export controls affecting emerging national space launch vehicle programs are valid U.S. law whether or not they violate the earlier Outer Space Treaty. Domestic U.S. law may, therefore, be inconsistent with its international legal commitments. The critical question is whether the MTCR is *necessarily* in conflict with U.S. obligations under the Outer Space Treaty.

B. The U.S. Implementation of the MTCR Violates the Outer Space Treaty by Denying Free Access to Outer Space

The strict U.S. implementation of the MTCR has led to restrictive, discriminatory access to outer space and a de facto appropriation of outer space for the benefit of a few nations. This result violates the free access principles of the Outer Space Treaty and contradicts the U.S. affirmation in 1967 that "outer space . . . [is] not open just to the big powers or the first arrivals but shall be available to all, both now and in the future."¹³¹

As implemented by the U.S., the MTCR has severely limited international civilian and non-aggressive military access to outer space. Indeed, the MTCR is arguably "the most stringent barrier to the acquiring of outer space capabilities by emerging outer-space-competent states . . . despite the fact that its basic objectives are not designed to hinder national programmes and international cooperation in this field."¹³² It has even been suggested that the MTCR has, over time, "acquired the goal of preventing developing countries from gaining access to space through independent space-launch programmes."¹³³ The detrimental effect of the MTCR on national space programs is largely a result of the strict U.S. export control laws, considered the most stringent of any MTCR member.¹³⁴

The effectiveness of the MTCR in impeding national space programs is well-documented.¹³⁵ Argentina's Condor program, which was to develop both missiles and space launch vehicles, was cancelled in 1992 after MTCR members restricted technology transfers for the project.¹³⁶ Obstacles placed by the U.S. reportedly caused delays in Brazil's space efforts and prevented it from entering the satellite launching market.¹³⁷ The threat of U.S.-imposed MTCR sanctions also scuttled Indian plans to purchase a cryogenic rocket booster from Russia,¹³⁸ even though India had provided Russia with the end-use assurances required by the MTCR Guidelines.¹³⁹ South Africa and Taiwan both scrapped their space launch vehicle programs entirely in response to MTCR pressure and the specter of U.S.-imposed sanctions.¹⁴⁰

Thus, by persuading or coercing states to cancel space launch vehicle projects, the MTCR restricts *independent* access to outer space. MTCR proponents argue that since states may still pay to have their payloads launched into outer space by one of the existing spacefaring powers, "access" to space has not been abridged.¹⁴¹ Such a narrow, interpretation of "access" is irreconcilable with the sweeping language of the Outer Space Treaty, with its emphasis on cooperation and equity, and with U.S. policy statements regarding the treaty.¹⁴²

Even assuming that "access" to space through a launch services cartel is a suitable substitute for an independent space launch capability, such a result would still violate the Outer Space Treaty. The exclusive launch service suppliers' cartel suggested by MTCR would constitute a de facto appropriation of space for the benefit of the launching states in violation of Article II of the treaty, which prohibits national appropriation of space "by claim of sovereignty, by use or occupation, or by *any other means*."¹⁴³ Indeed, it would be difficult to more effectively appropriate outer space than to exclude states by denying them the technologies they need to develop independent access and then selectively selling them the same access for a profit.¹⁴⁴ In practice, therefore, the MTCR runs afoul of the Outer Space Treaty's free access guarantee regardless of how one defines "access" to space.

C. The MTCR Is Discriminatory

Some commentators have argued that the MTCR is discriminatory and inequitable, in violation of the Outer Space Treaty.¹⁴⁵ MTCR restrictions discriminate against specific countries and also against certain dual-use technologies. By analogy to U.S. constitutional and civil rights law, any assessment of "discrimination" under the Outer Space Treaty should consider two key indicia. First, the activity under consideration must have a discriminatory effect, or lead to disparate treatment of different countries. Second, the activity must be carried out with discriminatory intent.¹⁴⁶

Under the U.S. implementation of the MTCR, export controls have been applied selectively to promote U.S. national security and foreign policy objectives by discriminating against countries which are not favored allies. In theory, the MTCR "is not directed towards specific countries, but is based on the control of the transfer of specific rocketry technologies."¹⁴⁷ In practice, however, the projects of favored nations are distinguished from those of non-allies.¹⁴⁸

The problem once again lies in the U.S. interpretation of the MTCR Guidelines. It has been understood that MTCR members and non-member "adherents" are generally permitted to import controlled technologies.¹⁴⁹ The United States, however, recognizes as "adherents" only those countries which sign bilateral agreements with the U.S.¹⁵⁰ Thus, no unilateral action by one country can guarantee that it will be permitted to import the same technologies offered to an officially-recognized MTCR "adherent." The losers are typically developing countries and their nascent space programs.¹⁵¹ The effect of the U.S. definition of "adherents" is discriminatory, and impedes the "legitimate right [of Third World nations] to develop civilian space-launch vehicles."¹⁵²

Without more, a mere disparity in treatment among countries should not be considered "discrimination" under the Outer Space Treaty. Such an interpretation would imply that all countries are entitled to all space technologies, under identical terms and conditions, regardless of their malevolent plans for the technologies. Prohibiting all disparate treatment would make it impossible for an exporting country like the U.S. to implement any non-proliferation policy aimed at keeping militarily significant technologies away from undesirable ballistic missile programs. Thus, disparate treatment should not be considered discriminatory when it is merely an incidental consequence of a non-discriminatory policy decision.

The concept of "intent" distinguishes incidental disparate impact from policy decisions aimed specifically at impeding emerging civilian national space programs. The U.S. implementation of the MTCR intentionally impedes civilian national space programs by assuming that all such programs are inherently destabilizing.¹⁵³ In practice, the MTCR regime focuses almost entirely on technology transfers to developing countries.¹⁵⁴ This focus is not accidental. The U.S. and other industrialized states view their own possession of MTCR-related technologies as critical components of stability and deterrence, but consider possession of the same technologies by developing countries to be dangerous and destabilizing.¹⁵⁵ The inequity inherent in this view has not gone unnoticed in the developing countries.¹⁵⁶

The foregoing discussion has demonstrated that the MTCR, as implemented by the United States, restricts other states' access to space in violation of the Outer Space Treaty. In practice, the MTCR is inequitable and discriminatory, and effectuates an appropriation of space by a launch services cartel composed of MTCR-member states. Of course, stemming the international proliferation of weapons of mass destruction is an important goal. However, by signing the Outer Space Treaty, the U.S. committed itself to a course of conduct which does not permit the breadth of the means it currently uses to further its legitimate non-proliferation objectives.

VI. OTHER FLAWS IN THE MTCR

In addition to its abrogation of the free access principles of the Outer Space Treaty, the rigid U.S. interpretation of the MTCR suffers from other serious theoretical weaknesses in the areas of international security, foreign policy, and economics.

As a security matter, an MTCR implementation that restricts all dual-use space launch technology is overbroad and misdirected. The MTCR's focus on delivery systems was a major shift from prior nonproliferation efforts that concentrated on nuclear materials and weapons systems. By developing the MTCR, member nations implicitly conceded the inadequacy of then-existing controls.¹⁵⁷ However, even proponents of a strict MTCR acknowledge that delivery systems are of little concern in the absence of nuclear or chemical warheads.¹⁵⁸ The earlier weapons-based controls, in turn, implicitly acknowledged the failure of international politics and diplomacy to restrain aggressive states and defuse regional conflicts. Consequently, MTCR export controls are attenuated from the underlying international security problems. Furthermore, the MTCR is ineffective with respect to indigenous development of MTCR-related technologies,¹⁵⁹ which in fact may be encouraged by stringent export controls.¹⁶⁰ Thus, international security might be better served by measures which focus on the underlying political and diplomatic problems instead of those which attempt to prevent the inevitable spread of advanced technologies.¹⁶¹

Since long-term solutions to underlying international security problems are based on mutual understanding, a supplier cartel like the

MTCR is unlikely to enhance long-term security. "Probably the greatest weakness of the MTCR is that it is only a suppliers' cartel and does nothing to address the demand for missiles, born of regional political tension and local arms races."¹⁶² The discrimination and exclusiveness inherent in the MTCR may only increase these tensions, by heightening Third World resentment and encouraging indigenous development of the same controlled technologies.¹⁶³ Thus, as one commentator notes,

it is clear that real progress toward controlling the proliferation of nuclear weapons capabilities in developing states must include efforts by the developing states themselves. Moreover, although supplier restraint is necessary to further a nonproliferation policy, the recent trend towards indigenous production capabilities in developing states suggests that supplier restraint alone may prove insufficient for the task.¹⁶⁴

The MTCR's launch service cartel also raises serious economic questions, particularly with regard to the international trade consequences of space-launch technology controls.¹⁶⁵ Proponents of the current U.S. interpretation of the MTCR unduly trivialize the significant trade benefits of technology exports associated with space launch vehicles.¹⁶⁶ However, exporters of such technology, such as the satellite industry, complain that the MTCR fails to recognize the economic value of lost export opportunities, and support liberalization of MTCR controls.¹⁶⁷ In any case, truly comprehensive dual-use technology controls are technically infeasible in the modern industrial world and would amount to "market suicide" in the international trade arena.¹⁶⁸ The MTCR effectively subsidizes space *launch service providers* at the expense of technology manufacturers and exporters by denying space launch vehicle exports that would divert launch business away from the traditional spacefaring powers.¹⁶⁹

Thus, even by depriving states of their right of access to outer space, the U.S. implementation of the MTCR cannot fully achieve its basic national security and foreign policy objectives. In addition, it has serious negative economic consequences. A reformed MTCR, however, may be brought into compliance with the free access provisions of the Outer Space Treaty at the same time it addresses long-term U.S. policy concerns.

VII. THE FUTURE OF THE MTCR AND THE FREE ACCESS Principles of the outer space treaty

The U.S. and the international community have three options with regard to the relationship between the MTCR and the Outer Space Treaty. First, the status quo may be deemed acceptable despite the apparent inconsistency between the practices of the MTCR and the principle of free, nondiscriminatory access to outer space. Second, the Outer Space Treaty may be amended or superseded to reflect a new approval of limited access to space for non-MTCR members, controlled by a launch services suppliers' cartel. Third, MTCR-related policies may be modified to safeguard free access principles.

A. Reconciling the MTCR and Outer Space Treaty

The status quo, under which the MTCR and Outer Space Treaty remain inconsistent in their treatment of national space launch vehicle programs, is unacceptable under international law. Allowing the inconsistency to continue undermines the legitimacy of far-reaching international agreements such as the Outer Space Treaty.

It would also be undesirable for the U.S. interpretation of the MTCR to prevail over the free access principles of the Outer Space Treaty as international law. The MTCR does not represent international law, and thus may not automatically nullify inconsistent provisions of prior treaties.¹⁷⁰ The Outer Space Treaty's free access principles may be superseded only by the emergence of a new peremptory norm of international law¹⁷¹ or by amending the treaty. Neither course is likely. First, the policies underlying the MTCR are by no means "accepted and recognized by the international community of States as a whole as a norm from which no derogation is permitted."¹⁷² Thus there is no indication that a new peremptory norm is emerging based on the MTCR. Second, the free access concept is strongly supported in the international community, making any amendment highly unlikely.¹⁷³ Furthermore, repudiating part of the Outer Space Treaty might well jeopardize future attempts to establish comprehensive international legal regimes in new areas.

The most desirable option is to liberalize interpretation of the MTCR, allowing free access to space while denying technological assistance to ballistic missile programs. The U.S. MTCR implementation could be brought into compliance with the Outer Space Treaty if the U.S. were more willing to accept end-use assurances from importing states. As a practical matter, the United States currently assumes that all space programs are disguised ballistic missile programs.¹⁷⁴ However, some European MTCR members, including France, "have adopted a policy to promote what they consider legitimate space programs and often do not draw a connection to military-related ballistic missile programs."¹⁷⁵ Adoption of a similar policy by the U.S. would eliminate or significantly curtail the MTCR's detrimental effects on legitimate space programs.¹⁷⁶

Any MTCR reform must be accompanied by several other steps, particularly the expanded involvement of Third World states in weapons non-proliferation regimes,¹⁷⁷ the commitment of substantial resources to the resolution of regional conflicts and local arms races,¹⁷⁸ and the strengthening of organizations responsible for verifying and monitoring compliance with weapons-based non-proliferation regimes.¹⁷⁹ All of these steps will decrease the need for secondary delivery systems-based controls such as the MTCR. In addition, a more effective end-use monitoring system must be established to spot and react to any diversions from civilian projects to ballistic missile programs.¹⁸⁰ The U.S. could then liberalize space launch technology controls without sacrificing national security or non-proliferation goals.

B. Recent MTCR Developments

Despite the continuing post-Cold War escalation of North-South tensions and demonstrated weaknesses in the MTCR, the present policy remains firmly entrenched. Recent developments in the MTCR arena do not bode well for the Outer Space Treaty or its free access provisions.

Spacefaring MTCR states have continued to pursue their non-proliferation policies by denying space access to other countries, while enlarging and strengthening the present MTCR system. As previously discussed, the strict U.S. interpretation was codified in the Defense Authorization Act for 1994.¹⁸¹ In addition, the Clinton administration has announced its continued support for the strict U.S. view of the MTCR and reaffirmed that the "United States will not support the development or acquisition of space-launch vehicles in countries outside the MTCR."¹⁸²

In 1994 COCOM was disbanded,¹⁸³ with the understanding that it will eventually be replaced by a new regime which will "coexist"¹⁸⁴ with the MTCR.¹⁸⁵ The new arrangement will be aimed at preventing "certain countries of concern from receiving goods and technology that could be used in the development of . . . missile delivery systems."¹⁸⁶ Thus, the discriminatory nature of the controls will remain. There has also been a renewed effort to expand the MTCR membership.¹⁸⁷ This expansion, especially Russia's recent commitment to adhere to the MTCR Guidelines,¹⁸⁸ has solidified the North-South polarization promoted by the regime. Finally, the recent diplomatic crisis in North Korea over the monitoring of its nuclear weapons program has highlighted the weakness of the primary weapons-based non-proliferation regime and may further increase support for more attenuated delivery-system controls such as the MTCR.¹⁸⁹

VIII. CONCLUSION

The 1967 Outer Space Treaty formally articulated pre-existing principles of customary international law, including the rights of states to enter and use outer space freely, without discrimination, and to do so using both civilian and military equipment and personnel. Subsequently, the Missile Technology Control Regime led to strict export controls on dual-use technologies including space launch vehicles, components, and production facilities. The MTCR has been applied by the United States, to the detriment of legitimate national space launch programs and in violation of the Outer Space Treaty, although it is clear from the text of the MTCR that the agreement was not intended to produce this result.¹⁹⁰ The U.S. implementation has led to a closed, discriminatory cartel of launch service supplier states.

The MTCR, as applied by the United States, is an inefficient and incomplete attempt to promote legitimate national security and foreign policy objectives. The U.S. implementation of the MTCR also sacrifices lucrative high-technology export markets. These same U.S. policy objectives could be better served by addressing the reasons for the growing demand for weapons of mass destruction, easing the North-South polarization of current policies, and promoting legitimate, peaceful national space programs as a means of international social and economic development. Ultimately, the most important difference between the space technology policy of today and a policy that complies with the Outer Space Treaty may be little more than "[a]ttitude."¹⁹¹

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1. Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space Including the Moon and Other Celestial Bodies, Jan. 27, 1967, 18 U.S.T. 2410, T.I.A.S. No. 6347 [hereinafter Outer Space Treaty].

2. U.N. CHARTER, art. 55.

3. See discussion *infra* at notes 9-25 and accompanying text.

4. The definition of "peaceful purposes" is controversial and is beyond the scope of this paper. For this analysis, "peaceful purposes" includes civilian as well as "non-aggressive" military uses of space.

5. Outer Space Treaty, *supra* note 1.

6. BARRY E. CARTER & PHILLIP R. TRIMBLE, INTERNATIONAL LAW 1112 (1991) (the Outer Space Treaty is the "basic legal regime governing outer space").

7. Outer Space Treaty, *supra* note 1 art. III. The article provides:

States Parties to the Treaty shall carry on activities in the exploration and use of outer space, including the moon and other celestial bodies, in accordance with international law, including the Charter of the United Nations, in the interest of maintaining international peace and security and promoting international cooperation and understanding.

Id.

8. *Id.* art. I.

9. *Id.*

10. G.A. Res. 1348, U.N. GAOR, 13th Sess., Supp. No. 18 at 5, U.N. Doc. A/4090 (1958). See Paul G. Dembling & Daniel M. Arons, *Space Law and the United Nations: The Work of the Legal Subcommittee of the United Nations Committee on the Peaceful Uses of Outer Space*, 32 J. AIR L. & COM. 329 (1966) (chronicling the work of COPUOS preceding the Outer Space Treaty).

11. Report of the Ad Hoc Committee on the Peaceful Uses of Outer Space, UN Doc. A/4141/25 (1959), *excerpted in* 1 MANUAL ON SPACE LAW 3-4 (Nandasiri Jasentuliyana & Roy S.K. Lee, eds. 1981).

12. G.A. Res. 1721, U.N. GAOR, 16th Sess., Supp. No. 17 at 6, U.N. Doc. A/5100 (1962). The resolution offered guiding principles including a recommendation to all states that "[o]uter space and celestial bodies are free for exploration and use by all States in conformity with international law and are not subject to national appropriation." *Id.* See 1 MANUAL ON SPACE LAW, *supra* note 11 at 5 (discussing the developments leading up to Resolution 1721).

13. G.A. Res. 1962, U.N. GAOR, 18th Sess., Supp. No. 15 at 15, U.N. Doc. A/5515 (1963). Entitled "Declaration of Legal Principles Governing the Activities of States in the Exploration and Use of Outer Space, Resolution 1962 declared that "[o]uter space and celestial bodies are free for exploration and use by all States on a basis of equality and in accordance with international law." *Id.*

14. Adlai E. Stevenson, U.S. Ambassador to the U.N., Address Before the U.N. (Dec. 4, 1961), *in* 46 DEPT. ST. BULL. 180 (1962).

15. Pres. Lyndon B. Johnson (May 7, 1966), *in* 56 DEPT ST. BULL. 900 (1966).

16. *Id.* See 1 MANUAL ON SPACE LAW, *supra* note 11, at 6 (discussing President Johnson's aspirations for the Outer Space Treaty).

17. Paul G. Dembling & Daniel M. Arons, *The Evolution of the Outer Space Treaty*, 33 J. AIR L. & COM. 419, 429 (1967).

18. *Id.* at 430.

19. Arthur J. Goldberg, U.S. representative to the U.N. General Assembly, Address Before the U.N. Gen. Assembly (Dec. 17, 1966), *in* 56 DEPT ST. BULL. 78, 81 (1967).

20. Outer Space Treaty, *supra* note 1, art. II. This provision restates one of the nine guiding principles governing space activities set forth in Resolution 1962. *See* Dembling & Arons, *supra* note 10, at 335.
21. Dembling & Arons, *supra* note 17, at 431. *See* Goldberg statement, *supra* note 19, at 81 (the prohibition of appropriation of outer space is one of the key provisions emphasizing Article I's protection of the interests of non-space powers).
22. *See infra* notes 142-44 and accompanying text.
23. Outer Space Treaty, *supra* note 1, art. I.
24. *Id.* art. III.
25. *Id.*
26. *Id.* art IV. *See* Dembling & Arons, *supra* note 17, at 432-35.
27. Outer Space Treaty, *supra* note 1, art IV. *See* Dembling & Arons, *supra* note 17, at 432-35.
28. Outer Space Treaty, *supra* note 1, art IV. *See* Dembling & Arons, *supra* note 17, at 432-35.
29. Outer Space Treaty, *supra* note 1, art. IV, para. 1.
30. *Id.* art. IV, para. 2. Although the Outer Space Treaty failed to delineate precisely which "peaceful purposes" were permissible, "one might conclude [from the Outer Space Treaty] that any military use of outer space must be restricted to nonaggressive purposes . . ." Dembling & Arons, *supra* note 17, at 434.
31. Outer Space Treaty, *supra* note 1, art IV, para. 2 ("The use of any equipment or facility necessary for peaceful exploration of the moon and other celestial bodies shall . . . not be prohibited."). *See Hearings Before the Senate Comm. on Foreign Relations*, 90th Cong., 1st Sess. 81 (1967) [hereinafter *Outer Space Treaty Hearings*] (testimony of Cyrus Vance, Dep. Sec. of Defense) ("The treaty does not mean that military personnel or equipment will be excluded from space. Only weapons of mass destruction are barred from space."); Dembling & Arons, *supra* note 17, at 433-34.
32. *See* U.N. GAOR, COPUOS, Legal Subcomm., 5th Sess., 70th mtg. at 3, U.N. Doc. A/AC.105/C.2/SR.70 (1966) (statement by the Soviet delegate), *reprinted in* 3 *MANUAL ON SPACE LAW*, *supra* note 8, at 62 (The USSR "could not agree to the use of military equipment on celestial bodies even on the pretext of carrying out scientific research or other peaceful undertakings, for that might result in activities which would run directly counter to the principle of the use of celestial bodies exclusively for peaceful purposes."). *See also* Dembling & Arons, *supra* note 17, at 434 (discussing Soviet-led opposition to permitting use of military equipment on celestial bodies).
33. U.N. GAOR, COPUOS, Legal Subcomm., 5th Sess., 62nd mtg. at 6, U.N. Doc. A/AC.105/C.2/SR.62 (1966) (statement by U.S. Amb. Goldberg), *reprinted in* 3 *MANUAL ON SPACE LAW*, *supra* note 11, at 59.
34. *Id.* *See* Dembling & Arons, *supra* note 17, at 435 (the U.S. delegation favored liberal allowance of military assets in space for peaceful purposes).
35. U.N. GAOR, COPUOS, Legal Subcomm., 5th Sess., 71st mtg., U.N. Doc. A/AC.105/C.2/SR.71 (1966) (statement by the British delegate), *reprinted in* 3 *MANUAL ON SPACE LAW*, *supra* note 11, at 63. *See* Dembling & Arons, *supra* note 17, at 435 (the British delegation argued in favor of allowing dual-use equipment on celestial bodies). This strong defense of dual-use space technologies has been ignored by the U.S. in its implementation of the space technology export controls. *See infra*, notes 144-45 and accompanying text.
36. *See* Dembling & Arons, *supra* note 17, at 435 (Article IV emphasizes "the purpose for which a piece of military equipment is to be used on a celestial body").
37. An opposing view was represented by the Japanese delegate, who argued that "the provision to the effect that celestial bodies

should be used exclusively for peaceful purposes . . . should be extended to include outer space as a whole." U.N. GAOR, COPUOS, Legal Subcomm., 5th Sess., 71st mtg., U.N. Doc. A/AC.105/C.2/SR.71 (1966) (statement by the Japanese delegate), *reprinted in 3 MANUAL ON SPACE LAW*, *supra* note 11, at 70.

38. The fundamental international legal doctrine of *pacta sunt servanda* establishes that "[e]very treaty in force is binding upon the parties to it and must be performed by them in good faith." Vienna Convention on the Law of Treaties, May 23, 1969, *entered into force* Jan. 27, 1980, U.N. Doc. A/CONF.39/27 §26. The Vienna Convention, however, is not controlling with respect to the Outer Space Treaty both because the Outer Space Treaty entered into force before the Vienna Convention took effect and also because the United States has not ratified the Vienna Convention.

39. *See Dembling & Arons, supra* note 17, at 456 ("[P]arties [to the Outer Space Treaty] are now contractually obligated to carry out their activities in outer space . . . in accordance with accepted norms and goals validated in a legal form significantly more binding upon the parties than the United Nations resolutions and utterances of individual nations that preceded the Treaty.").

40. RESTATEMENT (THIRD) OF FOREIGN RELATIONS LAW OF THE UNITED STATES, § 325 cmt. g (1987). *See CARTER & TRIMBLE, supra* note 6, at 103-06.

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

42. *Id.*

43. Outer Space Treaty Hearings, *supra* note 31, at 12 (remarks Senator Gore).

44. Outer Space Treaty Hearings, *supra* note 31, at 53 (testimony of Arthur J. Goldberg).

45. *See Nandasiri Jasentuliyana, Article I of the Outer Space Treaty Revisited*, 17 J. SPACE L. 129, 140 (1989) ("Article I, paragraph 1 is formulated rather vaguely and could give the impression that it was meant to lay down only a general principle with no legally binding force.").

46. *Report of the Legal Subcommittee*, U.N. Doc. A/AC.105/544 Apr. 15, 1993, at 34 (emphasis added).

47. *Id. See* Arthur L. Levine, *Commercialization of Space: Implications for U.S. Relations with Developing Countries*, in INTERNATIONAL SPACE POLICY: LEGAL, ECONOMIC, AND STRATEGIC OPTIONS FOR THE TWENTIETH CENTURY AND BEYOND 119, 133 (Daniel S. Papp & John R. McIntyre eds., 1987) (advocating active promotion of indigenous "capacity for space research and management").

Activist proposals such as this, which stand little chance of acceptance as international law by the leading space powers, may contribute to the diminished effectiveness of COPUOS, which is no longer "the most important single source of international law relating to space activities." GLENN H. REYNOLDS & ROBERT P. MERGES, OUTER SPACE: PROBLEMS OF LAW AND POLICY 47 (1989).

48. Vladlen S. Vereshchetin & Gennady M. Danilenko, *Custom as a Source of International Law of Outer Space*, 13 J. SPACE L. 22, 32 (1985) ("It follows that, independent of the formal participation in the 1967 Outer Space Treaty, all states should observe the obligations arising from its provisions because these provisions are binding as rules of customary law.").

49. *Id. See generally* CARTER & TRIMBLE, *supra* note 6 at 109-22.

50. *See* Colleen Driscoll Sullivan, *The Prevention of an Arms Race in Outer Space: An Emerging Principle of International Law*, 4 TEMPLE INT'L & COMP. L.J. 211, 227 (1990) (citing M. HUDSON, THE PERMANENT COURT OF INTERNATIONAL JUSTICE 526 (1934)).

51. *Id.*

52. *See* CARTER & TRIMBLE, *supra* note 6, at 109-114 (discussing the elements of customary international law).

53. See Sullivan, *supra* note 50, at 227.

54. *Id.* at 229 (citing Louis Sohn, *Generally Accepted International Rules*, 6 WASH. L. REV. 1073, 1074 (1986)). U.N. General Assembly Resolutions do not create customary international law, but may be considered evidence of widespread explicit acceptance of an international legal principle. See CARTER & TRIMBLE, *supra* note 6, at 114-21 (discussing the legal force of U.N. resolutions).

55. See, e.g., Vereshchetin & Danilenko, *supra* note 48, at 33 (quoting R.S. Jakhu, *Developing Countries and the Fundamental Principles of International Space Law*, in NEW DIRECTIONS IN INTERNATIONAL LAW 362 (1982)) ("[T]he fundamental principles of international space law, confirmed and declared by the Outer Space Treaty, have been formulated and recognized and accepted by express consent or acquiescence by virtually all countries, developed as well as developing."). Assertions by non-signatories that the Outer Space Treaty does not represent binding customary international law have been consistently rejected. See *id.* at 32 (arguments by "[s]ome of the equatorial states which are not parties to the 1967 Outer Space Treaty . . . that they are not bound by the principles embodied in the treaty" have been rejected by "the overwhelming majority of states. . .").

56. See Vereshchetin & Danilenko, *supra* note 48, at 32 (citing statements by COPUOS delegates from Czechoslovakia, Italy, and Japan which demonstrate their understanding that the basic principles of the Outer Space Treaty were intended to codify existing binding international law).

57. See Sullivan, *supra* note 50, at 229; Vereshchetin & Danilenko, *supra* note 48, at 25.

58. Sullivan, *supra* note 53, at 229.

59. Vereshchetin & Danilenko, *supra* note 48, at 25. Vereshchetin and Danilenko assert that "international law does not require the existence of practice from 'times immemorial' for the creation of its customary rules." *Id.* at 26. In support of this view, they cite the International Court of Justice, which has stated that "the passage of only a short period of time is not necessarily, or of itself, a bar to the formation of a new rule of customary international law." *Id.* (quoting 1969 I.C.J. REPORTS 43).

60. See Report of the 58th Conference of the International Law Association 2 (Manila 1978) ("the freedom of outer space for exploration and use is a principle of general international law and thus a principle valid independently of any treaty"); Vereshchetin & Danilenko, *supra* note 48, at 33 ("the doctrine of international law is unanimous on the question of the universally binding character of the fundamental principles laid down by the 1967 Outer Space Treaty").

61. See Vereshchetin & Danilenko, *supra* note 48, at 31 ("It is generally recognized that treaty and custom interrelate on the following two main levels. . . . A treaty may incorporate and confirm the existing customary law" or may "contain new rules which regulate new problems or change the existing norms").

62. The arms race simultaneously generated "increased [U.S.] Government concern over the risk that exported high-technology equipment may fall into Communist, particularly Soviet, hands where it might be used for military purposes." OFFICE OF TECHNOLOGY ASSESSMENT, U.S. CONGRESS, PUB. NO. OTA-ISC-239, INTERNATIONAL COOPERATION AND COMPETITION IN CIVILIAN SPACE ACTIVITIES 192 (1985) [hereinafter OTA Report].

63. The Treaty on the Non-Proliferation of Nuclear Weapons, July 1, 1968, 21 U.S.T. 483, T.I.A.S. No. 6839, 729 U.N.T.S. 161, was intended to deny developing states the technological capabilities necessary to develop and deploy nuclear weapons. See *infra* note 72.

64. 22 U.S.C. §§ 2751-2796 (1993). See generally Arthur M. Dula, *Export Controls Affecting Space Operations*, 51 J. AIR L. & COM. 927, 944-48 (1986); Dan Haendel & Amy L. Rothstein, *The Shifting Focus of Dual Use Export Controls: An Overview of Recent Developments and a Forecast for the Future*, 25 INT'L LAW. 267, 268 (1991) (summarizing the operation of AECA).

65. 22 C.F.R. § 120.12 (1993). Formerly Office of Munitions Control. 58 Fed. Reg. 39,280 (1993).

66. 22 C.F.R. §§ 120-30 (1993). The ITARs were extensively revised in 1993. 58 Fed. Reg. 39,280-326 (1993).

67. See 22 C.F.R. § 121 (1993) ("The United States Munitions List") (setting forth defense articles covered by AECA, including firearms, military vehicles, munitions, and components); 22 U.S.C. § 2278(b) (1993); 22 C.F.R. § 120.20 (1993) (the export licensing requirement).

68. 50 U.S.C. app. §§ 2401-19 (1993). *See generally* Dula, *supra* note 64, at 938-44 and Haendel & Rothstein, *supra* note 64, at 268-73 (discussing the operation of the EAA).
69. 15 C.F.R. §§ 768-99 (1993).
70. Haendel & Rothstein, *supra* note 64, at 268-69.
71. *See* 50 U.S.C. app. § 2404(c) (Supp. 1993) (mandating the implementation of a list of technologies controlled by the EAA).
72. Haendel & Rothstein, *supra* note 64, at 268-69.
73. *Id.* at 268.
74. 50 U.S.C. app. § 2402(2)(A) (Supp. 1993).
75. Haendel & Rothstein, *supra* note 64, at 269.
76. *Id.* at 269-70. The end of the Cold War brought massive changes to COCOM, which ultimately disbanded in April 1994, after liberalizing restrictions on exports to the newly democratic states of Eastern Europe. *See U.S., Allies Agree to Dismantle COCOM by April 1, 1994, and Set Up New Regime*, 10 INT'L TRADE REP. 1960, Nov. 24, 1993. However, the demise of COCOM does not mean the end of national security export controls. *See infra* notes 170-73 and accompanying text (COCOM to be replaced by a new, broader export control system).
77. 50 U.S.C. app. § 2402(2)(B) (Supp. 1993).
78. Haendel & Rothstein, *supra* note 64, at 272-73.
79. Canada-France-Federal Republic of Germany-Italy-Japan-United Kingdom-United States: Agreement on Guidelines for the Transfer of Equipment and Technology Related to Missiles [hereinafter MTCR Guidelines and MTCR Equipment and Technology Annex], *exchange of letters announced* Apr. 16, 1987, 26 I.L.M. 599 (1987).
80. MTCR Guidelines, *supra* note 79, at 600. *But see* Martha Fitzpatrick, Note, *Arms Control: Export Controls on Missile Technology*, 29 HARV. INT'L L.J. 142, 145-46 (1988) ("As a system of voluntary supplier restraint, the [MTCR] has been likened to [COCOM].") However, Fitzpatrick explains, the two regimes exhibit differences in structure and operation that call into question the long-term effectiveness of the MTCR.).
81. Under the Treaty on the Non-Proliferation of Nuclear Weapons, *supra* note 63, the nuclear powers agreed not to assist or encourage non-nuclear states in obtaining nuclear weapons, and non-nuclear states agreed not to seek such weapons. Fitzpatrick, *supra* note 80, at 144 n.31.
82. The original members of the MTCR were the "G-7" countries, including Canada, Federal Republic of Germany, France, Italy, Japan, United Kingdom, and United States. MTCR Guidelines, *supra* note 79, at 599.
83. Fitzpatrick, *supra* note 80, at 144, *citing* 23 WEEKLY COMP. PRES. DOC. 395 (Apr. 20, 1987) (emphasis added). The shift from controlling nuclear weapons themselves to payload delivery systems marked a "new dimension of arms control . . . developed in response to growing concerns that developing states could adapt conventional missiles and launch systems to the delivery of nuclear devices, thereby dramatically increasing the destabilizing effects of their emerging nuclear capabilities." *Id.* Thus, "efforts to control the transfer of weapons delivery systems to fledgling nuclear states provide a significant complement to the existing non-proliferation regime." *Id.*
84. MTCR Guidelines, *supra* note 79, at 600.
85. Aaron Karp, *The Commercialization of Space Technology and the Spread of Ballistic Missiles*, in INTERNATIONAL SPACE

POLICY: LEGAL, ECONOMIC, AND STRATEGIC OPTIONS FOR THE TWENTIETH CENTURY AND BEYOND 179, 189 (Daniel S. Papp & John R. McIntyre eds., 1987).

86. The MTCR Guidelines were later broadened in scope to include all nuclear, chemical, and biological weapons delivery systems of any range. *Munich Economic Summit Political Declaration: Shaping the New Partnership*, 28 WEEKLY COMP. PRES. DOC. 1213, 1219 (July 13, 1992). U.S. missile technology policy was revised in accordance with the new consensus among MTCR members. *Controlling Missile Technology: Guidelines Extended to Cover Biological and Chemical Weapons* (statement by Richard Boucher, U. S. Dep't of State spokesman, Jan. 7, 1993), reprinted in 3 FOREIGN POL'Y BULL. 97 (Jan.-Apr. 1993).

87. MTCR Equipment and Technology Annex, *supra* note 79, at 604 (emphasis added). Category I includes most potential space technology exports from the United States. *Missile Proliferation: The Needs for Controls (Missile Technology Control Regime): Hearings Before the Subcomms. on Arms Control, International Security and Science, and on International Economic Policy and Trade of the House Comm. on Foreign Affairs*, 101st Cong., 1st Sess. 55 (1989) [hereinafter MTCR Hearings] (testimony of James M. LeMunyon, Dep. Ass't Sec. of Commerce for Export Admin.).

88. MTCR Equipment and Technology Annex, *supra* note 79, at 604.

89. *Id.* Category I "complete subsystems" include rocket stages, reentry vehicles, rocket engines, certain guidance systems, thrust vector controls, and certain warhead mechanisms. *Id.* at 604-05.

90. MTCR Guidelines, *supra* note 79, at 600. Transfers of production facilities for Category I systems are generally prohibited. *Id.*

91. *Id.* at 601.

92. *Id.*

93. *Id.* at 600. The MTCR thus places a large burden on the supplier state. "This provision-putting the burden on the supplier and not just on the recipient . . . has no precedent in the international nonproliferation regime." Richard H. Speier, *The Missile Technology Control Regime*, in CHEMICAL WEAPONS & MISSILE PROLIFERATION 115, 120 (Trevor Findlay ed., 1991).

94. MTCR Equipment and Technology Annex, *supra* note 79, at 605-13.

95. Speier, *supra* note 93, at 120.

96. MTCR Guidelines, *supra* note 79, at 600-01. See MTCR Hearings, *supra* note 87, at 32 (testimony of James M. LeMunyon, Dep. Ass't Sec. for Export Admin., U.S. Dep't of Commerce) (considerations for Category II transfers include "whether the item is within the technical parameters of the Annex," "whether the country of destination is actually developing its missile capability," "whether the end-user is a project of concern," and whether the transfer would "make a significant contribution to a missile development program.")

97. MTCR Guidelines, *supra* note 79, at 601. See Speier, *supra* note 93, at 120 ("there is a great deal of flexibility in the treatment of Category II exports").

98. MTCR Guidelines, *supra* note 79, at 600.

99. See Speier, *supra* note 93, at 116 ("The regime aims at the control of all devices with the defined capability. It makes no exceptions for so-called peaceful vehicles, alleged to be for military purposes other than weapons delivery, or vehicles sought by nations which do not currently have nuclear weapons programs.").

100. See Dula, *supra* note 64, at 937-38 ("The high technology components of military space systems, such as sensors, computers, and computer programs that operate remote sensing, communication, and navigation satellites constitute the critical military technology of the late 20th century. The components of launch vehicles that transport these spacecraft into orbit are the national munitions of the modern age.").

101. Jack H. McCall, Jr., *"The Inexorable Advance of Technology"?: American and International Efforts to Curb Missile Proliferation*, 32 JURIMETRICS J. 387, 398 (1992) ("Historically, the nations that have taken the lead in space exploration have done

so by utilizing what were essentially military missiles or military booster rockets to loft the first satellites, space probes, and manned space capsules.").

102. *See supra* notes 33-36 and accompanying text (discussing the early U.S. position that military technologies are essential to all space activities).

103. Karp, *supra* note 85, at 180. *See generally*, BRIAN CHOW, EMERGING NATIONAL SPACE LAUNCH PROGRAMS: ECONOMICS AND SAFEGUARDS (Rand Corp. R-4179-USDP, 1993).

104. Speier, *supra* note 93, at 117.

105. Lora Lumpe, *Zero Ballistic Missiles and the Third World*, 14 ARMS CONTROL: CONTEMP. SECURITY POL'Y 208, 216 (1993).

106. *Id.*

107. MTCR Hearings, *supra* note 87, at 143 (testimony of Richard A. Clarke, Ass't Sec. of State for Politico-Military Affairs).

108. U.S. GENERAL ACCOUNTING OFFICE, PUB. NO. GAO/NSIAD-90-176, ARMS CONTROL: U.S. EFFORTS TO CONTROL THE TRANSFER OF NUCLEAR-CAPABLE MISSILE TECHNOLOGY 17 (1990) [hereinafter GAO Report]. *See* MTCR Hearings, *supra* note 87, at 144 (testimony of Richard A. Clarke, Ass't Sec. of State for Politico-Military Affairs) ("We believe that the risk of diversion from civilian space programs to missile programs is unacceptable.").

109. *See* MTCR Hearings, *supra* note 87, at 184 (testimony of Norman A. Wulf, Dep. Ass't Dir., Nuclear Weapons Control, U.S. Arms Control and Disarmament Agency) ("Certainly, the U.S. supports space exploration and use, as evidenced by our extensive international cooperation in peaceful space programs, including making launch services available to other countries. Cooperation in the development of space launch technologies, however, is quite another matter.").

110. National Defense Authorization Act for Fiscal Year 1991, 104 Stat. 1485, 1738-50, Pub. L. No. 101-510 §§ 1701-04. This strengthening of MTCR controls was in response to a 1989 State Department report that recommended U.S. aid to emerging space programs. *See* 139 Cong. Rec. H7114-15 (1993).

111. Pub. L. No. 101-510 § 1701, 104 Stat. 1738-39 (1990).

112. *See* H.R. CONF. REP. NO. 923, 101st Cong., 1st Sess., *reprinted in* 1990 U.S.C.C.A.N. 3236-37 (1991 policy statement and amendments EEA and AECA would strengthen MTCR export controls).

113. *See* 50 U.S.C. app. § 2410b (amending EAA) and 22 U.S.C. § 2797a (amending AECA).

114. The 1991 sanction provisions provide that persons or firms transferring MTCR-controlled technologies without U.S. approval are barred for two years from obtaining U.S. government contracts for missiles or missile equipment and are ineligible for U.S. technology transfer licenses for the same period. *Id.*

115. National Defense Authorization Act for Fiscal Year 1994, Pub. L. No. 103-160. The bill was signed by President Clinton on November 30, 1993. 139 Cong. Rec. S17242 (1993).

116. *Id.* § 1614(a)(2) ("Sense of Congress Relating to the Proliferation of Space Launch Vehicle Technologies"). The provision began as a Senate concurrent Resolution introduced by Sens. Bingaman, McCain, and Glenn. *See* S. CON. RES. 37, *reprinted in* 139 Cong. Rec. S10935 (1993). *See also* H.R. REP. NO. 252, 103rd Cong., 1st Sess. 20 (1993) (proposing to amend the House Defense Authorization bill to include the Sense of Congress resolution). The Senate resolution was prompted by Congressional fears that President Clinton would implement sweeping MTCR liberalizations recommended by the State Department in 1989. 139 Cong. Rec. H7114 (1993) and 139 Cong. Rec. S11424 (1993).

117. Pub. L. No. 103-160 § 1614(a)(4).

118. 139 Cong. Rec. H7114 (1993) (statement by Rep. Jon Kyl (R-Ariz.)).
119. Pub. L. No. 103-160 §1614. Some lawmakers believe that the U.S. policy should apply to MTCR members and adherents as well as Third World states. *See* 139 Cong. Rec. S11424 (1993) (statement by Sen. Jeff Bingaman) ("We should not be providing space launch technology even to most adherents of the MTCR.").
120. Pub. L. No. 103-160 §1614.
121. *Id.* §1614(b).
122. Outer Space Treaty, *supra* note 1, art. IV.
123. *See supra* notes 33-37 and accompanying text (discussing long-held U.S. position that military technologies are appropriate and necessary for all aspects of its national space activities).
124. MTCR Guidelines, *supra* note 79 at 600.
125. *See supra* notes 4-37 and accompanying text.
126. Speier, *supra* note 93, at 115. *See* Pericles Gasparini Alves, United Nations Institute for Disarmament Research, Research Paper No. 15, *Access to Outer Space Technologies: Implications for International Security* 111 (1992) ("the MTCR is not a formal agreement").
127. Speier, *supra* note 93, at 115-16.
128. *See id.* at 120-21 ("The MTCR recognizes that, under international law, a policy cannot supersede a treaty. Therefore, the regime is subject to international treaty obligations. When there is a conflict between the MTCR and such treaty arrangements as NATO or the European Space Agency, the treaty prevails.").
129. *Tag v. Rogers*, 267 F.2d 664, 667 (D.C. Cir. 1959) (citing *The Cherokee Tobacco*, 78 U.S. (11 Wall.) 616, 620-21 (1870)), *cert. denied*, 362 U.S. 904 (1960). *See* CARTER & TRIMBLE, *supra* note 6, at 148 ("Treaties are made 'law of the land' by Article IV of the Constitution. By virtue of this provision, an Article II treaty therefore has status as U.S. domestic law."). Customary international law, meanwhile, is treated as part of the federal common law. *See* *The Paquete Habana*, 175 U.S. 677, 700 (1900) ("international law is part of our law, and must be ascertained and administered by the courts of justice of appropriate jurisdiction").
130. *Reid v. Covert*, 354 U.S. 1, 18, and n.34 (1957) ("[W]hen a statute which is subsequent in time is inconsistent with a treaty, the statute to the extent of the conflict renders the treaty null.>").
131. Arthur J. Goldberg, U.S. representative to the U.N. General Assembly, Address Before the U.N. Gen. Assembly (Dec. 17, 1966), in 56 DEPT ST. BULL. 78, 81 (1967).
132. Alves, *supra* note 126, at 111 (emphasis added).
133. Lumpe, *supra* note 105, at 210.
134. Alves, *supra* note 126, at 112.
135. *See generally id.* at 112-15 (assessing the impact of MTCR-related restrictions on newly emerging national space programs). *See also* MTCR Hearings, *supra* note 87, at 105 (testimony of W. Seth Carus, fellow, Washington Institute for Near East Policy) ("There is reason to believe that the [MTCR] has worked. In several cases, the MTCR has derailed programs that otherwise might have been brought to completion. It has also restrained some countries from exporting missiles.>").
136. Alves, *supra* note 126 at 113. *See also* MTCR Hearings, *supra* note 87, at 105 (testimony of W. Seth Carus, fellow, Washington, Institute for Near East Policy) (risk of U.S. sanctions convinced Condor's suppliers to abandon the program in order to keep "more

lucrative U.S. defense contracts") and 139 Cong. Rec. S10935 (1993) (listing the cancellation of the Condor II program among "important successes" for MTCR).

137. Alves, *supra* note 126, at 114.

138. Andrew Lawler, *Russians OK Missiles Export Control*, DEFENSE NEWS, Sept. 6, 1993, at 6; 139 Cong. Rec. S10935 (1993) (U. S. and Russia agreed, in July 1993, that Russia would freeze the proposed rocket sale to India. Russia ultimately agreed to adhere to the MTCR Guidelines). *See* Alves, *supra*, note 123, at 114 (discussing MTCR's impact on India's space program); Lumpe, *supra* note 105, at 210 (same).

139. Lumpe, *supra* note 105, at 210. *See* MTCR Guidelines, *supra* note 79, at 601 (binding end-use assurances required for Category I transfers).

140. The U.S. ultimately imposed sanctions on South Africa in 1991 for its Armscor program. Alves, *supra* note 126, at 114 n.95. Taiwan voluntarily abandoned its space launch vehicle program in response to MTCR pressures. *Taiwan Scraps Booster Plans*, AVIATION WK. & SPACE TECH. Oct. 22, 1990, at 11. *See* 139 Cong. Rec. S10935 (1993); 139 Cong. Rec. H7115 (1993).

141. *See* Speier, *supra* note 93, at 117 (MTCR permits "continued international cooperation in the peaceful uses of space (that is, satellites and the information they handle, as opposed to launch vehicles), manned aircraft, and tactical defense projects"). Brian Chow's RAND Corp. report fueled the hard-line U.S. view by endorsing this notion of a launch services cartel administered by the traditional space powers. Chow urged MTCR members to deny space launch technologies to other countries but recommended that MTCR countries "make a commitment to launch any country's payload at a reasonable price and in a timely manner." CHOW, *supra* note 103, at xiii (quoted in 139 Cong. Rec. S11424, Sept. 10, 1993 (remarks by Sen. Bingaman)).

142. *See supra* notes 10-16 and accompanying text (discussing the U.S. interpretation of the free access principle in the years preceding the Outer Space Treaty and during the treaty negotiations).

143. *See* Outer Space Treaty, *supra* note 1, art. II.

144. This result is analogous to a person blocking a public highway and charging a "toll" to passersby. The person would unquestionably have "appropriated" the highway for his benefit.

Moreover, the notion of MTCR states selling launch services to all comers at reasonable prices may be unrealistic. The rapid commercialization of space launch services in the U.S. and other countries may lead to market prices beyond the reach of developing states. Arthur L. Levine, *Commercialization of Space: Implications for U.S. Relations with Developing Countries*, in INTERNATIONAL SPACE POLICY: LEGAL, ECONOMIC, AND STRATEGIC OPTIONS FOR THE TWENTIETH CENTURY AND BEYOND 126, 129 (Daniel S. Papp & John R. McIntyre eds., 1987).

145. *See* Outer Space Treaty, *supra* note 1, art. I.

146. These two aspects of discrimination are found in U.S. constitutional and civil rights law. *See, e.g.,* Arlington Heights v. Metropolitan Hous. Dev. Corp., 439 U.S. 252 (1977); Griggs v. Duke Power Co., 401 U.S. 424 (1971).

147. Alves, *supra* note 126, at 111. *See* Speier, *supra* note 93, at 117 (MTCR "is not aimed at particular nations, but at specific missile and rocket projects . . .").

148. *See* Paul Freedenberg, *The Commercial Perspective*, in EXPORT CONTROLS IN TRANSITION: PERSPECTIVES, PROBLEMS, & PROSPECTS 57 (Gary K. Bertsch & Steven Elliot-Gower, eds. 1992) ("North-South technology control is based more on the foreign policy goals of particular countries than on the national security of the COCOM countries as a whole.").

149. Lumpe, *supra* note 105, at 211.

150. *Id.*

151. Andrew Mack, *Beyond MTCR: Additional Responses to the Missile Proliferation Problem*, in CHEMICAL WEAPONS &

152. Karp, *supra* note 85, at 189. Although Karp argues *for* a strong export control regime, he recognizes the legitimacy of developing states' activities in space launch technology research and deployment. Effective controls must therefore "offer incentives to Third See World nations intent upon maximizing their national capabilities." *Id.*
153. *See supra* notes 107-109 and accompanying text.
154. *See* McCall, *supra* note 101, at 420 ("MTCR's application to focus almost entirely on developing countries has been criticized as 'insensitive,' displaying an inconsistent and hypocritical cultural bias in technology-related transactions, and may also be viewed as implicitly threatening their sovereignty.").
155. Mack, *supra* note 151, at 123.
156. *See International Cooperation in Space Activities for Enhancing Security in the Post-Cold War Era: Report of the Secretary-General* at 6, U.N. Doc. A/48/221 (1993) [hereinafter U.N. Report]. *See also* Lumpe, *supra* note 105, at 211-12 (discrimination between "good proliferators" and "bad proliferators" promotes opposition to the MTCR, which "is seen as another discriminatory regime in which the North is allowed a certain category of weaponry and the South is not"); U.N. Report, *supra* at 6 ("any [missile technology] controls must be non-discriminatory and generally acceptable, if they are to be effective"); Shakram Chubin, *The South and the New World Order*, 16 WASH. QTRLY. 84 (1993), (the "MTCR is hardly the stuff of worldwide consensus"); Fitzpatrick, *supra* note 80, at 147 ("real progress toward controlling the proliferation of nuclear weapons capabilities in developing states must include efforts by the developing states themselves").
157. *See* Fitzpatrick, *supra* note 80, at 144 (discussing MTCR's new emphasis on controlling delivery systems rather than particular weapons systems).
158. *See* Karp, *supra* note 85, at 189 ("So long as a nation does not have nuclear weapons, it cannot effectively arm a ballistic missile. Missile and space-launch technology pose no major threat to international security if they cannot be used to deliver nuclear warheads.").
159. Speier, *supra* note 93, at 117. *See* McCall, *supra* note 101, at 420-21 ("[F]or many developing nations with relatively greater independent technological bases . . . , the MTCR's external constraints upon such programs may be minimal at best, as a great deal of the necessary scientific skills and technology are already extant."). Theoretically, nonproliferation controls could be further extended another step beyond delivery systems, should the MTCR prove inadequate in deterring indigenous development of MTCR-related technologies. The future could include harsh restrictions on mass communications and scholarly exchanges or may involve inducements and threats which lead non-spacefaring states to abandon high technology programs altogether.
160. *See* REYNOLDS & MERGES, *supra* note 47, at 239 (strict technology controls "encourage foreign nations reliant on that technology to work harder to achieve independence . . .").
161. *See generally* McCall, *supra* note 101, at 388 (the rapid spread of advanced technologies and the failure of existing control regimes to stop it presents "vexing" policy problems). Proponents of the MTCR simply assume that secondary delivery systems controls are essential to achieving non-proliferation goals. *See* CHOW, *supra* note 119, at 2 (with weapons-based controls alone, "proliferation can only be limited and slowed, not stopped"). Chow asserts that the MTCR is the key to a completely successful non-proliferation policy. *But see* REYNOLDS & MERGES, *supra* note 47, at 240 (MTCR cannot be completely effective in stopping technology transfers, because "seepage" is inevitable). Scholars and commentators have offered various alternative proposals. *See, e. g.*, Lumpe, *supra* note 105, at 215 (advocating a Zero Ballistic Missile (ZBM) program of radical disarmament to promote international security and eliminate MTCR's discrimination) and U.N. Report, *supra* note 156, at 10-12 (suggesting broad "confidence-building measures," such as an international space launch monitoring agency to promote the development of new national space programs).
162. Lumpe, *supra* note 105, at 212. *See* Mack, *supra* note 151, at 125 ("Designed to check the *supply* of missile technology to Third World states, the MTCR fails to address the question of *demand*-the often powerful political and security incentives which lead Third world states to seek missiles or missile technology in the first place.") (emphasis in original). Mack likens the MTCR to the U.S. "war on drugs," another policy which illustrates that "supply-side attempts to halt the flow of goods for which there is high demand is problematic." *Id.*

163. *See supra* note 135-140 and accompanying text (on indigenous development of space launch technologies). *See also* Karp, *supra* note 85, at 180-81 (Third World states seek space launch and ballistic missile technologies not only for legitimate military, scientific, and economic reasons, but also for self-respect, international prestige, and political leverage). Elitist or discriminatory practices by MTCR member states may intensify the "Third World's pathological inferiority complex." *Id.* at 181 (arguing for technology controls as a means of offsetting Third World interests).

164. Fitzpatrick, *supra* note 80, at 147.

165. This prudent view had been espoused by the Office of Technology Assessment before the advent of the MTCR. *See* OTA Report, *supra* note 62, at 193 ("[T]he national security and foreign policy benefits of export controls need to be weighed against the loss in export competitiveness to which they may sometimes lead.").

166. *See* Brian Chow, *Keep Controls on Space Launch Technology*, WALL ST. J., Sept. 20, 1993, at A14 ("The economic benefits of exporting space launch technology are not anywhere near as large [as the benefits of commercial aircraft sales]. . . . [T]he American share of space launch technology sales is unlikely to exceed \$200 million a year."). Chow apparently believes that \$200 million is insignificant merely because it pales in comparison to the commercial aircraft business, among the largest exporting industries in the U. S. By this standard, hundreds of other U.S. exporting industries would also be found unworthy of political support.

167. *Satellite Industry Supports Proposed Lifting of Sanctions Against China*, COMMUNICATIONS DAILY, Nov. 15, 1993.

168. REYNOLDS & MERGES, *supra* note 47, at 240. Reynolds and Merges list indigenous technological development and the inevitability of technology transfers ("seepage") as reasons to doubt the long-term efficacy of the MTCR. *Id.*

169. The strict U.S. application of the MTCR bolsters the U.S. launch services business, which is accustomed to substantial federal assistance. Widespread international development of commercial space launch vehicles could present formidable competition for the existing space launch entities. *See* Chow, *supra* note 166, WALL ST. J. at A14 (quoted in 139 Cong. Rec. H7114 (1993)) ("after other countries succeed in developing their own space launch capability, they will no longer ask the U.S. for launch services"). In fact, commercial U.S. launchers have already appealed for U.S. government subsidies in order to compete against launch service providers in other MTCR countries. John Mintz, *Launching a Drive for Federal Help*, WASH. POST, Jan. 12, 1994, at F1.

170. *See supra* notes 126-28 and accompanying text.

171. *See supra* notes 38-55. Vienna Convention on the Law of Treaties, May 23, 1969, *entered into force* Jan. 27, 1980, U.N. Doc. A/CONF.39/27, art. 64 ("If a new peremptory norm of general international law emerges, any existing treaty which is in conflict with that norm becomes void and terminates.").

172. *Id.* art. 53.

173. Indeed, there is considerable support among signatories of the Outer Space Treaty to *enhance* the guarantee of free, nondiscriminatory access to space. *See Report of the Legal Subcommittee, supra* note 46 at 34 (proposing a binding legal obligation on all states to promote the indigenous development of space launch capabilities in states which do not yet have such resources).

174. *See supra* notes 107-09 and accompanying text.

175. GAO Report, *supra* note 108, at 17. *See* Alves, *supra* note 126, at 116 (discussing interpretative disagreements among MTCR member countries).

176. States with newly-established space programs or programs of questionable legitimacy could be required to submit to intense international supervision and monitoring, which would permit free access to outer space by such states, without compromising the non-proliferation goals of the MTCR. By imposing legal rather than political standards to emerging national space programs, improper discrimination may be prevented.

177. Fitzpatrick, *supra* note 80, at 147.

178. *See* Lumpe, *supra* note 105, at 212.

179. A monitoring agency, the International Atomic Energy Agency, already exists for monitoring nuclear weapons-related transfers. *See* McCall, *supra* note 101, at 428 ("any 'internationalization' of the MTCR should be accompanied by an evaluation as to whether its purposes could be better served under the aegis of the United Nations or a U.N.-affiliated agency like the IAEA").

180. *See* U.N. Report, *supra* note 156, at 10-12; McCall, *supra* note 101, at 428 (favoring the creation of an international space and missile technology end-use monitoring agency). *But see* National Defense Authorization Act for Fiscal Year 1994, Pub. L. No. 103-160 § 1614, *supra* note 115 (end-use monitoring is deemed too late to prevent risks to international security).

181. *See supra* notes 115-120 and accompanying text.

182. White House, Office of the Press Secretary, *Fact Sheet: Nonproliferation and Export Control Policy*, Press Release, Sept. 27, 1993 at 3. The policy remains discriminatory with respect to national space launch programs: "For MTCR member countries, we will not encourage new space launch vehicle programs, which raise questions on both nonproliferation and economic viability grounds. The United States will, however, consider exports of MTCR-controlled items to MTCR member countries for peaceful space launch programs on a case-by-case basis." *Id.*

183. *Computergram Int'l*, November 8, 1994 ("COCOM . . . was dissolved on March 31.").

184. *U.S., Allies Agree to Dismantle Cocom by April 1, 1994, and Set Up New Regime*, 10 INT'L TRADE REP. 1960, Nov. 24, 1993.

185. Operating details of the new regime [were] to be finalized in January 1994. U.S. officials have indicated that the new regime will permit "national discretion," so that exports may be approved by individual countries without prior approval by the entire membership. *Id.*

186. *U.S., Allies Agree to dismantle Cocom by April 1, 1994, and Set Up New Regime*, *supra* note 186.

187. Hungary joined the MTCR on November 25, 1993, becoming the twenty-fourth member state and the first from Eastern Europe. *Hungary East Europe's First to Join Missile Control Regime*, MTI ECONNEWS, Nov. 26, 1993.

188. Russia agreed to adhere to the MTCR in 1993. At the time of writing, the United States is attempting to secure China's adherence. *Christopher Warns North Korea of Sanctions over Nuclear Sites*, [Minneapolis] STAR TRIB., Nov. 18, 1993 at 2A.

189. *See Christopher warns North Korea of sanctions over nuclear sites*, *supra* note 173, at 2A (on North Korea's refusal to cooperate with the International Atomic Energy Agency).

190 MTCR Guidelines, *supra* note 79 at 600.

191. *See* Speier, *supra* note 93, at 117 (quoting John Glenn).