

Legal Issues Relating to the Global Public Interest in Outer Space*

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Introduction

The beginning of the space age was seen by many as the inauguration of a new era with great potential for the betterment of mankind, as well as an opening for a vast new area for future military uses and conflict. The global public interest in outer space was recognized by the international community with the conclusion of the 1967 Outer Space Treaty,¹ which had been negotiated through the United Nations' Committee on the Peaceful Uses of Outer Space (COPUOS). The Treaty has been ratified or signed by 125 States. It is widely considered to be the constitution of outer space and the foundation of the international legal regime governing all outer space activities. Some of the Outer Space Treaty's provisions have been further elaborated in four separate agreements.² In addition to a few other important law-making treaties,³ these collectively form the current international regime governing outer space and space activities.

The legal principles of current international space law, especially the Outer Space Treaty, recognize the inclusive interest of the international community — that is, the global public interest — in outer space by assuring all States the right of free access to outer space without

¹ *Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and other Celestial Bodies* (hereinafter referred to as the Outer Space Treaty); opened for signature on 27 January 1967, entered into force on 10 October 1967; 98 ratifications and 27 signatures (as of 1 January 2005), 18 UST 2410, TIAS 6347, 610 UNTS 205.

² *The Agreement on the Rescue of Astronauts, the Return of Astronauts and the Return of Objects Launched into Outer Space* (the "Rescue Agreement," adopted by the General Assembly in its resolution 2345 (XXII)), opened for signature on 22 April 1968, entered into force on 3 December 1968; 88 ratifications, 25 signatures, and 1 acceptance of rights and obligations (as of 1 January 2005), 19 UST 7570, TIAS 6599, 672 UNTS 119. *The Convention on International Liability for Damage Caused by Space Objects* (the "Liability Convention," adopted by the General Assembly in its resolution 2777 (XXVI)), opened for signature on 29 March 1972, entered into force on 1 September 1972; 82 ratifications, 25 signatures, and 2 acceptances of rights and obligations (as of 1 January 2005), 24 UST 2389, TIAS 7762, 961 UNTS 187. *The Convention on Registration of Objects Launched into Outer Space* (the "Registration Convention," adopted by the General Assembly in its resolution 3235 (XXIX)), opened for signature on 14 January 1975, entered into force on 15 September 1976; 45 ratifications, 4 signatures, and 2 acceptances of rights and obligations (as of 1 January 2005), 28 UST 695, TIAS 8480, 1023 UNTS 15. *The Agreement Governing the Activities of States on the Moon and Other Celestial Bodies* (the "Moon Agreement," adopted by the General Assembly in its resolution 34/68), opened for signature on 18 December 1979, entered into force on 11 July 1984; 11 ratifications and 5 signatures (as of 1 January 2005), 18 ILM 1434, 1363 UNTS 3.

³ including, among others: the *Charter of the United Nations*, 26 June 1945 (191 ratifications as of 1 June 2004); *Constitution and Convention of the International Telecommunication Union with Annex*, 1994 (as amended in Marrakesh in 2004) and *ITU Radio Regulations*, Edition of 2004 (189 ratifications, as of 1 June 2004); *Treaty Banning Nuclear Weapon Tests in the Atmosphere, in Outer Space and Under Water*, 5 August 1963 (125 ratifications and 10 signatures, as of 1 February 2004), 14 UST 1313, TIAS 5433, 480 UNTS 43; *The Convention Relating to the Distribution of Programme-Carrying Signals Transmitted by Satellite*, opened for signature on 21 May 1974 in Brussels; entered into force on 25 August 1979; (26 ratifications and 10 signatures 10 as of 1 January 2004), 1144 UNTS 3; and the *International Convention Concerning the Use of Broadcasting in the Cause of Peace*, 23 September 1936.

discrimination of any kind. This paper analyses the current international legal regime regulating space activities and the contemporary challenges to the most fundamental principles of space law. It begins by examining the scope and nature of global public interest as primarily established under the Outer Space Treaty and as it applies to the exploration and use of outer space.

Desiring to contribute to international cooperation in the scientific and the legal aspects of the exploration and use of outer space, those who drafted the Outer Space Treaty intentionally kept its scope broad enough to govern all future space activities. Therefore, the Treaty not only contains fundamental legal principles but also the guiding philosophy for the governance of outer space. Because of the lack of progress in the further development of international space law, this paper considers what should be done at the international level to strengthen the legal norms relating to future space activities, i.e., what specific steps the international community might take in the legal arena to move from *lex lata* (what the law is) to *de lex ferenda* (what the law should be).

The advent of the space age opened great prospects for the economic and social well-being of all human beings. The international law-making process has produced basic legal principles that represent a fair balance of interests between developed and developing countries. However, growing pressure by a number of countries for increased privatization, commercialization, deregulation, and globalization, along with recent changes in the global geopolitical situation, are creating disturbing disagreements about the interpretation of the Treaty, its implementation, and the direction of future legal development. The advancement of exclusive national interests could not only mar progress toward global betterment but also threaten human civilization in ways that might lead to its destruction. This paper discusses unilateral space policies, various areas of space use (such as launch services, telecommunications, remote sensing, navigation services, and military uses), and the latest policies for the exploration and use of outer space, to examine whether they are in accord with the letter and spirit of the current international legal regime. It finds that the several unilateral policies and activities that are purportedly justified under (unfettered) freedom of use, without due regard for the interests of other States, are contrary to the global public interest in outer space.

Finally, this paper identifies areas where existing agreements are inadequate to cover the subject matter they are meant to address and where important areas of space activity are not covered by the current legal regime. Several suggestions are made regarding future regulatory initiatives that the international community ought to undertake to ensure that outer space remains available for the genuinely peaceful purposes, for the betterment of all human beings, for the maintenance of international peace and security, and thus for the global public interest in outer space.

Understanding the global public interest in outer space

Before one tries to describe, or analyze the challenges to, the global public interest within the current international space regime, it is important that the following points be kept in mind:

(i) The current international space regime is based on broad legal principles that must be understood, by taking into account that the object and purpose of the Outer Space Treaty are to enhance and protect the common interest of all mankind in the exploration and use of outer space for peaceful purposes.

(ii) The international space regime contains innovative legal principles, which must be understood and applied as originally conceived rather than from the perspectives of traditional legal rules adopted before the start of the space age or contemporary nationalistic policies and initiatives.

(iii) The Outer Space Treaty is not a collection of idealistic goals without legal implications. The intention of the authors of the Treaty was clearly to create binding obligations. These principles must be interpreted as legally authoritative norms that govern international relations in all matters relating to outer space.

(iv) The Outer Space Treaty presents a new world order in the exploration and use of outer space, the full respect of which is indispensable to the maintenance of international peace and security, which is the ultimate purpose of international law and order.

(v) The principles of the current international space regime, particularly the provisions of the Outer Space Treaty, must be interpreted and understood according to the well established

international rules of treaty interpretation.⁴ Interpretation based primarily on nationalistic perspectives is not legally valid. “No one party to a treaty can impose its particular interpretation of the treaty upon the other parties.”⁵ An authentic interpretation of a treaty is the one that has either been agreed upon by all parties to the treaty or determined by an appropriate judicial body.

International courts and tribunals are often called upon to rule on disputes over interpretation of specific treaties. At least three out of four cases before the International Court of Justice involve treaty interpretations. According to the International Court of Justice, “The interpretation of the terms of a Treaty ... [can]not be considered as a question essentially within the domestic jurisdiction of a State, it is a question of international law which, by its very nature, lies within the competence of the Court.”⁶ In this task, the Court normally applies Article 31 of the Vienna Convention, which is considered to be the most authoritative and important rule of international law with regard to the interpretation of treaties. The Article specifies that, “A treaty shall be interpreted in good faith in accordance with the ordinary meaning to be given to the terms of the treaty in their context and in the light of its object and purpose.”⁷

The good faith (*bona fide*) principle is very important not only in the interpretation of a treaty but also in its application. The cardinal principle of treaty law, which is that a State Party

⁴ For this purpose, the most important and pertinent tool is the *Vienna Convention on the Law of Treaties*, adopted on 22 May 1969, opened for signature on 23 May 1969, and entered into force on 27 January 1980 (hereinafter referred to as Vienna Convention on the Law of Treaties), 1155 UNTS 331; also available at <http://www.un.org/law/ilc/texts/treaties.htm#abstract> (accessed 20 June 2004). The Convention, which is believed to have codified the existing customary international law of treaties, provides rules for interpretation of international treaties. These rules, from Article 31: General Rule of Interpretation, are: “1. A treaty shall be interpreted in good faith in accordance with the ordinary meaning to be given to the terms of the treaty in their context and in the light of its object and purpose. 2. The context for the purpose of the interpretation of a treaty shall comprise, in addition to the text, including its preamble and annexes: (a) any agreement relating to the treaty which was made between all the parties in connexion with the conclusion of the treaty; (b) any instrument which was made by one or more parties in connexion with the conclusion of the treaty and accepted by the other parties as an instrument related to the treaty. 3. There shall be taken into account, together with the context: (a) any subsequent agreement between the parties regarding the interpretation of the treaty or the application of its provisions; (b) any subsequent practice in the application of the treaty which establishes the agreement of the parties regarding its interpretation; (c) any relevant rules of international law applicable in the relations between the parties. 4. A special meaning shall be given to a term if it is established that the parties so intended.” From Article 32: Supplementary Means of Interpretation: “Recourse may be had to supplementary means of interpretation, including the preparatory work of the treaty and the circumstances of its conclusion, in order to confirm the meaning resulting from the application of Article 31, or to determine the meaning when the interpretation according to Article 31: (a) leaves the meaning ambiguous or obscure; or (b) leads to a result which is manifestly absurd or unreasonable.”

⁵ Wikipedia, s.v. “Treaty,” at <http://en.wikipedia.org/wiki/Treaty#Interpretation> (accessed 23 July 2005).

⁶ International Court of Justice, *Interpretation of Peace Treaties with Bulgaria, Hungary and Romania (First Phase)*, Advisory Opinion of 30 March 1950, available at <http://www.lawschool.cornell.edu/library/cijwww/icjwww/idecisions/isummaries/ibhrsummary500330.htm> (accessed 23 July 2005).

⁷ *The Vienna Convention on the Law of Treaties*, Article 31 (1).

to a treaty “must perform its obligation in good faith” (*pacta sunt servanda*),⁸ is in fact the foundation of relations amongst civilized nations that are expected to respect the rule of law and not to follow the rule of national force.

If a State Party to a treaty does not fulfill its obligations in good faith and acts contrary to (i.e., causes a material breach of) its provisions, the other State Party becomes entitled to “invoke the breach as a ground for suspending the operation of the treaty in whole or in part with respect to itself.”⁹ Such an action or breach may consist of “the violation of a provision essential to the accomplishment of the object or purpose of the treaty.”¹⁰

In addition to Article 31(1) of the Vienna Convention, one also finds in the Articles 18, 19, 20 (2), 41 (1)(b)(ii) and 58 (1)(b)(ii), the importance of the determination of “object and purpose of a treaty.” In 2001, the International Court of Justice, in the LaGrand case, decided to examine the object and purpose of the international treaty together with the context of its provision at issue.¹¹ The context is determined from the text of the treaty itself, the preamble and the annexes, and so on. Moreover, in its *Advisory Opinion on the Legal Consequences for States of the Continued Presence of South Africa in Namibia*, the Court emphasized that “an international instrument has to be interpreted and applied within the framework of the entire legal system prevailing at the time of the interpretation.”¹² Article 32 of the Vienna Convention provides for the use of supplementary means of interpretation, which include the preparatory work of the treaty (i.e., ‘travaux préparatoires’) and the circumstances of conclusion of the treaty at issue. Therefore, the preamble of a treaty though may be considered to have less legal force than the operative part of the treaty but is extremely important and relevant in the determination of the proper and precise meaning of the provisions, especially of those treaties which establish general legal principles, such as the Outer Space Treaty.

Therefore, the object, purpose, context, history of negotiation and ratification, and circumstances during the conclusion of the Outer Space Treaty make the meaning of the broadly

⁸ *The Vienna Convention on the Law of Treaties*, Article 26.

⁹ *The Vienna Convention on the Law of Treaties*, Article 60(2)(c).

¹⁰ *The Vienna Convention on the Law of Treaties*, Article 60(3).

¹¹ International Court of Justice, *Germany v. United States of America (LaGrand Case)*, Judgment of 27 June 2001, General List No. 104, available at <http://www.icj-cij.org/icjwww/idocket/igus/igusframe.htm> (accessed 23 July 2005). Also see, *infra* note 169 and the accompanying text.

¹² International Court of Justice, *Advisory Opinion on the Legal Consequences for States of the Continued Presence of South Africa in Namibia*, available at <http://www.icj-cij.org> (accessed 7 September 2005).

worded principles precisely clearer and establish what one may call the ‘spirit’ or driving force of the Treaty. An action contrary to this spirit would result in the repudiation of this constitution of outer space. It is not only the narrowly defined letter but the broadly worded obligatory principles that must be respected; otherwise the whole space legal regime may collapse.

This paper makes extensive use of the negotiation and ratification history in order to demonstrate the reasons behind the specific language of the Treaty and the precise meaning of its particular provisions so that they should be appropriately interpreted and understood.

1. Nature and Scope of the Global Public Interest in Outer Space

The principle of global public interest in outer space, as recognized under the current international space regime, has the following components that determine its nature and scope.

1.1. Space activities, for the benefit and in the interests of all countries

The Outer Space Treaty, in its Article I, Paragraph 1, declares that, “The exploration and use of outer space, including the Moon and other celestial bodies, shall be carried out for the benefit and in the interests of all countries, irrespective of their degree of economic or scientific development.” Through the strong and well articulated proposal of Brazil, this ‘common interest’ principle was included in the operative part of the Treaty rather than only in its Preamble. The Brazilian proposal ensured the recognition of outer space and the celestial bodies as a ‘global commons,’ a ‘public good,’ and placed inclusive interests of the international community over possible exclusive claims by individual States. The most important implication of this provision is that it initiated the principle of global public interest in outer space, thereby establishing that the interests, both present and future, of all States must be taken into consideration in the exploration and use of outer space.

Acceptance of the above-mentioned Brazilian proposal by all member States of the COPUOS, particularly the United States and the Soviet Union, was a prerequisite for compromise on other parts of the draft Outer Space Treaty and its final adoption by the UN General Assembly. After the completion of the draft treaty in the COPUOS, the U.S. delegate stressed that the “spirit of compromise shown by the space Powers and the other Powers had

produced a treaty which established a *fair balance* between the interests and obligations of all concerned, including the countries which had as yet undertaken no space activities.”¹³ Similarly, the Soviet delegate stated that Article I, Paragraph 1, was not “a mere statement of the rights of States” but was designed “to guarantee that the interests, not only of individual States, but of all countries and of the international community as a whole, would be protected.”¹⁴ In this context, it is important to keep in mind that though normally a State Party to a Treaty is obliged to respect the corresponding rights of other States Parties to that Treaty, the International Court of Justice has recently accorded recognition to the obligations under certain Treaties that are of fundamental and broad nature — and the Outer Space Treaty is certainly one of them — that are incumbent upon States towards the international community as a whole (‘obligations *erga omnes*’).¹⁵

The ‘common interest’ in outer space is reinforced by other principles of international space law, including the ‘freedom of outer space’ and ‘non-appropriation of outer space.’¹⁶

1.2. Freedom of exploration and use of outer space

Article I, Paragraph 2, of the Outer Space Treaty¹⁷ laid down the fundamental legal principle of freedom of exploration and use of outer space by all States. It also categorically and unambiguously denied any and all claims to national sovereignty, especially traditional territorial

¹³ Official Records of the General Assembly, Twenty-First Session, First Committee, Summary Records of Meetings, 20 September–17 December 1966, U.N., New York, pp. 427-428. Emphasis added.

¹⁴ U.N. Document A/AC.105/C.2/SR.57, 20 October 1966, p. 12.

¹⁵ International Court of Justice, *Case Concerning the Barcelona Traction, Light and Power Company, Limited* (Second Phase), Judgment of 5 February 1970, 1970 ICJ Reports 3. For detailed analysis, see “The Appearance of the Concept of Obligations Erga Omnes on the Agenda: The Dictum of the International Court in the Barcelona Traction Case” in Ragazzi, Maurizio, *The Concept of International Obligations Erga Omnes*, available at www.oup.co.uk/pdf/0-19-829870-6.pdf (accessed 23 July 2005); Crawford, James, *Responsibility to the International Community as a Whole*, available at [http://icil.law.cam.ac.uk/Snyderlect00\(f\).doc](http://icil.law.cam.ac.uk/Snyderlect00(f).doc) (accessed 23 July 2005).

¹⁶ According to Carl Christol, “the prohibition against national appropriation must be read in connection with the provision of Article I, Paragraph 1, of the Principles [1967 Outer Space] Treaty where it is ordained that equal and non-discriminatory exploration and use shall prevail. These provisions must also be related to the major provisions of Article I, par. 2, namely, that such exploration and use are to be carried out for the benefit and in the interests of countries and all mankind. ... Exclusive rights may not exist even though the practical capabilities of some explorers, users, and exploiters may be greater than others”: Christol, Carl, *The Modern International Law of Outer Space*, 1982, pp. 47-48.

¹⁷ “Outer space, including the Moon and other celestial bodies, shall be free for exploration and use by all States without discrimination of any kind, on a basis of equality and in accordance with international law, and there shall be free access to all areas of celestial bodies.”

sovereignty, to outer space and celestial bodies. However, freedom to explore and use outer space is not absolute and thus can be exercised only within the limitations prescribed by law.¹⁸ While Article I, Paragraph 2, of the Outer Space Treaty grants freedom of action, it also specifies that this freedom must be exercised “without discrimination of any kind,” “on a basis of equality,” and “in accordance with international law.”

The phrase “without discrimination of any kind,” read in conjunction with the Preamble and provisions of Article I, Paragraph 1, of the 1967 Outer Space Treaty, implies that the delayed use by some States is not a reason for their freedom to be jeopardized by the first comers. This Article was designed to ensure the freedom of exploration and use of outer space by all States as well as to restrict unfettered freedom of States in such exploration and use. The phrase “on the basis of equality” refers to *de jure* equality or “sovereign equality” as recognized in Article 2(1) of the Charter of the United Nations,¹⁹ and thus affirms the equal rights of all States to explore and use outer space.²⁰ The phrase “in accordance with international law,” should be understood to imply the application of principles and rules of general international law that are consistent with the provisions of the Outer Space Treaty. In this regard, Manfred Lachs asserts that “Some rules [of international law, including the Charter of the United Nations] cannot be applied to outer space *ex definitione*. Some others are of the nature of *lex specialis* for specific environments.”²¹ In cases of inconsistency between principles and rules of space law and those of general international law, the former prevail, given the applicability of the principle of *lex specialis derogat generali*.

¹⁸ Jenks, C.W. and Larson, A., (ed.), *Sovereignty Within the Law*, 1965, p. 433: the “sovereignty of the State consists of its competence as defined and limited by international law and is not a discretionary power which overrides the law.” Similarly, Sir Gerald Fitzmaurice said that “States are sovereign; but this does not imply for them an unlimited freedom of action,” in “The General Principles of International Law Considered from the Standpoint of the Rule of Law,” 92, *Recueil des cours*, 1957, at p. 49.

¹⁹ Dickinson, E. D., *The Equality of States in International Law*, 1920, at p. 3: “International persons (States) are equal before the law when they are equally protected in the enjoyment of their rights and equally compelled to fulfill their obligations.”

²⁰ In fact it was perceived and realized even at the time of negotiating the 1967 Outer Space Treaty that the application of territorial sovereignty in non-sovereignty areas like outer space would not be without some difficulties. During the discussions concerning the draft Treaty, the French delegate expressed his Government’s views that, “there would no doubt be some difficulty in implementing the Treaty, whose provisions clearly constituted an innovation from the standpoint of traditional international law based on the sovereignty of States”: See Official Record of the General Assembly, Twenty-First Session, First Committee, Summary Records of Meetings, 20 September–17 December 1966, UN, New York, p. 429.

²¹ Lachs, Manfred, *The Law of Outer Space: An Experience in Contemporary Law-Making*, 1972, p.15.

Freedom in outer space is not unrestricted and must be exercised subject to the predominant ‘common interest’ principle. In space law, the ‘general presumption in favor of freedom of action’ is not applicable. In 1927, the Permanent Court of International Justice in the *Lotus* case²² declared that ‘restrictions upon the independence of States cannot be presumed.’ Therefore, some analysts have argued that ‘whatever is not prohibited is allowed’ is a rule of international law that applies to the exploration and use of outer space. However, for the following reasons it is difficult to agree with such an assertion:

First, the *Lotus* case was decided with the President’s deciding vote, since the Court was divided equally. In fact, the Court’s opinion on the presumption in favor of sovereignty or freedom of action was not necessary (i.e., it was only an *obiter dictum*) for the resolution of the real controversy involved in this case. Both opinions, the *obiter* element as well as the reasoning of real issue, were extensively criticized in later years. For example, according to Brownlie, the Permanent Court’s “emphasis on State discretion is contradicted by the views of the International Court in the *Fisheries* and *Nottebohm* cases, which concerned the comparable competences of States, respectively, to delimit the territorial sea and to confer nationality on individuals.”²³ The judgment of the Permanent Court in the *Lotus* case was rejected by subsequent international conventions.²⁴

Second, international law, like any other law, is not static but dynamic and has evolved from the ‘law of co-existence’ to the ‘law of cooperation.’ The world has become an international community and ‘humankind as an international entity’ is increasingly gaining recognition.²⁵ The Covenants of the League of Nations and the Charter of the United Nations

²² Permanent Court of International Justice, *The Case of the S.S. “Lotus,”* Judgment No. 9, September 7th, 1927, available at http://www.worldcourts.com/pcij/eng/decisions/1927.09.07_lotus/ (accessed 02 June 2004).

²³ Brownlie, I., *Principles of Public International Law*, 2003, p.301.

²⁴ For example, (a) the International Convention for the Unification of Certain Rules relating to Penal Jurisdiction in Matters of Collision and other Incidents of Navigation signed on May 10, 1952 (available at http://www.legislation.gov.hk/doc/multi_909.pdf), (b) Article 11 of the 1958 Convention on the High Seas (available at <http://www.un.org/law/ilc/texts/hseas.htm>), and (c) Article 27 of the 1982 Convention on the Law of the Sea (available at http://www.un.org/Depts/los/convention_agreements/convention_overview_convention.htm), contain provisions with respect to the exclusive criminal jurisdiction over a ship of the flag State, a rule contrary to that enunciated in the *Lotus* case.

²⁵ International Court of Justice, *Case Concerning the Barcelona Traction, Light and Power Company, Limited (Second Phase)*, Judgment of 5 February 1970, 1970 ICJ Reports 3. Also see, Statute of the International Tribunal for Rwanda, adopted by Security Council, Res. 955, U.N. SCOR, 49th Sess., 3453d mtg. at 3, U.N. Doc. S/RES/955 (1994), 33 I.L.M. 1598, 1600 (1994); International Criminal Court, *Elements of Crimes*, U.N. Doc. PCNICC/2000/1/Add.2 (2000); Statute of the International Tribunal for the Prosecution of Persons Responsible for Serious Violations of International Humanitarian Law Committed in the Territory of the Former Yugoslavia since

have played an effective part in the development of current international law, which is based primarily on interdependence and international cooperation rather than merely on strict observation of State sovereignty and independence. “The traditional system of international law,” observes Friedmann, “regulates the rules of co-existence between sovereign States. It is essentially a collection of ‘don’ts (prohibitions). On the other hand, the developing ‘co-operative’ law of nations ... bind[s] the nations, not in the traditional rules of abstention and respect, but in positive principles of cooperation for common interests.”²⁶ Interdependence, not sovereignty, thus seems to be the determinant factor in contemporary international law. A number of space law experts and publicists deny the application of the Lotus case to outer space. For example, Lachs holds that “[t]he old principle that everything not prohibited is permitted is not valid today. The freedom of action is determined by the possibility of infringing upon the rights of others. Hence the limitation of rights and the need for cooperation and consultation in all cases where a State may by its activity affect the rights of others. This is of particular importance in regard to outer space.”²⁷ Similarly, Vlasic opined that the “[m]ajor space powers have demonstrably been acting on the premise that whatever is not prohibited *verbis expressis* by the Treaty is permissible, and therefore lawful. While the document as a whole does not permit such an interpretation, the muddled text of article IV can be used, and has been used, to undermine the legally and politically sounder interpretation.”²⁸ As early as 1962, Christol wrote that “[t]he Lotus Case does not constitute a precedent in favor of unrestricted national uses and activities in outer space.”²⁹ It is the Outer Space Treaty that has put an end to the influence of Lotus by (i) stressing the common interest of mankind in the exploration and use of outer space, and (ii) requiring under its Article III that such activities must be conducted “in the interest of maintaining international peace and security and promoting international cooperation and understanding.”

1991, U.N. Doc. S/25704 at 36, annex (1993) and S/25704/Add.1 (1993), adopted by Security Council on 25 May 1993, U.N. Doc. S/RES/827 (1993); etc.

²⁶ Friedmann, W., “National Sovereignty, International Cooperation and the Reality of International Law,” 10, *UCLA Law Review*, 1963, p. 739, at p. 744.

²⁷ Cf. Vereshchetin, V.S., “Against Arbitrary Interpretation of Some Important Provisions of International Space Law,” *Colloquium on the Law of Outer Space*, 1982, p. 153.

²⁸ Vlasic, I. A., “Disarmament Decade, Outer Space and International Law,” 26(2) *McGill Law Journal*, 1981, p. 135, at p. 171 (a footnote in the original has been omitted).

²⁹ Christol, Carl, *The International Law of Outer Space*, 1962, p. 267.

The freedom of use of outer space does not include its ‘misuse’ or ‘abuse.’³⁰ Under international law, the concept of ‘abuse of rights’ provides that States are responsible for their acts “which are not unlawful in the sense of being prohibited”³¹ but cause injury to other States. According to Lauterpacht, “there is no legal right, however well established, which could not, in some circumstances, be refused recognition on the ground that it has been abused.”³² In the exploration and use of outer space, the activities of certain economically and technologically advanced States are already being viewed as an abuse of their rights. For example, the Chilean delegate to the COPUOS Legal Subcommittee stated that the “exploration and use of outer space were lawful only if they sought to satisfy the needs of mankind as a whole, and in particular those of the poorest nations. Otherwise, they would constitute an abuse of rights.”³³

1.3. Prohibition of national appropriation

The ‘common interest’ principle has been elaborated and strengthened by the provisions of Article II of the Outer Space Treaty, which specify that “Outer Space, including the Moon and other celestial bodies, is not subject to national appropriation by claim of sovereignty, by means of use or occupation, or by any other means.” Appropriation in the context of outer space implies the exercise of exclusive control or use and denial of use by others. In essence, this Article implies that outer space could not be appropriated to serve exclusive interests of any State. In this regard, Goedhuis asserted that even before the adoption of the Outer Space Treaty, it “was realized that by denying the legality of such [sovereignty] claims the interests of the world community as a whole would be best served.”³⁴

However, a small minority of authors argue that Article II of the Outer Space Treaty prohibits only ‘national appropriation’ and thus an individual or a private company could

³⁰ International Court of Justice, *Anglo-Norwegian Fisheries, United Kingdom vs. Norway*, (1951), International Court of Justice, Reports of Judgments and Advisory Opinions, pp. 116 *et seq.*; also see Brownlie, I., *Principles of Public International Law*, 2003, p. 429.

³¹ Brownlie, *ibid.*

³² Cited in Brownlie, *ibid.*, p. 430.

³³ UN Doc. A/AC.105/C.2/SR.362 (1982), p.2.

³⁴ Goedhuis, D., “Some Recent Trends in the Interpretation and the Implementation of the Rules of International Space Law,” 19 *Columbia Journal of Transnational Law*, 1981, p. 212, at p. 214.

lawfully appropriate any part of outer space.³⁵ However, the views of the minority are not legally tenable. ‘National appropriation’ must be understood in a broader sense to include all forms of appropriation, whether governmental, public, private, or otherwise. The Treaty imposes international responsibility on States for national activities in space regardless of whether such activities are carried out by governmental agencies or non-governmental entities.³⁶ The negotiating history of the Outer Space Treaty clearly shows that the intention of its drafters had been to fully ban appropriation in any manner or form.³⁷ First, the Soviet Union while negotiating the Treaty accepted the involvement of private entities in the exploration and use of outer space, provided that these entities would participate only after having been authorized by the concerned States that would continuously supervise their activities.³⁸ Without such an assurance, an agreement on this issue would have not been possible. Second, the States Parties to the Treaty are under clear obligation to ensure that space activities of the private entities are in conformity with the provisions of the Treaty.³⁹ Third, allowing private entities to appropriate outer space, or a part of it, would defeat the very purpose of Article II, which contains comprehensive provisions prohibiting appropriation. Moreover, any act of a public or private

³⁵ Gorove, S., “Interpreting Article II of the Outer Space Treaty,” 37, *Fordham Law Review*, 1969, p. 349 at p. 351; Wassenbergh, H., “Responsibility and Liability for Non-Governmental Activities in Outer Space,” in *ECSL Summer Course on Space Law and Policy: Basic Materials*, 1994, pp. 197 *et seq.*

³⁶ The 1967 Outer Space Treaty, Article VI.

³⁷ “A study of the preparatory work of the [1967 Outer Space] Treaty clearly shows that the draftsmen of the principle of non-appropriation never intended this principle to be circumvented by allowing private entities to appropriate areas of the Moon and other celestial bodies”: Goedhuis, D., “Legal Aspects of the Utilization of Outer Space,” 17 *Netherlands International Law Review*, 1970, p. 25, at p. 36.

³⁸ For details see, Matte, N.M., *Aerospace Law*, 1969, at p. 309.

³⁹ It has aptly been asserted that under Article VI of the Outer Space Treaty, “a nation which becomes a party to the treaty agrees to be responsible for space activities carried on by one of its governmental agencies as well as by any non-governmental entity. For the United States, this means that the government would accept responsibility for the activities of NASA as well as those of the Communications Satellite Corporation (COMSAT), etc. Furthermore, the government would see that such activities conform to the treaty’s provisions and also authorize and continuously supervise the space activities of non-governmental entities. The relationship between the U.S. Government and COMSAT is already defined in the U.S. Communications Satellite Act of 1962 (Public Law 87-624 (76 Stat. 419)) and in the President’s Executive Order of 4 January 4 1965 on carrying out provisions of the COMSAT Act of 1962 concerning government supervision, including international aspects and the role of the Secretary of State. ... This article is designed to ensure responsibility for space activities, inherently international in nature, at the governmental level.” *Staff Report on the Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and other Celestial Bodies: Analysis and Background Data*, 1967, pp. 27-28. The Report was prepared to provide information on the legislative evaluation of the provisions of the Outer Space Treaty for the Committee on Aeronautical and Space Sciences of the U.S. Senate and to be used by the Senate during its consideration of the Treaty for the purpose of advising the U.S. President on whether to ratify the Treaty. See also Dembling, Paul G., “Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and other Celestial Bodies” in Jasentuliyana, N. and Lee, R. (eds.), *Manual on Space Law*, Vol. 1, 1979, p.1, at p. 17.

entity which is contrary to Article II will also defeat the purpose of Article I, Paragraph 2, which lays down a fundamental principle of space law, the freedom of outer space.

From the beginning of the space age, the U.S. Government has maintained that outer space must remain free from appropriation by any means. When President Lyndon B. Johnson submitted the Outer Space Treaty to the U.S. Senate for its advice and consent to ratification, he recalled that:

In November 1958, President Dwight D. Eisenhower asked me to appear before the United Nations to present the U.S. resolution [on outer space] On that occasion, speaking for the United States, I said: “Today, outer space is free. It is unscarred by conflict. No nation holds a concession there. It must remain this way. We of the United States do not acknowledge that there are landlords of outer space who can presume to bargain with the nations of the Earth on the price of access to this domain....” I believe *those words remain valid today*.⁴⁰

Other States also held similar views. For example, during the negotiations of the Outer Space Treaty in the Legal Subcommittee of the COPUOS, on 4 August 1966, the representative of Belgium noted that the term “‘non-appropriation,’ advanced by several delegations — apparently without contradiction by others — covered both the claims of sovereignty and “the creation of titles to property in private law.”⁴¹ This view was shared by the French representative, who, speaking to the First Committee of the UN General Assembly on 17 December 1967, stressed that the basic principle of the Outer Space Treaty was that there was a “prohibition of any claim to sovereignty or property rights in space.”⁴² Various legal commentators, when interpreting Article II of the Outer Space Treaty, invariably reiterated similar views. For example, Manfred Lachs, who was the Chairman of the Legal Subcommittee of the COPUOS at the time of negotiations and adoption of the Outer Space Treaty, examined the text of the Treaty and concluded that the prohibition of ‘national appropriation’ in Article II included both sovereign rights and private property rights. He further asserted, “‘Appropriation’

⁴⁰ *Treaty on Outer Space*, Hearings before the Committee on Foreign Relations, United States Senate, Ninetieth Congress, First Session on Executive D, 90th Congress, First Session, March 7, 13 and April 12, 1967, U.S. Government Printing Office, Washington, at pp. 105-106. Emphasis added.

⁴¹ Cited in Christol, Carl, “Article 2 of the 1967 Principles Treaty Revisited”, IX, *Annals of Air and Space Law*, 1984, p. 217, at p. 236. According to Dembling and Arons, “if an individual nation cannot claim sovereignty to any particular area of outer space or of any celestial body, it cannot deny access to that area”: cited in Christol, *ibid*.

⁴² Cited in Christol, *ibid*, at p. 218.

in the wider sense is involved. States are thus barred from establishing proprietary links in regard to the new dimension.”⁴³

1.4. Respect for the rights of other States

Under a rule of general international law, applicable to space activities as well, States must exercise their rights in such a way as not to infringe similar rights of other States.⁴⁴ In other words, the legitimate interests of other States must be taken into consideration when a State exercises its right of freedom of use of outer space.⁴⁵ This rule has been reiterated in Article IX of the Outer Space Treaty, which obliges all States to conduct their outer space activities “with due regard to the corresponding interests of all other States Parties to the Treaty.”⁴⁶ In Lachs’ opinion: “There can be no doubt that the freedom of action of States in outer space or on celestial bodies is neither unlimited nor absolute and unqualified, but is determined by the right and interest of other States. It can therefore be exercised only to the extent to which as indicated it does not conflict with those rights and interests.... There should therefore be no antinomy between the freedom of some and the interest of all.”⁴⁷ In this context, it may be noted that under the U.K. Outer Space Act, when issuing a launch license the Secretary of State may impose a condition obliging the licensee to conduct his operations in such a way as to “avoid interference with the activities of others in the peaceful exploration and use of outer space.”⁴⁸

A corollary to the rule of ‘respect for the rights of others’ is that the legitimate special interests of other States must also be taken into consideration when a State exercises its freedom of action. Just as in the Anglo-Norwegian Fisheries case, the International Court of Justice gave

⁴³ Cited in Christol, *ibid.*

⁴⁴ At its 1980 session, the International Law Commission has opined that “a universe of law postulated that the freedom of each of its subjects should be bounded by equal respect for the freedoms of other subjects; that States engaging in an activity which might cause injurious consequences internationally should take reasonable account of the interests and wishes of other States likely to be affected”: UN Doc. A/CN.4/334/Add.2, paras 52, 56 and 60 (cf. UN Doc. A/AC.105/C.2/SR.369, February 15, 1982, p. 4).

⁴⁵ See the decision of the International Court of Justice in *Anglo-Norwegian Fisheries, United Kingdom vs. Norway*, (1951), International Court of Justice, *Reports of Judgments and Advisory Opinions*, p. 116 et seq.; also see Brownlie, I., *Principles of Public International Law*, 2003, pp. 429-30.

⁴⁶ Article IX of the Outer Space Treaty, in part, also provides that, “If a State party to the Treaty has reason to believe that an activity or experiment planned by it or its nationals in outer space ... would cause potentially harmful interference with activities of other States parties in the peaceful exploration and use of outer space ... it shall undertake appropriate international consultations before proceeding with any such activity or experiment.”

⁴⁷ Lachs, Manfred, *The Law of Outer Space: An Experience in Contemporary Law-Making*, 1972, p. 117.

⁴⁸ The United Kingdom Outer Space Act 1986 (1986 c. 38), s. 5 (2) (b).

special effect to “certain economic interests peculiar to a region,”⁴⁹ so Article 1, Paragraph 1, of the Outer Space Treaty also seems to recognize the ‘special interests and needs’ of developing countries.

The above-discussed four legal principles incorporate the fundamental elements of the global public interest principle. It is generally accepted that these principles are not only legal norms of conventional international law but have also become a part of customary international law (and *jus cogens*) binding upon all States.⁵⁰ Moreover, the global public interest in outer space imposes international obligations *erga omnes* applicable to, and enforceable by, all States. The principles of global public interest also finds significant support in legal norms dealing with the following briefly explained aspects of the international space regime: (i) space activities as the province of all mankind; (ii) obligation to cooperate; (iii) astronauts as envoys of mankind; (iv) avoidance of harmful contamination; (v) space activities by States, private entities, and intergovernmental organizations (IGOs); (vi) absolute liability for damage caused by certain space objects; (vii) prohibition of weapons in space and militarization of the celestial bodies; (viii) duty of openness and transparency; and (ix) universal application of the international space regime.

⁴⁹ International Court of Justice, *Anglo-Norwegian Fisheries, (United Kingdom vs. Norway)*, Judgment of 18 XII 1951, p. 133.

⁵⁰ See Vlasic, I.A., “The Growth of Space Law 1957-65: Achievements and Issues,” *Yearbook of Air and Space Law*, 1965, p. 365, at pp. 379-380. See also Matte, N.M., *Aerospace Law: Telecommunications Satellites*, 1982, pp. 30-31, fns. 60 to 62; Csabafi, I.A., *The Concept of State Jurisdiction in International Space Law*, 1971, p. 47; Goedhuis, D., “Some Recent Trends in the Interpretation and the Implementation of the Rules of International Space Law,” 19 (2), *Columbia Journal of Transnational Law*, 1981, p. 212, at p. 215. When can a principle of a Treaty, through positive-law processes, be regarded as a rule of customary international law? The International Court of Justice in its Judgment in the *North Sea Continental Shelf* cases of 20 February 1969 (Paragraphs 60-82) addressed this issue. In the Court’s opinion, “In order for this process to occur it was necessary that [the concerned provision of an international Treaty] should, at all events potentially, be of a norm-creating character.” In addition, “a very widespread and representative participation in a convention might show that a conventional rule had become a general rule of international law As regards the time element, although the passage of only a short period of time was not necessarily a bar to the formation of a new rule of customary international law on the basis of what was originally a purely conventional rule, it was indispensable that State practice during that period, including that of States whose interests were specially affected, should have been both extensive and virtually uniform in the sense of the provision invoked and should have occurred in such a way as to show a general recognition that a rule of law was involved.”

1.5. Space activities as the province of all mankind

All space activities are international in nature because of the physical characteristic of outer space and because the sphere of operation of such activities is beyond the territorial jurisdiction of any State. The nations of the world have recognized, in Article I, Paragraph 1, of the Outer Space Treaty, that the “exploration and use of outer space ... shall be the province of all mankind,” i.e., each aspect of all space activities may be discussed by the international community. In this context, Jenks has also asserted that it “is difficult to imagine a reasonable claim that any activity in space is ‘essentially within the domestic jurisdiction’ of any State, within the meaning of Article 2, Paragraph 7, of the UN Charter.”⁵¹ It may, however, be noted that the concept of ‘province of all mankind’ is broader than, and different from, the legal principle of ‘common heritage of all mankind’ as included in the Moon Agreement (as discussed below under subsection 3.5 of this paper).

1.6. Obligation to cooperate

States are urged to cooperate with each other and to promote cooperation in the exploration and use of outer space, including the Moon and other celestial bodies. Specifically, States are obliged to:

- facilitate and encourage international cooperation in conducting scientific investigations;⁵²
- carry out space activities “in the interest of maintaining international peace and security and promoting international cooperation and understanding;”⁵³
- afford opportunities to observe the flight of space objects launched by them;⁵⁴ and
- inform the Secretary-General of the United Nations as well as the public of the nature, conduct, locations, and results of their space activities.⁵⁵

⁵¹ Jenks, C.W., *Space Law*, 1965, p.209.

⁵² The Outer Space Treaty, Article I, Paragraph 3.

⁵³ *Ibid.* Article III.

⁵⁴ *Ibid.* Article X.

1.7. Astronauts as envoys of mankind

Irrespective of their nationality, all astronauts are to be treated as “envoys of mankind in outer space,” hence States and their astronauts are obliged to render all possible assistance in the event of accident, distress, or emergency landing to the astronauts of other States.⁵⁶ This principle of the Outer Space Treaty has been elaborated further by the 1968 Rescue Agreement, which obliges States (most of which are non-space-faring nations) to provide all possible assistance to astronauts in the event of accident, distress or emergency landing and the duty to promptly and safely return astronauts.⁵⁷ In essence, the Rescue Agreement entails global responsibility to support space activities of space-faring nations, whose number still remains limited.

1.8. Avoidance of harmful contamination

To ensure that outer space activities remain beneficial to the late comers as well as to future generations, the current international space regime obliges the space-faring nations to “conduct exploration of outer space, including the Moon and other celestial bodies, in such a way so as to avoid their harmful contamination and also adverse changes in the environment of the Earth resulting from the introduction of extraterrestrial matter and, where necessary, [to] adopt appropriate measures for this purpose.”⁵⁸ Moreover, where a State has reason to believe that an activity or experiment planned by it or its nationals in outer space, including the Moon and other celestial bodies, would cause potentially harmful interference with activities of other States Parties in the peaceful exploration and use of outer space, including the Moon and other celestial bodies, it must undertake appropriate international consultations before proceeding with any such activity or experiment.⁵⁹ The Outer Space Treaty attempts to achieve globally

⁵⁵ *Ibid.* Article XI.

⁵⁶ *Ibid.* Article V.

⁵⁷ The Rescue Agreement, *op. cit. supra* note 2.

⁵⁸ The Outer Space Treaty, Article IX. In addition, it may be noted that with the desire “to put an end to the contamination of man’s environment by radioactive substances,” the 1963 *Treaty Banning Nuclear Weapon Tests in the Atmosphere, in Outer Space and Under Water*, *op. cit. supra* note 3, in its Article 1 prohibits the carrying out of any nuclear weapon test explosion in outer space.

⁵⁹ The Outer Space Treaty, Article IX.

sustainable exploration and use of outer space not only by the contemporary civilization but by future generations as well.

1.9. Space activities by States, private entities, and IGOs

Space activities may be carried out not only by States but also by private entities that are their creations and by intergovernmental organizations (IGOs). However, States Parties to the Outer Space Treaty are internationally responsible for ensuring that the space activities of their private entities would be in accordance with the provisions of the Treaty. For effective performance of this responsibility, an ‘appropriate’ State, which may be the State of registration of the spacecraft as determined under the Registration Convention,⁶⁰ is obligated to exercise “continuous supervision” of its private entities engaged in space activities. Similarly, under Article VI of the Outer Space Treaty, when space activities are carried out by an international organization, responsibility for compliance with the provisions of the international space regime is borne both by the international organization and by the States participating in that organization. State responsibility for the space activities of private enterprises is a new norm of international law, departing from the rules of general international law under which a State can be held responsible only if there is a ‘genuine link’ between that State and the activity concerned.⁶¹ In essence, Article VI has been designed to create a universally coherent global legal regime, the consistent implementation of which is the responsibility of all States Parties to the Outer Space Treaty, regardless of whether their space activities are carried out by public or private entities or by intergovernmental organizations.

⁶⁰ Article II of the Registration Convention, *op. cit. supra* note 2, obliges the launching State to “register the [launched] space object by means of an entry in an appropriate registry which it shall maintain.” And Article VIII of the Outer Space Treaty entitles the State “on whose registry an object launched into outer space is carried [to] retain jurisdiction and control over such object.”

⁶¹ See, United Nations, *Report of the International Law Commission*, Fifty-third session (23 April-1 June and 2 July-10 August 2001), General Assembly, Official Records, Fifty-sixth session, Supplement No. 10 (A/56/10), United Nations, New York, 2001, Chapter IV: State Responsibility.

1.10. Absolute liability for damage caused by certain space objects

Under Article VII of the Outer Space Treaty, each launching State⁶² is internationally liable for damage to another State or to its natural or juridical persons caused by a space object or its component parts. This principle has been expanded under the 1972 Liability Convention, according to which a “launching State shall be absolutely liable to pay compensation for damage caused by its space object on the surface of the Earth or to aircraft in flight.”⁶³ This provision, no doubt, could impose a heavy burden on the space-faring nations, which opposed its adoption during the negotiations both of the Outer Space Treaty and the Liability Convention. However, the non-space faring States insisted on absolute liability as they believed that they could possibly be the victims of unforeseen catastrophic accidents. In view of the imbalanced burden placed on the non-space faring States under the 1968 Rescue Agreement,⁶⁴ the space powers accepted, as a compromise, the principle of absolute liability. Similar to the principle of State responsibility (discussed above in subsection 1.9 of this paper), State liability for damage caused by the space objects of its private persons is a new principle of international law. It may be noted, however, that the burden of absolute liability has actually not yet been very heavy on the space-faring nations because there has been only one claim under this provision.⁶⁵ It is also interesting to note that the provisions of the 1968 Rescue Agreement have been respected in several incidents⁶⁶ and

⁶² According to Article VII of the Outer Space Treaty, a launching State is a State “that launches or procures the launching of an object into outer space, including the Moon and other celestial bodies, and each State Party from whose territory or facility an object is launched.”

⁶³ The Liability Convention, *op.cit. supra* note 2, Article II.

⁶⁴ *Op. cit. supra* note 2.

⁶⁵ See *infra* note 196 and the accompanying text.

⁶⁶ See generally, “Argentine authorities seeking US help in identifying piece of space junk,” Buenos Aires (AFP) Jan. 21, 2004, available at <http://www.spacedaily.com/2004/040121225802.g8r47dqk.html> (accessed 23 January 2004); “Colombia gazes nervously skyward, fearing shower from Italian satellite,” Bogota (AFP) Apr 26, 2003, available at <http://www.spacedaily.com/2003/030426162406.ntkbos42.html> (accessed 28 April 2003); “Italian satellite debris may hit Indonesia in April: space agency,” Jakarta (AFP) Mar 25, 2003, available at <http://www.spacedaily.com/2003/030325052011.2giab41i.html> (accessed 07 April 2003); “Note verbale (on the reentry predictions for the Italian satellite BeppoSAX satellite) dated 12 December 2002 from the Permanent Mission of Italy to the United Nations (Vienna) addressed to the Secretary-General,” UN Doc. A/AC.105/803/Add.1 (17 March 2003); Dykstra, Peter (CNN Sci-Tech), “Spacecraft debris likely to hit Earth in days: NASA” (re NASA’s High Energy Transient Experiment satellite), April 4, 2002, available at <http://www.cnn.com/2002/TECH/space/04/04/satellite.drop/index.html> (accessed 17 February 2003); “Note verbale (re titanium cover of a solid-fuel motor used on board an American GPS2 satellite) dated 8 March 2001 from the Permanent Mission of Saudi Arabia to the United Nations (Vienna) addressed to the Secretary-General, UN Doc. A/AC.105/762 (3 April 2001); etc.

the burden on non-space-faring States has been manageable as none of them suffered any serious human and financial losses.

1.11. Prohibition of weapons in space and militarization of celestial bodies

Believing that military activities would mar the peaceful uses of outer space and diminish potential benefits for all people, the States Parties to the Outer Space Treaty decided to prohibit (a) the placement “in orbit around the Earth any objects carrying nuclear weapons or any other kinds of weapons of mass destruction,” and (b) the militarization of celestial bodies, so that they could continue to be used by all States “exclusively for peaceful purposes.”⁶⁷ It must be kept in mind that Article IV is not the only provision that limits military activities in space. The unambiguous objective of the outer space regime, as initiated under the Outer Space Treaty, of keeping space for peaceful uses has also been reinforced in its Preamble and Article III.

1.12. Duty of openness and transparency

The current international space regime includes a norm of transparency. States are under duty to inform the UN Secretary-General as well as the public and the international scientific community, to the greatest extent feasible and practicable, of the nature, conduct, locations, and results of their space activities.⁶⁸ Moreover, subject to certain conditions, each State is obligated to keep open to representatives of other States all stations, installations, equipment, and space vehicles on the Moon and other celestial bodies.⁶⁹ This duty of openness, transparency, and accordance of visitation rights to other States, albeit weak, implies that States Parties to the Outer Space Treaty recognized the global public interest in outer space. Such provisions, at least partly, seem to have initiated the tacit acceptance of reconnaissance satellites, which was later developed more fully in several other agreements⁷⁰ and even became one of the bases for the

⁶⁷ The Outer Space Treaty, Article IV. For a detailed discussion of this issue, see below subsection 2.5 of this paper.

⁶⁸ The Outer Space Treaty, Article XI.

⁶⁹ The Outer Space Treaty, Article XII.

⁷⁰ Treaty Between the USA and the USSR on the Limitation of Anti-Ballistic Missile Systems, TIAS 7503, (Washington: US Department of State, 1973), signed on 26 May 1972; entered into force on 3 October 1972; Protocol to the Treaty between the USA and the USSR on the Limitation of Anti-Ballistic Missile Systems, 27 UST

recognition of freedom of collection and distribution of satellite remote data as recognized in the 1986 UN Principles on Remote Sensing (as discussed below in subsection 2.3 of this paper).

1.13. Universal application of the international space regime

The importance of creating an international space regime with universal application was underlined when the Outer Space Treaty, as well as the other four space law treaties, were opened to all States for signature and ratification or adherence.⁷¹ In other words, this regime was never deliberately designed by, or to be applied only to, space powers, i.e., the States with economic or scientific capabilities. Global involvement, application, and benefits were and are intended.

In brief, it can be said that the principle of global public interest in outer space has guaranteed an equal right of access to outer space for all States without discrimination of any kind. The predominant nature of this principle also implies that exploration and use of outer space must be in some way beneficial to the whole of mankind and in the maintenance of international peace and security. Unilateral approaches, pursued in one's exclusive interests in the exploration and use of outer space without regard to the interests of other States and of the whole of mankind are contrary to the global public interest in outer space.

2. Challenges to the Current International Space Regime

This section examines the conduct of certain important space activities with a view to determining to what extent the current international space regime is being followed or ignored by States and to assess the implications of some important national policies for the global public interest in outer space.

1645, TIAS 8276, opened for signature 3 July 1974; entered into force 24 May 1976; and The Comprehensive Test Ban Treaty 1996, opened for signature on 24 September 1996; not entered into force yet.

⁷¹ The Outer Space Treaty, Article XIV.

2.1. Launch services

Nothing fruitful can be achieved in outer space without reliable and easily accessible launch services. Each State may individually develop and operate its own launch vehicle, which involves expenditures of huge, primarily public, financial and human resources, or it may rely on other States for launch services. Both the Soviet Union and the United States initiated the space age exclusively on the basis of their own launch capabilities developed within their respective military missile programs. Launch technology is essentially a dual-purpose capability; a rocket is a missile for delivering bombs and also a launch vehicle for placing civilian satellites in orbit for economic or scientific purposes or military satellites for military purposes. During the Cold War, and even to a large extent today, launch capability is of high national significance and is an important economic resource. Therefore, States possessing launch technology attempt to control its proliferation not only for military reasons but also to maintain their political and economic hegemony. Sometimes political and economic reasons are disguised under security rationales. Several attempts to develop and control launch technology are examined below with an eye to the duty to cooperate prescribed by the current international space regime and in terms of whether they enhance or mar global public interest in outer space.

2.1.1. Evolution of the European launcher

One may trace the origin of Europe's launch program to the creation of the European Launcher Development Organization (ELDO) around 1960. Unfortunately, no successful launch was achieved even during the final attempt that took place on 12 June 1970. However, the European States remained determined to achieve this capability. In 1975, they reorganized themselves by creating the European Space Agency (ESA), which combined ELDO and the satellite research organization, called the European Space Research Organization (ESRO). The drive to develop and operate European launch vehicles was intensified by U.S. attempts to maintain American hegemony in two related matters, the conditional launch of the first European satellites and the creation of INTELSAT as an American monopoly.

The first European satellites, *Symphonie A* and *B*, were designed and constructed pursuant to the June 1967 agreement between the German and French governments. At that time, Europe lacked its own launch capability and had to rely on American launch services. The U.S.

launched Symphonie A and B in 1974 and 1975 respectively using its Thor Delta launch vehicles, subject to conditions under which Germany and France could use these satellites only for experimental purposes and could not compete with the U.S.-initiated and -controlled satellite telecommunication provider, INTELSAT. According to Peter van Fenema, such U.S. conditions were “considered onerous, if not insulting, by the Europeans.”⁷² In response, the European States, particularly France, pushed for the development of European capability to provide independent access to space. As a result, the European States led by France decided to design, develop and operate the Ariane family of launch vehicles.

Commercial support for the Ariane launch vehicles developed when the European States decided to create a European regional satellite telecommunications organization called EUTELSAT. Today, EUTELSAT is the leading player in satellite telecommunication services in Europe, North Africa, Middle East, and Asia.⁷³ The creation of EUTELSAT provided a ready market for further growth and great commercial success of Arianespace (a European private company that builds and operates Ariane rockets) as well as a strong satellite manufacturing capability in Europe.

Challenges to the commercial operations of Arianespace are mounting due to competition from the launch services of the U.S., Russia, China, and possibly India and Brazil. To prepare for these challenges, European States and Arianespace have adopted a policy of international cooperation with Russia, pursuant to which Arianespace is in a position to provide a full range of launch services using not only Ariane rockets but also Russian Soyuz as well as jointly developed Vega launch vehicles.⁷⁴ The immediate future of the Ariane family of rockets seems to be secure, particularly in view of current U.S. regulatory policies that have the effect of discouraging non-Americans from using American launch services:

⁷² van Fenema, Peter, “Effects of U.S. Policies on the International Trade in Launch Services,” *Colloquium on the Law of Outer Space*, 1998, p. 146, at p. 149.

⁷³ See “Eutelsat Buys Lifetime Lease For 12 Transponders On Russia’s AM22 Bird,” Paris, 18 March 2004, available at <http://www.spacedaily.com/news/satellite-biz-04zo.html> (accessed 21 May 2004); “Eutelsat Prepares Its Largest Satellite, W3A, for March Launch,” Washington, 13 February 2004, available at <http://www.spacedaily.com/news/satellite-biz-04u.html> (accessed 28 May 2004).

⁷⁴ See “Arianespace Maintains Pole Position In Civil Launch Market,” Paris, 07 January 2004, available at <http://www.spacedaily.com/news/launchers-04b.html> (accessed 28 May 2004).

- U.S. export laws strictly control the launch of satellites containing American technology with the use of non-American launch vehicles;⁷⁵
- Under the 1984 Commercial Space Launch Services Act,⁷⁶ a license is required for a private launch from within American territory by anyone and outside the U.S. territory by American citizens. The issuance of a license by the Associate Administrator for Commercial Space Transportation of the U.S. Federal Aviation Administration, is subject to, *inter alia*, national security and foreign policy interests of the U.S.; and
- Under the 1992 Land Remote Sensing Policy Act⁷⁷ and the 2000 Regulations Relating to the Licensing of Private Land Remote-Sensing Space Systems,⁷⁸ the U.S. Government could exercise control over the operation of a foreign remote-sensing satellite, and could limit the collection or distribution of its data, if the satellite has been launched by an American launch company. For example, the launch of Canada's RADARSAT-2 Earth-observation satellite by Boeing, an American company, could possibly trigger the application of the U.S. law relating to the worldwide collection and distribution of RADARSAT-2 data products and derived information.⁷⁹

In 2002, Arianespace launched 10 commercial satellites out of a total of 24 launches in the world, and the company earned \$1.13 billion out of \$1.9 billion for the whole world.⁸⁰ Arianespace's revenue in 2003 was \$525 million out of \$1.2 billion for the global market.⁸¹ However, in 2004 there was an 18 percent decrease in overall global commercial launch revenues from 2003 to a total of approximately \$1.0 billion out of which the European launcher

⁷⁵ For details, see Jakhu, Ram and Wilson, Joseph, "The New United States Export Control Regime: Its Impact on the Communications Satellite Industry," XXV, *Annals of Air and Space Law*, 2000, pp. 157 et seq.; Lihani, David, "Shifts in U.S. Export Controls Force Changes Upon Commercial Satellite Manufacturers and Space Launch Providers," *Colloquium on the Law of Outer Space*, 1999, pp. 208 et seq.; Meredith, Pamela L. and Fleming, Sean P., "U.S. Space Technology Exports: The Current Political Climate," 27 (1) *Journal of Space Law*, 1999, pp. 35 et seq.

⁷⁶ 49 U.S.C., 2601, as amended in 1988 and 2004.

⁷⁷ 15 U.S.C. 5601 et seq.; Public Law 102-555, 106 Stat. 4163.

⁷⁸ 15 C.F.R. Part 960 [Docket No.: 951031259-9279-03] RIN 0648-AC64. National Oceanic and Atmospheric Administration, 15 C.F.R. Part 960 [Docket No. 951031259-9279-03] RIN 0648-AC64. [Federal Register: September 18, 2000 (Volume 65, Number 181)].

⁷⁹ Bates, J., "NOAA Lifts Cap on Foreign Investment in Satellite Imaging," *Space News*, 14 August 2000, p. 1, at p. 20: "Radarsat-2, imaging satellite also could fall under US jurisdiction."

⁸⁰ See, Commercial Space Transportation: 2002 Year in Review, Associate Administrator for Commercial Space Transportation, FAA, Washington, D.C., January 2003, pp. 5 and 6.

⁸¹ See, Commercial Space Transportation: 2003 Year in Review, Associate Administrator for Commercial Space Transportation, FAA, Washington, D.C., January 2004, pp. 6 and 7.

earned about \$140 million primarily due to the strong entry of the multinational Sea Launch and Russian launch providers.⁸²

With timely and forward-looking policy decisions and persistent joint efforts, the European nations have achieved independent access to space not only for themselves but also for a good number of other countries, which for various reasons might not be favored by the U.S. Government.⁸³ Perhaps that is why India, against whom the U.S. had imposed sanctions, has been using Ariane launch vehicles for geostationary telecommunication satellites that are important for the country's economic and social development.⁸⁴ Today Ariane rockets not only serve Europe but also offer readily available opportunities to all nations to reap the benefits of space use. This initiative of the European States is important for their space programs but also has very positive implications for global public interest in space activities.

2.1.2. India's efforts to develop its own launch capability

India is a fast-developing country that aspires to expand its own launch vehicles in order to have independent access to space. From the beginning of its space program in the late 1960's, India has relied upon international cooperation both for the acquisition of its satellites and for launch services. India is a democratic country without territorial ambitions, and has managed to attract technological support mainly from the Soviet Union and France.

Since the early 1980s, India has been developing its launch vehicles for low-Earth and polar-orbit satellites. It entered the international launch market by attracting customers from the European Space Agency, Germany, Indonesia, Israel, Singapore, and South Korea.⁸⁵ In the mid-

⁸² See, *Commercial Space Transportation: 2004 Year in Review*, Associate Administrator for Commercial Space Transportation, FAA, Washington, D.C., January 2005, p 7.

⁸³ In February 2003, Iran signed an agreement with Italian firm Carlo Gavazzi Space for the launch of its first telecommunications satellite. "Unlike the United States which dubs Iran part of an "axis of evil" with Iraq and North Korea, the European Union has adopted a policy of constructive engagement with the Islamic regime and held a second round of trade talks here earlier this month": See "Iran signs deal with Italian firm to launch first telecoms satellite," Tehran, 19 February 2003, available at <http://www.spacedaily.com/2003-03/030219194948.haywgbed.html> (accessed 28 May 2004).

⁸⁴ See "India awards more satellite launch contracts to Arianespace," Bombay, 10 April 2003, available at <http://www.spacedaily.com/2003/030410073310.i329qk7q.html> (accessed 16 April 2003).

⁸⁵ "Indian space agency in talks with global firms to tap markets," Bangalore, India (AFP) Apr 30, 2003, available at <http://www.spacedaily.com/2003/030430041557.rykx3ivw.html> (01 May 2003), "India To Launch Indonesian Satellite," New Delhi (XNA) Sep 17, 2004, available at <http://www.spacedaily.com/news/microsat-04m.html> (accessed 20 September 2004).

1980s, India decided to develop its own Geosynchronous Satellite Launch Vehicle (GSLV) to launch geostationary satellites weighing about 2000 kilograms, similar in size and weight to its INSAT telecommunication satellites. This decision was based on the need to meet India's domestic market for telecommunication satellites as well as to attain independent launch capability. For this purpose, India needed a second stage engine for its Polar Satellite Launch Vehicle to convert it into a GSLV and thus issued international tenders for acquiring cryogenic engines and technology.⁸⁶ General Dynamics of the U.S., Ariespace of France, and Glavkosmos of Russia responded. When the American company asked for \$800 million and the Ariespace bid was for \$600 million, India selected Glavkosmos because it offered to meet India's need only for \$400 million. It is important to keep in mind that all three companies were offering to sell to India similar cryogenic technology. The sale of the offered technology by General Dynamics would have raised proliferation concerns in the U.S. and the application of the American Export Control laws, including the Missile Technology Control Regime (MTCR). The Russian company signed a contract with the Indian Space Research Organization (ISRO) on 11 January 1990 under which it undertook to supply two cryogenic engines and to build the third one in India, thereby transferring the required technology. On 11 May 1992, the U.S. imposed sanctions against Glavkosmos and ISRO as the U.S. State Department believed that this Indo-Russian deal would violate MTCR (as discussed below in subsection 2.1.3). According to a U.S. State Department spokesperson, "neither the [MTCR] guidelines nor our own [American] law make any distinction between technology that is used in ballistic missiles and the technology for space-launched vehicles."⁸⁷ From a legal perspective, it is strange to accuse two States that are not parties to the MTCR of violating it, especially when this so-called regime is only an 'understanding' amongst third States.

In India, there was serious backlash against the American Government. "Indian politicians, outraged by what they viewed as 'international *dadagiri* (bullying)' and undue interference in the bilateral affairs of two sovereign States by the United States, denounced the U.S. action."⁸⁸ The concerned politicians and scientists in India felt that the U.S. had imposed

⁸⁶ Hingorani, A., "The U.S. Sanctions on the Indo-Russian Rocket-Engine Deal," *The Journal of World Trade*, 1994, p. 59, at p. 64.

⁸⁷ Cited in Hingorani, *ibid*, p. 65.

⁸⁸ Hingorani, *ibid*, p. 66. "The belligerent manner in which it [the U.S.] imposed sanctions on 11 May 1992 on the Indian Space Research Organisation (ISRO) and the Russian space agency (*Glavkosmos*) for signing the

sanctions not because of any strategic reason, as nobody would prefer to use cryogenic technology for military purposes, but for economic motives, to prevent India from becoming a player in the international launch market.

Russia seemed determined to honor its agreement with India, but later caved in to American pressure because the United States threatened to make the two-year sanctions permanent if Russia did not cancel its deal with India. Russia ceased transferring cryogenic engine technology to India but supplied the engines, which were not at issue. Indian scientists responded that stopping the Russian technology transfer would not end their efforts to develop Indian cryogenic technology. Using a Russian cryogenic engine, India completed the first successful test of its GSLV in April 2001. During the second test in May 2003, GSLV successfully placed into orbit a 1,825-kilogramme experimental telecommunications satellite.⁸⁹ In September 2004, India launched a satellite for the country's educational network using GSLV, which India intends to use "to enter the lucrative commercial satellite launch market."⁹⁰ Starting in mid-2007, India will begin manufacturing at the rate of one per year its GSLVs to be powered by indigenously built cryogenic engines.⁹¹

With the perfection of GSLVs, India is in a position to launch its own satellites cheaply, to gain independence in its launch capability and to offer launch opportunities at competitive prices to international customers, especially from those countries that are not on the favorite list of the major space powers. Expansion and availability of launch services at competitive prices and on non-discriminatory basis is in the global public interest related to outer space activities.

The U.S. has recently initiated a 'policy of engagement' with India possibly as a counterweight to China, at least in Asia. The U.S. also seems to have realized that India is determined to develop its independent access to space. Therefore, in addition to unprecedented collaboration in the strategic and nuclear fields, both countries have chosen the path of mutual

cryogenic rocket-engine deal in alleged violation of the Missile Technology Control Regime (MTCR), is perhaps a great source of irritation than the actual impact of the sanctions resulting in the cancellation of the deal." *Ibid.* p. 59.

⁸⁹ "India successfully tests satellite launcher," Sriharikota, India (AFP) 8 May 2003, available at <http://www.spacedaily.com/2003/030508135840.7q2cea0s.html> (accessed 29 November 2003).

⁹⁰ "India launches learning satellite," 20 September, 2004, available at http://news.bbc.co.uk/2/hi/south_asia/3672608.stm (accessed 21 September 2004).

⁹¹ Press Trust of India, "Indegenous GSLV launch in 2007: ISRO," Hyderabad, January 31, 2005, available at http://www.hindustantimes.com/news/181_1222136,000600030008.htm (accessed 31 January 2005).

cooperation in the field of space activities since January 2004.⁹² This new rapprochement has recently resulted in (a) the establishment of the India-U.S. Joint Working Group on Civil Space Cooperation in June 2005, and (b) adoption of an understanding, on 14 July 2005, that envisions the building of closer ties in space exploration, satellite navigation, and commercial space launches.⁹³ Consultations between the two nations have revolved around various means to explore the possibilities of cooperation in earth observation, satellite communication, satellite navigation and its application, space science, natural hazards research and disaster management support, and education and training in space. Though these new policy initiatives have not yet resulted in concrete agreements about technology transfer, greater cooperation between two nations could probably benefit not only them but also all other countries, especially because India could provide launch services and other space products on a highly competitive basis.

2.1.3. Missile Technology Control Regime (MTCR)

On 16 April 1987, the G7 countries (Canada, West Germany, France, Italy, Japan, the U.K., and the U.S.) informally agreed to a set of policy guidelines regarding the control of proliferation of missile technology. By March 2005, there are 33 States that have agreed to adhere to these guidelines, which are known as the Missile Technology Control Regime (MTCR).⁹⁴ The MTCR restricts the export of delivery systems, and related technology, capable of carrying a 500 kilogram payload at least 300 kilometers, as well as systems intended for the

⁹² See, "Bush unveils deeper US-India space, nuclear cooperation," Monterrey, Mexico (AFP) Jan 12, 2004, available at <http://www.spacedaily.com/2004/040112222734.c2g2d9wp.html> (accessed 22 January 2004); "Space cooperation between US, India can benefit developing world: analysts," Bangalore, India (AFP) Jun 20, 2004, available at <http://www.spacedaily.com/2004/040620073433.ud2jw1jl.html> (accessed 28 June 2004); "India, US to collaborate on advanced environmental satellite," Bangalore, India (AFP) Jun 25, 2004, available at <http://www.spacedaily.com/2004/040625112001.x2dcf7m.html> (accessed 28 June 2004); "Indian PM calls for mutual trust with US in high tech areas," Bangalore, India (AFP) Jun 21, 2004, available at <http://www.spacedaily.com/2004/040621192532.9h1rzvkm.html> (accessed 28 June 2004); "US seeks expansion of satellite pact with India," Washington (AFP) Jun 22, 2004, available at <http://www.spacedaily.com/2004/040622011633.blgm82xk.html> (accessed 28 June 2004).

⁹³ See *Joint Statement on U.S.-India Joint Working Group on Civil Space Cooperation*, available at <http://www.state.gov/p/sa/rls/pr/2005/49656.htm> (accessed 30 July 2005).

⁹⁴ Argentina (1993), Australia (1990), Austria (1991), Belgium (1990), Brazil (1995), Canada (1987), Czech Republic (1998), Denmark (1990), Finland (1991), France (1987), Germany (1987), Greece (1992), Hungary (1993), Iceland (1993), Ireland (1992), Italy (1987), Japan (1987), Luxembourg (1990), Netherlands (1990), New Zealand (1991), Norway (1990), Poland (1998), Portugal (1992), Republic of Korea (2001), Russian Federation (1995), South Africa (1995), Spain (1990), Sweden (1991), Switzerland (1992), Turkey (1997), Ukraine (1998), United Kingdom (1987), and United States of America (1987).

delivery of weapons of mass destruction (WMD), which include nuclear, chemical, and biological weapons.⁹⁵ The term ‘missile’ under MTCR includes ballistic missiles, space launch vehicles, and sounding rockets. MTCR is a political undertaking and not a legally binding international agreement. The MTCR controls are implemented through national laws and regulations.⁹⁶

The Peoples’ Republic of China, which possesses independently developed launch technology and extensive capability both for military and civilian uses, is not a party to the MTCR (although talks with China were conducted by an MTCR delegation in 2004). China administers its own national regulatory policy to control the proliferation of launch technology to other countries.⁹⁷ Such policy seems to be considered necessary by China in view of the objections of the U.S. Government against missile proliferation as well as the imposition of sanctions by the U.S. against some Chinese organizations.⁹⁸

Export restrictions apply even among members of the MTCR. For example, according to Peter van Fenema, when Brazil joined the group in 1995, “its accession did not result in launch technology becoming freely and abundantly available. And, more recently, Japan initially also faced difficulties on the part of the [U.S.] State Department when it bought a U.S. built (Thiokol) engine to power its H2A launch vehicle.”⁹⁹ A question then arises, why do States join the MTCR group? A part of the answer could be found in what happened in the case of Russia. Russia embraced the MTCR so that it could (i) avoid the imposition of permanent sanctions by the U.S. after the Indo-Russian cryogenic engine saga (as discussed above in subsection 2.1.2) and (ii)

⁹⁵ For details, see “Missile Technology Control Regime (MTCR) Questions and Answers,” available at <http://www.state.gov/t/np/rls/fs/27517.htm> (accessed 19 June 2004); “Missile Technology Control Regime (MTCR),” available at <http://www.fas.org/nuke/control/mtr/> (accessed 20 June 2004); “The Missile Technology Control Regime at a Glance,” September 2003, available at <http://www.armscontrol.org/factsheets/mtr.asp> (accessed 20 June 2004).

⁹⁶ For example, the U.S. International Traffic In Arms Regulations [ITAR] are issued under the U.S. Arms Export Control Act, Code of Federal Regulations Title 22, § 120.29 Missile Technology Control Regime.

⁹⁷ Regulations of the People’s Republic of China on Export Control of Missiles and Missile-related Items and Technologies, available at <http://www.cnsa.gov.cn/laws/zcfg020905.htm> (accessed 25 March 2004).

⁹⁸ “US and China hold ‘productive’ missile talks, no result announced,” Washington (AFP), 1 December 01, 2001, available at <http://spacedaily.com/news/011201003521.15axbldl.html> (accessed 24 December 2001). It may also be noted that though the Chinese government has taken steps to address U.S. proliferation concerns, but not to the full satisfaction of the current Bush administration. See Kan, Shirley A., “China and Proliferation of Weapons of Mass Destruction and Missiles: Policy Issues,” CRS report updated 22 February 2005, available at <http://www.usembassy.it/pdf/other/RL31555.pdf> (accessed 23 July 2005).

⁹⁹ van Fenema, Peter, “Effects of U.S. Policies on the International Trade in Launch Services,” *Colloquium on the Law of Outer Space*, 1998, p. 146, at p. 151.

enter into bilateral launch agreements with the U.S. to be allowed to launch foreign satellites equipped with the American technology¹⁰⁰ (as discussed below in subsection 2.1.4).

According to the Canadian Department of Foreign Affairs and International Trade, “MTCR controls are not intended to impede peaceful aerospace programs or international cooperation in such programs, as long as these programs are not used to develop delivery systems for WMD. Nor are MTCR controls designed to restrict access to technologies necessary for peaceful economic development.”¹⁰¹ However, as we have seen in the case of India (as discussed above in subsection 2.1.2), peaceful uses of launch technology could also become subject to MTCR restrictions.¹⁰² In this regard, it is interesting to note the recently released report entitled *2005 State of the Space Industry* by the International Space Business Council, which presents a highly positive picture of the global space industry. However, the report “cites U.S. export regulations under ITAR as ‘the industry’s most serious issue’ and states, ‘what initially was a nuisance to businesses has evolved into a serious problem for U.S. industry.’”¹⁰³

2.1.4. U.S. bilateral launch agreements with Russia, Ukraine, and China

It became clear that the underlying motivation for control by the U. S. of the proliferation of launch capability is essentially economic when the U.S. required Russia, Ukraine, and China to enter into bilateral agreements¹⁰⁴ in order to be allowed to launch satellites manufactured in

¹⁰⁰ Smith, Marcia S., Issue Brief for Congress; *Space Launch Vehicles: Government Activities, Commercial Competition, and Satellite Exports*, Congressional Research Service, The Library of Congress, Updated May 27, 2005, available at <http://www.fas.org/sgp/crs/space/IB93062.pdf> (accessed 23 July 2005), at pp. 14 *et seq.*

¹⁰¹ Canadian Department of Foreign Affairs and International Trade, *Missile Proliferation and the Missile Technology Control Regime*, available at <http://www.dfait-maeci.gc.ca/arms/outer2-e.asp#1> (accessed 14 June 2004).

¹⁰² Also see the statement of the U.S. State Department spokesperson, *op. cit supra* note 87.

¹⁰³ “Space & Satellite Market Surpasses \$103B, To Reach \$158B By 2010,” Bethesda MD (SPX) Aug 10, 2005, available at <http://www.spacedaily.com/news/industry-05zg.html> (accessed 10 August 2005).

¹⁰⁴ For details, see Smith, Marcia S., Issue Brief for Congress; *Space Launch Vehicles: Government Activities, Commercial Competition, and Satellite Exports*, Congressional Research Service, The Library of Congress, Updated 27 May 2005, available at <http://www.fas.org/sgp/crs/space/IB93062.pdf> (accessed 23 July 2005); Russia Commercial Space Launch Agreement, The White House, Office of the Vice President, 30 January 1996, U.S.-Russia Joint Commission on Economic and Technological Cooperation, U.S.-Russia Commercial Space Launch Agreement, available at <http://www.uni-koeln.de/jur-fak/instluft/proj2001/web-docs/russia-commercial.html> (accessed 10 February 2004); US-Ukraine Missile Agreement, State Department fact sheet on the Ukraine-US Memorandum of Understanding on the Transfer of Missile Equipment and Technology. (940803), Date: 1994-08-03, available at <http://www.fas.org/nuke/control/mtrc/text/940803-355651.htm> (accessed 11 February 2004); Statement by the Press Secretary, “Ukraine Space Launch Agreement,” The White House : Office of the Press Secretary: For Immediate Release: 21 February 1996, *U.S.-Ukraine Agreement on Commercial Space Launch*

the U.S. and those carrying American technology. The 1993 agreement with Russia was signed only after Russia agreed to comply with the MTCR and cease transferring rocket technology to India.¹⁰⁵ The U.S. and China concluded a six-year agreement in January 1989 when China agreed that it would sign “international treaties related to liability for satellite launches and other subjects; agree to price its launch services ‘on a par’ with Western companies; and establish a government-to-government level regime for protecting technology from possible misuse or diversion.”¹⁰⁶ The three bilateral agreements were designed to be transitional measures enabling trouble-free entry of the new space launch companies into the international market.¹⁰⁷ The agreements contained provisions that (i) limited the number of satellites that could be allowed to be launched by each country, (ii) placed lower limits on the price that could be charged (i.e., not below 15% of the market economy countries’ price), and (iii) required that the terms and conditions offered by each country’s launch provider be comparable to those offered by market economy countries. The practical effect of these provisions has thus clearly been mainly economic and political, and not specifically military in nature.¹⁰⁸ Under the agreement with Russia (as discussed above under subsection 2.1.2), the U.S. also wanted to stall the development of geostationary satellite launch capability by India.

Relationships with Russia and Ukraine established under the respective agreements did not cause any serious problem. However, the case of China has been different because of controversy over possible leakage of American technology to China,¹⁰⁹ the Tiananmen Square incident, and a host of other political and strategic reasons.¹¹⁰ These three bilateral agreements have now expired. A launch by any of these three countries of a satellite manufactured in the

Services, available at http://www.mac.doc.gov:80/tcc/data/commerce_html/tcc_2/UkraineSpace.html (accessed 11 February 2004).

¹⁰⁵ Smith, *ibid.*, p. 14.

¹⁰⁶ Smith, *ibid.*, p. 11.

¹⁰⁷ Russia Commercial Space Launch Agreement, *op.cit. supra* note 104, pp. 1 and 2.

¹⁰⁸ In this regard, it is interesting to note that Russia was ‘rewarded’ by the U.S. with an invitation to join the renewed American dominated International Space Station venture for canceling its cryogenic engine technology deal with India.

¹⁰⁹ See for details, *The Final Report of the Select Committee on U.S. National Security and Military/Commercial Concerns with the Peoples’ Republic of China*, (i.e., the Cox Report) House Report 105-851 of April 1999, available at <http://www.house.gov/coxreport/pref/preface.html> (accessed 15 December 2004).

¹¹⁰ For a detailed analysis, see Lamb, Robert D., *Satellites, Security, and Scandal: Understanding the Politics of Export Control*, available at: www.cissm.umd.edu/AMCS/publications.htm (accessed 23 July 2005).

U.S. and the one carrying American technology is assessed on a case-by-case basis by the U.S. State Department under the Export Control Act.¹¹¹

In conclusion, it can be said that unilateral attempts to control the development of launch capabilities globally are not only contrary to the principle in Article III of the Outer Space Treaty of promoting “international cooperation and understanding” in space activities and consequently to global public interest in outer space, but also are divergent from the economic philosophy of market economy vigorously propagated by the U.S. Proliferation of missile technology is a matter of serious concern, but its control through unilateral actions in the form of unreasonable restrictions and sanctions has not resulted in any concrete positive results. It must be understood that if major space powers are resolved to maintain their own launch capabilities and control proliferation at the same time, other States become equally determined, especially once challenged, to strive for development of their own launch vehicles, which could be used both for civilian and military purposes.

Multilateral efforts are required to control the proliferation of ballistic missiles — launch vehicles for military uses. This approach might be undertaken in different forms, such as by (a) adopting a Code of Conduct similar to the Russian proposal for the Global Control System (GCS) that would be contingent on non-proliferation commitments;¹¹² (b) further strengthening the MTCR;¹¹³ or more importantly, (c) negotiating an international space launch services agreement, preferably through the World Trade Organization (WTO), which would provide for

¹¹¹ See *supra* note 75.

¹¹² For details, see *International Global Control System Experts Meeting*, (Moscow, March 16, 2000), available at http://www.fas.org/nuke/control/mtr/news/GSC_content.htm (accessed 23 July 2005): As proposed by the Russians, the Global Control System (GCS) could possibly be designed to represent “a system of international regimes and mechanisms, including: a missile launch transparency regime; a mechanism to guarantee the security of GCS participating States which have renounced the possession of missile delivery vehicles for WMD; an incentive mechanism for States which have renounced the possession of missile delivery means for WMD; an international consultations mechanism in the framework of GCS for improving the regimes and mechanisms of the Global Control System and resolving issues that arise,” *Ibid*.

¹¹³ For details, see Mistry, Dinshaw, “Beyond the MTCR,” *International Security*, 27:4 (Spring 2003), pp. 119-149, available at http://muse.jhu.edu/journals/international_security/v027/27.4mistry.pdf (accessed 23 July 2005): Mistry offers “three main conclusions: First, the MTCR can considerably delay, but ultimately will not prevent, regional powers from building arsenals of intermediate- and long-range missiles. Transparency initiatives are also insufficient to halt missile proliferation because they do not offer strong political and legal barriers against, and incentives to refrain from, missile activity. Second, if regional powers maintain their missile programs (and, more ominously, if they export their missiles to other states), missile proliferation may greatly increase. As a result, the MTCR’s past gains could be reversed. Third, five measures — space service initiatives, regional missile-free zones, global intermediate-range missile bans, flight-test bans, and verification mechanisms — are available to expand the regime and provide former institutional barriers against missile proliferation,” *ibid*. p. 120.

readily available services to all member States of the WTO at competitive prices and on a non-discriminatory basis. At the same time, such an agreement could help in controlling some military space activities and thus would be in the global public interest.

2.2. Satellite communications

Access to outer space for telecommunication purposes can be achieved either by (i) participation in global satellite telecommunications system(s) or (ii) through national satellite system (s).

2.2.1. Participation in global satellite telecommunications organizations¹¹⁴

In the field of telecommunications, the principle of non-discriminatory universal access to outer space (i.e., global public interest) was collectively accepted as a part of the international legal regime almost from the beginning of the space age. As early as 1961, the UN General Assembly in Resolution 1721 (D) unanimously declared that satellite telecommunication services should be made available on a global and non-discriminatory basis.¹¹⁵ Its first implementation was effected through the 1963 INTELSAT Interim Agreements, which were expanded in 1971.¹¹⁶ In addition to reiterating Resolution 1721(D), the Preamble of the INTELSAT Agreement also specified that “satellite telecommunications should be organized in such a way as to permit all peoples to have access to the global satellite system.” INTELSAT’s prime objective had been to provide “international public telecommunications services of high quality and reliability to be available on a non-discriminatory basis to all areas of the world.”¹¹⁷

¹¹⁴ For a detailed discussion of this subject, see Jakhu, Ram S., “Safeguarding the Concept of Public Service and the Global Public Interest in Telecommunications,” 5(1) *Singapore Journal of International and Comparative Law*, 2001, pp. 71 *et seq.* The material in this subsection is taken from that article but has been updated and adapted for the purpose of this paper. The permission to use this material has been received from *Singapore Journal of International and Comparative Law*.

¹¹⁵ The 1961 UNGA Resolution 1721 (XVI) (D) states that “communication by means of satellites should be available to the nations of the world as soon as practicable on a global and non-discriminatory basis.”

¹¹⁶ *Agreement Relating to the International Telecommunications Satellite Organization (INTELSAT)*, 23 UST 3813, TIAS 7532, 10 ILM 1909.

¹¹⁷ *Ibid*, Article III.

Similar provisions had been made in the INMARSAT Convention guaranteeing non-discriminatory (a) access to its space segment¹¹⁸ and (b) charges for its services.¹¹⁹

INTELSAT was originally an international not-for-profit organization of more than 140 member States, and had been operated on sound commercial principles. This international organization had financial participation both by public and private entities, had its own legal personality, had been a subject of international law and thus was not governed by any national law and policy. Any country could use the INTELSAT system, whether it was a member or not, and would pay charges for all INTELSAT services on a non-discriminatory basis. Its services had been used by more than 170 countries and territories, thus making INTELSAT the most successful network for universal access to space. A fairly large number of countries, especially in the third world, cannot afford to have a national satellite system, nor do they need one. An international system such as INTELSAT has been the only means for them to have guaranteed access to space benefits. Conny Kullman, the INTELSAT Chief Executive Officer & Director General, correctly pointed out that developing countries viewed INTELSAT as their lifeline connection to the world.¹²⁰

Regrettably, non-discriminatory universal access to space for telecommunication services was eliminated by the privatization of both INTELSAT and INMARSAT. In 2000, the U.S. adopted the “Open-Market Reorganization for the Betterment of International Telecommunications Act” (ORBIT Act), which forced their dismantlement.¹²¹ The Act imposed several severe restrictions on INTELSAT’s operations pending pro-competitive privatization.¹²² INTELSAT had expressed its unhappiness with the ORBIT Act since it considered the Act as a

¹¹⁸ *Convention Establishing International Maritime Satellite Organization* (INMARSAT), Final Acts of International Conference on the Establishment of an International Maritime Satellite System, Inter-Governmental Maritime Consultative Organization, London, 1976, Article 7(1).

¹¹⁹ *Ibid*, Article 19.

¹²⁰ Update on U.S. Legislative Issues; From: Mr. Conny Kullman, INTELSAT Chief Executive & Director General; To: All Parties, Signatories, And Members Of The Board Of Governors INTELSAT; 17 November 1999: available at <http://www.intelsat.com/news/policy/pletter17nov.htm> (accessed 20 December 2000).

¹²¹ *Open-market Reorganization for the Betterment of International Telecommunications Act*, S. 376, 106th Cong., 1st Sess. (1999).

¹²² *Ibid*, s. 603: Restrictions Pending Privatization. The restrictions related to the prohibition on providing services in the U.S. market to carriers other than COMSAT, and required that, in case INTELSAT failed to privatize itself by 1 January 2002, (i) preference must be given to commercial private sector providers of space segment, rather than to INTELSAT, for procurement of satellite services, and (ii) the U.S. must withdraw as a party from INTELSAT.

unilateral action of the U.S. Congress imposed on a 143-member intergovernmental organization.¹²³

Francis Lyall correctly pointed out that the privatization of INTELSAT, especially the way it has been achieved, was “an unwelcome development and indeed arguably contrary to Article I of the Outer Space Treaty” as well as UNGA Resolution 1721 (D).¹²⁴ Now the privatized INTELSAT is under no legal obligation to provide non-discriminatory universal access to its services and could be used to promote particular national policies, including the imposition of sanctions against certain countries and denial of services to them. More importantly, like any other private business, it should be expected to maximize its profits, which might tempt it not to serve unprofitable areas and routes.

From the adoption of the ORBIT Act, it was clear that the U.S. had effectively controlled the privatization of INTELSAT. Competitive access to and privatized ownership of global satellite communications were actually happening at the national level as member States were allowing their private telecommunication operators to participate in INTELSAT and thus were replacing their public entities as the shareholders of this international organization. Ironically, in 1999 the U.S. became only the 95th State to introduce competition in access to INTELSAT when it allowed its several private telecommunications companies to have direct access to the INTELSAT system instead of requiring them to go through COMSAT, a private U.S. firm that monopolized U.S. access since the inception of INTELSAT in 1963.¹²⁵ Therefore, one wonders if the real intention of the U.S. was to introduce competition and privatization or to dismantle an international public institution so that it could effectively exercise control over it and thus expand its economic philosophy internationally. The American ORBIT Act compromised global public interest and might possibly have adverse economic implications for a large number of States, especially developing countries, depriving them of access to satellite telecommunications on a non-discriminatory and universal basis.

¹²³ “INTELSAT Privatization Bill Approved in Senate,” *Satellite Week*, 5 July 1999.

¹²⁴ “On the Privatization of INTELSAT,” 28, *Journal of Space Law*, 2000, pp. 101-19. Also see, Jakhu, Ram S., “Safeguarding the Concept of Public Service and the Global Public Interest in Telecommunications,” 5(1) *Singapore Journal of International and Comparative Law*, 2001, pp 71 *et seq.*

¹²⁵ Federal Communications Commission News, “Commission Increases Competition for Overseas Long-Distance Service: Allows Direct Access to Users of INTELSAT Satellite Services from the United States,” (IB DOCKET 98-192), September 15, 1999; available at http://www.fcc.gov/Bureaus/International/News_Releases/1999/nrin9028.html (accessed 20 February 2000).

2.2.2. Access to radio frequencies and orbital positions

All satellites use radio frequencies to communicate with Earth stations. The other essential tool for satellite telecommunications is the orbit in which a satellite is placed. There are several orbits from where a satellite can operate. The geostationary orbit (GEO) is the most preferred and used orbit. The 24-hour ‘visibility’ of a satellite in GEO makes it uniquely advantageous for telecommunications and certain other services. Other orbits, such as Low Earth Orbit (LEO) and Medium Earth Orbit (MEO), have been used for telecommunication satellite constellations, reconnaissance, early warning, science, and other purposes. However, both the radio frequencies and GEO positions are international natural resources and limited in availability.

Access to the most appropriate radio frequencies and orbital locations in outer space is essentially based on a first-come, first-served practice, which has been a major concern to a large number of countries, especially in the third world. Countries such as India and Indonesia, the first of the developing countries that attempted to use GEO, faced undue difficulties in securing access for their earlier satellites. The legal principles and rules that regulate access to and use of radio frequencies and orbital positions have been adopted through international conferences organized by the International Telecommunication Union (ITU), the oldest specialized agency of the UN. Article 44 (2) of the ITU Constitution recognizes that radio frequencies and orbital positions are limited international resources, and imposes an obligation on ITU member States to use them efficiently and economically in order to ensure equitable access by all countries.¹²⁶ While no definition of “equitable access” is found in the ITU Constitution, some of the provisions make the meaning of this term clear: (a) the special needs of the developing countries and the geographical situation of particular countries must be taken into account while making use of the radio frequencies and orbital positions, and (b) countries may have equitable access only in conformity with the ITU Radio Regulations. Since modifying these Regulations is a long

¹²⁶ Article 44 (2) of the ITU Constitution provides that: “In using frequency bands for radio services, Member States shall bear in mind that radio frequencies and any associated orbits, including the geostationary-satellite orbit, are limited natural resources and that they must be used rationally, efficiently and economically, in conformity with the provisions of the Radio Regulations, so that countries or groups of countries may have equitable access to those orbits and frequencies, taking into account the special needs of the developing countries and the geographical situation of particular countries.” It should be noted that the 1998 ITU Plenipotentiary Conference has amended this Article in order to emphasize that it is not only the geostationary orbit but all other orbits around the Earth that are a limited natural resource.

and tedious process, equitable access has been effected, so far, only to a limited extent and through two allotment plans for (a) the Broadcasting Satellite Service operating in 12 GHz band and associated feeder links, and (b) the Fixed Satellite Service operating in 6/4 GHz and 14/11 GHz bands. The rarity of such plans can be attributed to the unwillingness of some powerful member States of ITU to accept restrictions on their freedom of action in the use of radio frequencies and orbital positions. Consequently, the practice of first-come, first-served continues to apply to all frequency bands for satellite telecommunication services, except those mentioned above.

A serious problem in access to radio frequencies and orbital positions has arisen, particularly with respect to the geostationary orbit, not only because the GEO is limited, but also because several countries, mainly the developed ones, started registering so-called ‘paper satellites’ with the ITU. According to an ITU paper titled *Paper Tigers: The Scramble for Space Spectrum*, some States reserve orbital “positions and frequency bands for possible future use, or for commercial resale to another user at a later date.”¹²⁷ In 1998, INTELSAT presented the data about the most used C and Ku bands according to which INTELSAT had registered 25 slots but was actually using only 19. Similarly, the number for the U.S. was 74 registered and 36 actually occupied slots, and Russia had registered 58 orbital positions when it using only 25. In view of such an apparent practice of hoarding orbital positions and radio frequencies, INTELSAT announced its intention of “deregistering” eight orbital slot registrations with the ITU in order to “set an example [for] efficient use of scarce orbital resources.”¹²⁸ These slots had been registered by INTELSAT and never used. Although INTELSAT claimed this was motivated by an effort to improve orbit utilization, the reactions from outsiders were quite different. For example, an American private satellite company, PamAmSat, declared that the returned slots were anyway completely unusable.¹²⁹

It should be noted that it is not the actual satellite in orbit but early registration of that satellite with the ITU that blocks the placing of other satellites in the same location in the GEO.

¹²⁷ Available at http://www.itu.int/newsarchive/pp02/media_information/feature_satellite.html (accessed 20 February 2005).

¹²⁸ “Intelsat Will Return 8 Orbital Slots to ITU,” *Satellite Week*, (14 December 1998), online: LEXIS-NEXIS (News).

¹²⁹ *Ibid.*

The “paper satellite” problem has been real and wide spread.¹³⁰ According to ITU, in 2002 the backlog of satellite systems awaiting full registration stood at around 1200 when ITU was regularly receiving between 400-500 requests for new systems each year, only around one tenth of which would ever be launched.¹³¹

In order to address the problem of paper satellites, the ITU has recently adopted several legal rules and procedures governing the use of radio frequencies and geostationary orbital positions. In brief, these rules and procedures relate to: (a) the limitation of time for bringing into use the satellite systems registered with the ITU; (b) the imposition of administrative due diligence procedures for notification to ITU; (c) the possibility of cancellation of the registered satellite positions if not used within the allowed time period; and (d) the charging of registration application processing fees. These rules could possibly lead to a more efficient use of radio frequencies and orbital positions so that all countries would have equitable access to these important resources. It is too early to assess the effectiveness of these measures, but it has recently been reported¹³² that almost all States owing money to the ITU for satellite filings have not paid significant portions of their dues.¹³³ Though the non-payment of dues would not result in the loss of orbital slots, this shows that the ITU doesn't have any enforcement powers and consequently that the new rules are unlikely to have much effect in practice.

Access to outer space for telecommunication purposes can be enhanced by guaranteeing the ready availability of appropriate radio frequencies and orbital positions to all States. However, a large majority of countries would not have sufficient resources to launch their own satellites and perhaps would not need to do so either. Therefore, it is important that participation in internationally operating satellite systems should be encouraged. In other words, it would be in the global public interest that an inter-governmental global organization, preferably modeled on the original INMARSAT or INTELSAT system, with financial participation by private entities

¹³⁰ Lyall, F., “Paralysis by Phantom: Problems of the ITU Filing Procedures,” *Colloquium on the Law of Outer Space*, 1996, p. 187.

¹³¹ ITU, “Paper Tigers: The Scramble for Space Spectrum,” available at http://www.itu.int/newsarchive/pp02/media_information/feature_satellite.html (accessed 20 February 2005).

¹³² Note by the Secretary-General, “Statement of Amounts owed in Connection with Invoices for the Processing of Satellite Network Filings,” ITU Council, Document No. C04/EP/10(Rev.1)-E, 10 June 2004.

¹³³ Overdue payments for satellite network filings, ITU Council Decision 522, Document C04/99-E, 23 June 2004, under which the Council decided that “for amounts owed in connection with satellite network filings, no interest shall be charged on overdue payments.”

of all States, should be created to provide telecommunications services to all countries on a non-discriminatory basis.

2.3. Satellite remote sensing¹³⁴

The international legal principles that specifically govern remote sensing satellites and access to satellite imagery were discussed for about fifteen years in the Legal Subcommittee of the COPUOS. Two opposing views collided: one was presented by States, such as U.S. and some other developed countries, that advocated unrestricted use of satellites for remote sensing and freedom of distribution of satellite imagery. The other view, advanced by developing, socialist and some developed countries, stressed that the acquisition and distribution of the satellite imagery must be governed by the principle of State sovereignty. Thus, they advocated prior consent of the sensed State for the acquisition and distribution of satellite imagery of its respective territory.

A compromise was achieved in 1986 when the UN General Assembly adopted unanimously a Resolution containing the Principles Relating to Remote Sensing of the Earth from Outer Space.¹³⁵ Under this compromise,¹³⁶ concerned countries gave up their demand for prior consent in exchange for the recognition of the right of the sensed State to have access, “on a non-discriminatory basis and on reasonable cost terms,” to the primary data¹³⁷ and the processed data¹³⁸ concerning its territory. The sensed State has also been entitled to have access

¹³⁴ For a detailed discussion of this subject, see Jakhu, Ram, “International Law Regarding the Acquisition and Dissemination of Satellite Imagery,” Vol. 29 (No. 1 &2), *Journal of Space Law*, 2003, pp. 65 *et seq.* The material in this subsection is taken from that article but has been updated and adapted for the purpose of this paper. The permission to use this material has been received from *Journal of Space Law*.

¹³⁵ UN General Assembly Resolution 41/65, adopted without vote on 3 December 1986.

¹³⁶ *Ibid.* Principle XII of the Resolution provides that: “As soon as the primary data and the processed data concerning the territory under its jurisdiction are produced, the sensed State shall have access to them on a non-discriminatory basis and on reasonable cost terms. The sensed State shall also have access to the available analyzed information concerning the territory under its jurisdiction in the possession of any State participating in remote sensing activities on the same basis and terms, taking particularly into account the needs and interests of the developing countries.”

¹³⁷ *Ibid.*, Principle I; the term “primary data” means “the raw data that are acquired by remote sensors borne by a space object and that are transmitted or delivered to the ground from space by telemetry in the form of electromagnetic signals, by photographic film, magnetic tape or any other means.”

¹³⁸ *Ibid.*; the term “processed data” means “the products resulting from the processing of the primary data, needed to make such data usable.”

to the available analyzed information¹³⁹ concerning its territory. Thus the Resolution clearly establishes a fair balance of interests of all States.¹⁴⁰

Principle XII of the Resolution, with its mandatory wording (e.g. ‘shall have access’), clearly recognizes the legal right of the sensed State to seek from the sensing State satellite imagery of its own territory. The Resolution, particularly its Principle XII on non-discriminatory access, has often been cited by various States as an authoritative legal principle applicable to their satellite imagery acquisition and distribution policies. Therefore, it is expected of the sensing State(s) to positively respond to the requests by the sensed States for satellite imagery of their respective territories.¹⁴¹ A denial of such a request would be considered contrary to the provisions of the 1986 Resolution, particularly its Principle XII.

Unfortunately, several States have recently started applying their own national laws and policies in ways that could restrict access in an arbitrary or discriminatory manner. Ironically, the United States, which has always ardently advocated the freedom of acquisition and non-discriminatory dissemination of satellite imagery, became the first State to impose complex and extensive legal prohibitions on the collection and distribution of such imagery.

The U.S. Regulations Relating to the Licensing of Private Land Remote-Sensing Space Systems¹⁴² prescribe requirements for the licensing, monitoring and compliance of operators of private Earth remote sensing satellite systems. Under these Regulations, a licensee could be required by the U.S. Secretary of Commerce to limit data collection or distribution as determined to be necessary to meet national security or foreign policy concerns or international obligations

¹³⁹ *Ibid*; the term “analyzed information” means “the information resulting from the interpretation of processed data, inputs of data and knowledge from other sources.”

¹⁴⁰ According to Gaudrat, P. & Tuinder, H.P, “The Legal Status of Remote Sensing Data: Issues of Access and Distribution,” in Lafferranderie, G. and Crowther, D. (eds.), *Outlook on Space Law over the Next 30 Years*, 1997, p. 351, at p. 353, the Principles in the 1986 UN Resolution, “which can now be considered as being part of customary international law, provide for a balance between the freedom of observation for the sensing States and the right of having access to these data by the observed State.”

¹⁴¹ It must also be noted that Principle XII recognizes particular ‘needs and interests of the developing countries’ with respect to non-discriminatory access to satellite imagery of their respective territories. Such recognition of legitimate or special interests of the developing countries seem to provide an extra protection of their non-discriminatory access right, which must not be constrained by the sensing State(s) since international law accommodates different interests of States and often requires an element of appreciation: see, *supra* note 49 and accompanying text.

¹⁴² National Oceanic and Atmospheric Administration (NOAA), Department of Commerce, *Interim Final Regulations relating to the Licensing of Private Land Remote-Sensing Space Systems*, 15 C.F.R. Part 960 [Docket No.: 951031259-9279-03] RIN 0648-AC64, issued on 31 July 2000 under the Land Remote Sensing Policy Act of 1992, 15 U.S.C. 5601 et seq.; Public Law 102-555, 106 Stat. 4163. [Federal Register: September 18, 2000 (Volume 65, Number 181)]. (Hereinafter referred to as the US Remote Sensing Regulations).

of the United States. In addition, a licensee is obliged to make available to any sensed State only unenhanced data¹⁴³ and that too can be restricted subject to the “U.S. national security concerns, foreign policy or international obligations” or to the American laws that prohibit transactions with the sensed State.¹⁴⁴ The terms ‘national security’ and ‘foreign policy concerns’ are nowhere defined in the Regulations and thus can be used arbitrarily. On the basis of these restrictions, the U.S. may at will deny a sensed State the satellite imagery of its territory. More importantly, under these Regulations, a license is required by a person subject to the jurisdiction or control of the United States who operates or proposes to operate a private remote sensing satellite system, either directly or through an affiliate or subsidiary.¹⁴⁵ The phrase ‘person subject to the jurisdiction or control of the United States’ has been defined very broadly and can include foreign entities that, for example, use a U.S. launch vehicle or platform; operate a spacecraft command or data acquisition or ground remote station in the United States; and process the data at or market it from facilities within the United States.¹⁴⁶ Each licensee is required to comply with the Land Remote Sensing Policy Act of 1992, these Regulations and the conditions of his license. It is believed that, in practice, the U.S. Regulations will have extraterritorial application with respect to the collection or distribution of satellite imagery by all foreign operators (e.g., the

¹⁴³ *Ibid.* Sec. 960.03 defines “Unenhanced data” as “remote sensing signals or imagery products that are unprocessed or subject only to data preprocessing. Data preprocessing may include rectification of system and sensor distortions in remote sensing data as it is received directly from the satellite; registration of such data with respect to features of the Earth; and calibration of spectral response with respect to such data. It does not include conclusions, manipulations, or calculations derived from such data, or a combination of such data with other data. It also excludes phase history data for synthetic aperture radar systems or other space-based radar systems.”

¹⁴⁴ *Ibid.* Sec. 960.11.

¹⁴⁵ *Ibid.* Sec. 960.4.

¹⁴⁶ See Sec. 960.3 of the US Remote Sensing Regulations: “Person means any individual (whether or not a citizen of the United States) subject to U.S. jurisdiction; a corporation, partnership, association, or other entity organized or existing under the laws of the United States; a subsidiary (foreign or domestic) of a U.S. parent company; an affiliate (foreign or domestic) of a U.S. company; or any other private remote sensing space system operator having substantial connections with the United States or deriving substantial benefits from the United States that support its international remote sensing operations sufficient to assert U.S. jurisdiction as a matter of common law.” Further more, “beneficial owner” means “any person who, directly or indirectly, through any contract, arrangement, understanding, relationship, or otherwise, has or shares: the right to exercise administrative control over a licensee; and the power to dispose of, or to direct the disposition of, any security interest in a license. All securities of the same class beneficially owned by a person, regardless of the form which such beneficial ownership takes, shall be aggregated in calculating the number of shares beneficially owned by such person. A person shall be deemed to be the beneficial owner of a security interest if that person has the right to acquire beneficial ownership, as defined in this definition, within sixty (60) days from acquiring that interest, including, but not limited to, any right to acquire beneficial ownership through: the exercise of any option, warrant or right; the conversion of a security; the power to revoke a trust, discretionary account, or similar arrangement; or the automatic termination of a trust, discretionary account or similar arrangement.”

Canadian RADARSAT system)¹⁴⁷ and satellite imagery distributors that have any link with the U.S.

Influenced by the U.S. example, other countries could also be expected (or ‘encouraged’ or ‘lured’ or ‘forced’) to follow a similar approach in the future. Canada has already decided to develop national controls on the collection and distribution of satellite imagery.¹⁴⁸ In November 2004, the Government of Canada introduced new draft legislation (Bill C-25) in Parliament on this issue.¹⁴⁹ If passed, the new law would enable the collection, processing, and distribution of high-resolution satellite data, but always subject to Canadian domestic policies, security, and foreign affairs interests.

Any unilateral application of arbitrary restrictions on the collection and distribution of remote sensing data purely on the basis of exclusive national interests (a) is contrary to the principles of the 1986 UN Resolution on Remote Sensing, (b) seriously impedes non-discriminatory access to any satellite imagery even for peaceful civilian and commercial purposes and peace-keeping missions, and (c) consequently goes against the global public interest in outer space. Moreover, because of a close affinity between the civilian uses of remote sensing satellites and military reconnaissance,¹⁵⁰ there is a strong possibility that these satellites

¹⁴⁷ See Bates, *supra* note 79.

¹⁴⁸ The Canadian Ministers for Defense and Foreign Affairs have jointly issued a policy statement according to which Canada will develop new legislation to control commercial remote sensing satellites. The following is one of the several principles that will guide the Canadian Government in the drafting and adoption of the law to regulate the distribution of satellite imagery by the Canadian remote sensing satellite operator, “The Government of Canada reserves the right to ... make available to the government of any country, including Canada, data acquired by its system concerning the territory under the jurisdiction of such a government (sensed State) in accordance with the United Nations A/RES/41/65 Principles Relating to Remote Sensing of the Earth from Space. However, such data shall not be provided to the sensed State if its uncontrolled release is determined to be detrimental to Canada’s national security and foreign affairs interests”: “Canada to Control Imaging Satellites” News Release No. 134, Department of Foreign Affairs and International Trade, Ottawa, June 9, 1999. “As modern remote sensing satellites can produce imagery whose quality approaches that obtained from specialized intelligence satellites, we must ensure that the data produced by Canadian satellites cannot be used to the detriment of our national security and that of our allies”: *Ibid.*

¹⁴⁹ On 23 November 2004, the Canadian Minister of Foreign Affairs, presented to the lower house of Parliament (House of Commons) Bill C-25: “An Act governing the operation of remote sensing space systems”: “This enactment regulates remote sensing space systems to ensure that their operation is neither injurious to national security, to the defense of Canada, to the safety of Canadian Forces or to Canada’s conduct of international relations nor inconsistent with Canada’s international obligations. In order to accomplish this, the enactment establishes a licensing regime for remote sensing space systems and provides for restrictions on the distribution of data gathered by means of them. In addition, the enactment gives special powers to the Government of Canada concerning priority access to remote sensing services and the interruption of such services.”

¹⁵⁰ In his article “Moving towards a Transparent Battlespace,” General Richard B. Myers wrote: “The proliferation of near real-time, militarily significant imagery is a major concern for us, a concern that would have to be magnified in times of crisis. The debate over distribution of commercial imagery during periods of national crisis

could become the first targets for anti-satellite strikes not only during actual war or crisis but also in anticipation of hostilities. Therefore, it is suggested that an international legally binding agreement supplementing the UN Resolution on Remote Sensing be concluded in order (i) to ensure the ready and non-discriminatory access to satellite imagery in all forms for civilian, commercial, and peace-keeping purposes, and (ii) to prohibit the use of any force against all remote sensing satellites that are operating in accordance with international law.

2.4. Satellite navigation services

Navigational satellites are invaluable tools for both military and civilian uses, particularly in transportation, telecommunications, agriculture, and disaster management. Satellite-based navigation systems are becoming an important economic space application. According to a European Union document, “demand for satellite navigation services and derived products around the world is growing at a rapid 25% a year and could reach €275 [billion] by 2020, in the process creating 100,000 skilled jobs.”¹⁵¹

The American Government operates a navigational satellite system known as the Global Positioning System (GPS), owned and controlled by its military establishment. Similarly, Russia operates its GLONASS system, which was also designed for military purposes. Both these countries have allowed their systems to be used free of charge for civilian purposes but their respective armed forces retain exclusive control over them.¹⁵² Because of the technological superiority and marketing capability of the U.S., GPS is being used for various civilian applications globally. In order not to depend upon GPS or GLONASS, the European Commission proposed in February 1999 the creation of a European independent satellite-based navigation system, known as Galileo, to be operated for civilian and commercial purposes.

is an issue that will take on increasing importance”: *Defense Review Magazine*, (1999 Spring), available at <http://www.spacecom.af.mil/usspace/defrev.htm> (accessed 10 April 2001).

¹⁵¹ Commission of the European Communities, *WHITE PAPER, Space: a New European Frontier for an Expanding Union*, Brussels, 11 November 2003 (COM (2003) 673, p. 10.

¹⁵² International Civil Aviation Organization, Council, *Final Report on the Work of the Secretariat Study Group on the Legal Aspects of CNS/ATM Systems*, Document No. C-WP/12197 of 17th February 2004, Attachment B (Exchange of Letters Between ICAO and the United States of Concerning GPS), Attachment C (Exchange of Letters Between ICAO and Russian Federation Concerning GLONASS).

From the outset, the U.S. has opposed the creation of Galileo, insisting that this system will pose a threat to its national security, could interfere with military uses of GPS, and would be an unnecessary duplication of GPS.¹⁵³ The U.S. also opposed in the International Telecommunication Union the use of certain radio frequencies by the Galileo system. In fact, the U.S. opposition was so intense and persistent that in 2002 the spokesperson for Galileo “declared that under the strain of American pressure, ‘Galileo is almost dead.’”¹⁵⁴ The underlining reasons for the American hostility toward Galileo, according to several individuals, were the loss of American monopoly on satellite navigation and the loss of hundreds of millions of dollars that its companies earn by selling the GPS-related receivers to users around the world.¹⁵⁵

After four years of intense negotiations between the EU and the U.S., an agreement on major issues, including interoperability of both the systems, was reached in February 2004.¹⁵⁶ The agreement became possible only when “the Europeans agreed to change the modulation of Galileo signals intended for government use so they would not disrupt encrypted GPS signals to be used by the US military and NATO.”¹⁵⁷ According to Loyola de Palacio, the European Commission Vice President, “[t]his agreement will allow all users to use both systems in a complementary way with the same receiver. ... It recognizes both sides as equal partners and creates the optimal conditions for the development of the European system, fully independent and compatible and redundant to the American GPS.”¹⁵⁸ Although several legal and procedural issues related to national security remain to be addressed, it is important to note that this

¹⁵³ “Galileo: Issues Still To Be Solved Before Agreement With The U.S.,” Brussels, 9 February 2004; available at <http://www.spacedaily.com/news/gps-euro-04a.html> (accessed 28 May 2004). Also see, “US Warns EU About Galileo’s Possible Military Conflicts,” Brussels (AFP) 18 December 2001, available at <http://www.spacedaily.com/news/gps-euro-01g.html> (accessed 02 January 2002): On 1 December 2001, the U.S. Deputy Secretary for Defense, Paul Wolfowitz, expressed his concerns to the Europeans about the “security ramifications for future NATO operations if the European Union proceeds with Galileo satellite navigation services that would overlay spectrum of the global positioning system (GPS) military M-code signals.”

¹⁵⁴ Sample, Ian, “Europe and US clash on satellite system,” *The Guardian*, Monday, December 8, 2003; available at http://www.guardian.co.uk/uk_news/story/0,3604,1102126,00.html (accessed 15 December 2003).

¹⁵⁵ See, “China Joins EU Space Program To Break US GPS Monopoly,” Beijing, 27 September 2003, available at <http://www.spacedaily.com/news/gps-03zc.html> (accessed 14 March 2004): “in 1986 a GPS locator [receiver] of common precision cost US\$50,000, and one with high precision US\$100,000. Today a locator of a cell-phone size costs no more than US\$2,000, and a high-precision locator only US\$30,000. How much profit American corporations have carried off is imaginable.”

¹⁵⁶ “EU and US reach agreement on GALILEO,” 09 March 2004, available at http://www.europa.eu.int/comm/space/articles/news/news107_en.html (accessed 21 May 2004).

¹⁵⁷ “US, EU sign agreement on satellites,” *Ennis*, Ireland (AFP) Jun 26, 2004, available at <http://www.spacedaily.com/2004/040626094838.ljlpzlh.html> (accessed 28 June 2004).

¹⁵⁸ *Ibid.*

agreement allows non-discriminatory access by all as required by the WTO rules related to trade in satellite navigation goods and services. In other words, Galileo will be an independent and open system to be used by all interested States for civilian and commercial purposes.

The European States have managed to take decisive and important policy decisions that will have significant implications for global space exploration and use. The Galileo system will not only benefit 450 million people in Europe, but will also serve a global market. Perhaps a more important decision of the European States is to open this system not only for use but also for financial (and possibly managerial) participation by other States. The world's two most populated nations, China and India, have already committed to invest €200 million and €300 million respectively.¹⁵⁹ Canada as well as Israel (with its €20-50 million) will also participate in the system.¹⁶⁰ The Russians have agreed to launch the first two Galileo experimental satellites.¹⁶¹ Such wide international participation cannot be expected either from the American GPS or Russian GLONASS systems because of their ownership and control by their respective military establishments, whose primary responsibilities are to actively support the strategic positions of their governments.¹⁶²

The Galileo system, which will consist of 30 satellites, will become operational in 2008 at a cost of approximately €3.5 billion. This joint undertaking of the European Union and the ESA will also be jointly owned by the public and private sectors and managed by a civilian body. Financial participation by countries like China and India and eventual use of the Galileo by

¹⁵⁹ See, "Europe Helps China Setup Satellite Navigation Center," Paris, 19 September 2003, available at <http://www.spacedaily.com/news/gps-03x.html> (accessed 23 September 2003); "China signs agreement with EU on Galileo project," Beijing, 30 October 2003, available at <http://www.spacedaily.com/2003/031030124730.ppien2mq.html> (accessed 04 May 2004); "China Tests European Satellite Positioning System" Beijing, 19 January 2004, available at <http://www.spacedaily.com/news/gps-04f.html> (accessed 23 January 2004); "India to Invest in Galileo satellite project: EU," Brussels, 30 October 2003, available at <http://www.spacedaily.com/2003/031030141843.79tqo71o.html> (accessed 04 May 2004).

¹⁶⁰ "Israel signs up to European satellite project," Brussels, 17 March 2004, available at <http://www.spacedaily.com/2004/040317190214.phid3q06.html> (21 May 2004). Also "EU and Israel GALILEO agreement," 22 March 2004, available at http://www.europa.eu.int/comm/space/articles/news/news109_en.html (accessed 21 May 2004).

¹⁶¹ "Russians To Launch First Two Of EU's Galileo GPS Satellites," Paris, 3 March 2004, available at <http://www.spacedaily.com/news/gps-04v.html> (accessed 22 May 2004).

¹⁶² According to a U.S. Air Force Document, "The United States could attack Europe's planned network of global positioning satellites if it was used by a hostile power such as China": see "US Could Shoot Down Euro GPS Satellites If Used By China In Wartime: Report," London (AFP) 24 October 2004, available at <http://www.spacedaily.com/news/milspace-04zc.html> (accessed 25 October 2004).

hundreds of millions of their citizens could undoubtedly make the system financially viable and self-sustaining.

Galileo could serve as a precedent for further expansion of economic and eventual political ties with other States. One can see the emergence of a multi-polar world (to counterbalance the hegemony of a single superpower). China is already considered a “strategic partner” of the European Union as bilateral trade between them has grown to €134.8 billion a year, and they “now have become each other’s second largest trading partners.”¹⁶³ Important implications of this initiative of the European States will be to enhance development of space science and industrial capability in Europe, to provide civilian and commercial satellite navigation services on a world-wide basis, and to implement global public interest in outer space.

2.5. Military uses and weaponization of space

Article IV of the Outer Space Treaty deals with certain military uses of outer space and celestial bodies.¹⁶⁴ The Article contains a specific prohibition against “placing in orbit around the Earth any objects carrying nuclear weapons or any other kinds of weapons of mass destruction.” The Article does not, however, prohibit the military use of outer space *per se*. Neither does it ban anti-satellite (ASAT) or space-based ballistic missile defense (BMD) systems, provided they do not carry ‘nuclear weapons’ or ‘weapons of mass destruction.’

The United States and the Soviet Union have historically relied exclusively on Article IV of the Outer Space Treaty to determine the legality of space weapons and to argue that ASAT and BMD are lawful. The interpretation of Article IV has essentially centered on the meaning of the term ‘peaceful uses’ as employed in the Treaty. For a long time, there had been two schools of thought on this issue: the Soviet Union insisted that ‘peaceful’ means ‘non-military,’ while the U.S. maintained that the term should be understood to include ‘civilian’ and ‘military non-

¹⁶³ See, “China, EU Developing ‘Mature Partnership’,” Brussels, 05 May 2004, available at <http://www.spacedaily.com/news/china-04zb.html> (accessed 28 May 2004).

¹⁶⁴ Article IV of the Outer Space Treaty provides that: “States Parties to the Treaty undertake not to place in orbit around the Earth any objects carrying nuclear weapons or any other kinds of weapons of mass destruction, install such weapons on celestial bodies, or station such weapons in outer space in any other manner. The Moon and other celestial bodies shall be used by all States Parties to the Treaty exclusively for peaceful purposes. The establishment of military bases, installations and fortifications, the testing of any type of weapons and the conduct of military maneuvers on celestial bodies shall be forbidden. The use of military personnel for scientific research or for any other peaceful purposes shall not be prohibited. The use of any equipment or facility necessary for peaceful exploration of the Moon and other celestial bodies shall also not be prohibited.”

aggressive.’ Eventually, the U.S. view prevailed *de facto* and the controversy ended, at least in regards to the types of space-based military support activities that were prevalent at the time.¹⁶⁵

One may see China’s current position as puzzling. On the one hand, the Chinese believe that the Outer Space Treaty has a “loophole” such that anything not explicitly prohibited by Article IV is seemed to be permitted; therefore, a new agreement is needed. On the other hand, China asserts that expanded military uses of outer space are inconsistent with the principles of the Treaty and thus could be declared illegal since the principles are embedded in the operative text.¹⁶⁶ In fact, there is no inconsistency in these two statements. As discussed below,¹⁶⁷ Article IV was actually designed to be limited in its coverage of nuclear weapons and other WMD in outer space and thus its lacunae need to be filled by a new agreement to supplement the Outer Space Treaty. At the same time the object of the Treaty has been to assure peaceful uses of outer space for the benefit of all and extreme militarization that would damage the peaceful utilization of outer space is contrary to the provisions of the Outer Space Treaty.

The legality of excessive militarization and space weapons must not be determined exclusively on the application and interpretation of a single provision in Article IV of the Outer Space Treaty. All provisions must be interpreted in conjunction with other provisions, the Preamble of the Treaty, and its negotiation and ratification history.¹⁶⁸ Ambassador Arthur Goldberg, who had participated on behalf of the U.S. in the negotiation of the Treaty in

¹⁶⁵ According to the 2001 Rumsfeld Commission Report: “The U.S. and most other nations interpret ‘peaceful’ to mean ‘non-aggressive’; this comports with customary international law allowing for routine military activities in outer space, as it does on the high seas and in international airspace”: Executive Summary, *Report of the Commission to Assess United States National Security Space Management and Organization* (chaired by Donald H. Rumsfeld), Pursuant to Public Law 106-65, January 11, 2001, p. 17. The rationality of the American view on the term ‘peaceful’ is doubtful. Vlasic asserts that, “if ‘peaceful’ means ‘non-aggressive’ then it follows logically — and absurdly — that all nuclear and chemical weapons are also ‘peaceful; as long as they are not used for aggressive purpose.” Ivan Vlasic, “The Legal Aspects of Peaceful and Non-Peaceful Uses of Outer Space,” in Bhupendra Jasani (ed), *Peaceful and Non-Peaceful Uses of Space: Problems of Definition for the Prevention of an Arms Race*, (New York: Taylor & Francis, 1991), p. 37, at p. 45.

¹⁶⁶ “China Says It Opposes Militarization Of Outer Space,” Beijing (AFP) May 19, 2005; available at <http://www.spacedaily.com/news/milspace-05za.html> (accessed 20 May 2005): on 19 May 2005, the Chinese Foreign Ministry spokesman Kong Quan stated: “Space is our shared treasure and we have consistently maintained the need for the peaceful use of space so as to benefit all of mankind. ... We are opposed to the militarization of outer space. We support preventive measures, including the adoption of international legal documents to guarantee the peaceful use of outer space.” Also see “China Calls For Preventing Outer Space Arms Race,” Geneva (XNA) 27 August 2004, available at <http://www.spacedaily.com/news/china-04zzb.html> (accessed 11 September 2004); UN Press Release, China accepts “Five Ambassadors” Proposal on Prevention of an Arms Race in Outer Space as amended, 07.08.03, available at <http://www.unog.ch/news2/documents/newsen/dc0333e.htm> (accessed 11 September 2004).

¹⁶⁷ See below subsection 3.4 of this paper.

¹⁶⁸ See *supra* notes 4 to 12 and the accompanying text.

COPUOS, in his testimony before the U.S. Senate's Committee on Foreign Relations on the Outer Space Treaty, had pointed out that "any document must be read in its entirety, and you must take article I and read it in reference to articles II, III, IV, the whole Treaty. You cannot isolate one section and read it in isolation, and when you read it as a whole, you get the meaning of the Treaty."¹⁶⁹ In his written statement to the Senate, Ambassador Goldberg, referring to Article IV, also said that, "Surely it is much better and definitely easier to close the door to the arms race before it enters a new dimension, than to attempt to root it out once it has become established."¹⁷⁰ When welcoming the adoption of the Outer Space Treaty in 1967, then-U.S. President Lyndon Johnson hailed the Treaty as "the most important arms control development since the limited Test Ban Treaty of 1963."¹⁷¹ Similarly, when submitting the Treaty to the U.S. Senate, for its advice and consent, President Johnson asserted that, now, "No one may use outer space or celestial bodies to begin war."¹⁷²

The deployment, and not to mention use, of space weapons of any kind, would in all likelihood lead to an arms race in outer space and thus would be contrary (a) to Article III of the Outer Space Treaty as such an arms race would threaten international peace and security as well as international cooperation;¹⁷³ (b) to the spirit and the letter of the Treaty as a whole, even though not specifically the provisions of Article IV; and (c) consequently to the global public interest in outer space.

¹⁶⁹ Cited in *The Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies*, Analysis and Background Data, Staff Report, prepared for the Use of the Committee on Aeronautical and Space Sciences, United States Senate, March 1967. (Washington: US Government Printing Office, 1967), p. 33.

¹⁷⁰ "Statement by Ambassador Arthur J. Goldberg Before the Committee on Foreign Relations, U.S. Senate, on the Outer Space Treaty," in Hearings before the Committee of Foreign Relations, United States Senate, Ninetieth Congress, First Session on Executive D, 90th Congress, First Session (Washington: Government Printing Office, 1967), p.148.

¹⁷¹ Cited in *The Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies*, Analysis and Background Data, Staff Report, prepared for the Use of the Committee on Aeronautical and Space Sciences, United States Senate, March 1967. (Washington: US Government Printing Office, 1967), p. 16.

¹⁷² "Letter of Transmittal to the Senate of the United States by President Lyndon Johnson," Hearings before the Committee of Foreign Relations, United States Senate, Ninetieth Congress, First Session on Executive D, 90th Congress, First Session (Washington: Government Printing Office, 1967), p.105, at p.107.

¹⁷³ Article III of the Outer Space Treaty, provides that "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 co-operation and understanding."

There is clear evidence that shows strong international support for such a broad interpretation of the Outer Space Treaty. In a series of UN General Assembly resolutions, most recently in 2004, member States of the international community overwhelmingly reaffirmed the provisions of Articles III and IV of the Treaty and urged all States to strive prevent an arms race in outer space, to maintain international peace and security and to promote international cooperation.¹⁷⁴ As at this time there may not be any weapons in outer space, the international community, through the UN, should urgently take action to prevent a weapons race in outer space. (For more discussion of this issue, see below subsection 3.4 of this paper).

3. Future Legal Regime for Space Governance

As noted above, starting in 1958 the UN General Assembly through COPUOS initially addressed all matters related to outer space. When the subject of excessive militarization of space surfaced in the mid 1970s, several States started expressing their concerns. On the insistence of some States, particularly the major space powers, the forum for discussion of military uses then became the Conference on Disarmament (CD) because of the close affinity between general arms controls efforts and the utilization of outer space for military purposes. Since progress continues to be stalemated in the CD on any significant arms control matters, it also remains dormant on outer space issues. It is disheartening to note that while the UNGA keeps calling for action on this matter, the CD remains deadlocked and the COPUOS is not ‘allowed’ to deliberate this issue because some States, especially the some major space powers, believe that this body should only address non-military space issues. In any discussion about the legal regime for future space governance it is imperative to assess the law-making process and the forum (or fora) that could be conducive to making the necessary progress.

¹⁷⁴ UNGA, “Prevention of an arms race in outer space,” Resolution A/RES/59/065 adopted on 17 December 2004. The Resolution was adopted by 178 votes in favor, none against and with 4 abstentions (i.e., Haiti, Israel, Palau, and the United States).

3.1. International space law-making process

The Outer Space Treaty was negotiated through the United Nations, the sole political and representative body of the whole international community. Although not specifically provided in its Charter, the UN has been generally considered to have the proper competence to consider legal issues arising from all outer space activities. From the very advent of space age, the UN General Assembly has assumed responsibility for all outer space matters and discharges it primarily through its Committee on the Peaceful Uses of Outer Space.

The COPUOS was first established in 1958 as an ad hoc Committee with eighteen member States. A year later it was reestablished as a permanent body and its membership has since been increased periodically to the present number of sixty-seven.¹⁷⁵ The membership of COPUOS is based on the principle of equitable representation of developed and developing countries, space powers and non-space powers, and from all the regions of the world. The COPUOS functions through its two Subcommittees, the Scientific and Technical Subcommittee and the Legal Subcommittee. The Legal Subcommittee drafts treaties and agreements regarding outer space and presents them to the General Assembly. The General Assembly, in turn, adopts them as resolutions and recommends them for signature and ratification by its member States.¹⁷⁶

Both the COPUOS and its Subcommittees make decisions on the basis of an informal rule of consensus. In practice, the process of law-making has largely been geared to the desires of the former Soviet Union and the United States. Despite the influential presence of the super-powers in COPUOS, other States have played a part in the formulation of the international space

¹⁷⁵ Member States (67) of the COPOUS are: Albania, Algeria, Argentina, Australia, Austria, Belgium, Benin, Brazil, Bulgaria, Burkina Faso, Cameroon, Canada, Chad, Chile, China, Colombia, Cuba, Czech Republic, Ecuador, Egypt, France, Hungary, Germany, Greece, India, Indonesia, Iran, Iraq, Italy, Japan, Kazakhstan, Kenya, Lebanon, Malaysia, Mexico, Mongolia, Morocco, Netherlands, Nicaragua, Niger, Nigeria, Pakistan, Peru, Philippines, Poland, Portugal, Republic of Korea, Romania, the Russian Federation, Saudi Arabia, Senegal, Sierra Leone, Slovakia, South Africa, Spain, Sudan, Sweden, Syrian Arab Republic, Turkey, the United Kingdom of Great Britain and Northern Ireland, the United States of America, Ukraine, Uruguay, Venezuela and Viet Nam. UN General Assembly Resolution A/RES/57/116 of 2003 on “International cooperation in the peaceful uses of outer space” adopted without a vote. Libya and Thailand were added by Res. 59/116 Paragraph 44 of 25 Jan 2005.

¹⁷⁶ According to Jasentuliyana: “The process of drafting [international agreements] is necessarily detailed, laborious, and time-consuming, involving formal statements of position, general discussions, detailed negotiations, editorial review, and most important, numerous informal consultations which allow delegations to make compromises without having to formally depart from stated positions.” Jasentuliyana, N., “The Lawmaking Process in the United Nations,” in Jasentuliyana, N. (ed.), *Space Law: Development and Scope*, 1992, p. 33.

regime, but their views could not prevail, nor could the superpowers gain everything they wanted, without the consent of other member States of the COPUOS.¹⁷⁷

The consensus rule was adopted in 1962 in order to satisfy the concerns of certain States particularly the Soviet bloc countries, which feared their views might be ignored when important decisions would be made by vote.¹⁷⁸ Adoption of the consensus rule ensured that the decision-making process in the COPOUS would be fair to all member States.

The consensus rule worked relatively well in the past, as five treaties and three resolutions on major space law issues were successfully drafted and adopted, the only exception being the 1982 Resolution on the Direct Television Broadcasting via Satellite, which was drafted by the COPUOS and adopted through a UNGA resolution by a majority vote.¹⁷⁹ However, in recent years the rule has become controversial. The increase in membership of the COPUOS seems to have made the process of law-making more difficult. It is said that this rule (i) retards reaching decisions; (ii) results in the adoption of vague (compromised) wording in the text of treaties and resolutions; and (iii) prevents important issues being placed on the agenda of the Legal Subcommittee. Since the adoption of the Moon Agreement in 1979,¹⁸⁰ not a single new space law treaty has been drafted by the Legal Subcommittee. Several important items have been proposed for inclusion in its agenda, but to no avail. These items related to: (i) commercial aspects of space activities (intellectual property, insurance and liability); (ii) legal control of space debris; (iii) comparative review of international space law and international environmental law; (iv) improvements in the Registration Convention; (v) militarization and weaponization of outer space; and (vi) the drafting of a single comprehensive space treaty. All these issues are important to all States (both space and non-space powers) but have not been accepted for discussion in the Legal Subcommittee. On the other hand, the COPUOS agreed in 2001 to add to the agenda of the Legal Subcommittee an item relating to the Draft Convention of Unidroit on

¹⁷⁷ For detailed discussions, see Jasentuliyana, *ibid*; Jakhu, Ram, "Developing Countries and the Fundamental Principles of International Space Law," in Girardot, R.G., *et al* (ed.), *New Directions in International Law*, 1982, pp. 351-373.

¹⁷⁸ After serious and lengthy discussions amongst the member States with respect to the procedure for decision making in the COPUOS, on 19th March 1962 the Chairman of the COPUOS announced that "The Committee and its subcommittees [would] conduct the Committee's work in such a way that the Committee will be able to reach agreement on its work without need for voting."

¹⁷⁹ "Principles Governing the Use by States of Artificial Earth Satellites for International Direct Television Broadcasting," General Assembly Resolution 37/92, adopted by 107 votes to 13, with 13 abstentions, on 10 December 1982; U.N. Document A/37/PV.100 of 17 December 1982.

¹⁸⁰ The Moon Agreement, *op. cit*, *supra* note 2.

International Interests in Mobile Equipment¹⁸¹ — an issue important only to a limited number of States. According to some States that participated in the IV Space Conference of the Americas (in Cartagena, Colombia, 14-17 May 2002), the law-making process in the Legal Subcommittee has reached a stage of serious crisis. A very small minority of powerful States is monopolizing decision-making in COPUOS using the requirement of consensus as a veto power. The current rule of decision-making in COPUOS clearly needs to be changed to make the Committee more efficient and effective in its international space law-making efforts.

It is also disheartening to note that since 1979 the COPUOS has avoided the drafting of binding agreements and preferred to adopt non-binding resolutions. This approach is favored by some States on the grounds that it is easier¹⁸² to agree upon resolutions than on binding treaties. However, as we have seen in the cases of the 1961 Resolution on Satellite Telecommunications¹⁸² and the 1986 Resolution on Remote Sensing,¹⁸³ some States do not hesitate to adopt national regulations or take other actions that are contrary to the provisions of these Resolutions.

In this regard, a recent development in negotiating an important treaty may be noted. When the negotiations of the Anti-Personnel Mines Convention¹⁸⁴ were failing, Canada challenged the international community to negotiate in earnest and sign a treaty by December 1997. This initiative, which became known as the ‘Ottawa Process,’ included a strong commitment by the like-minded States to proceed with the negotiations and not to be discouraged by the fact that major States, especially the U.S. and the Russian Federation, were not interested in participating in the negotiation. Today, irrespective of the fact that the U.S. and the Russian Federation are not parties to the Landmines Convention, this treaty is considered to be a great success as over 145 States have signed or ratified it.¹⁸⁵ Influenced by strong support for

¹⁸¹ The agenda item on “Consideration of the draft convention of the International Institute for the Unification of Private Law (Unidroit) on international interests in mobile equipment and the preliminary draft protocol thereto on matters specific to space property”: UN Doc. A/AC.105/763 (24 April 2001).

¹⁸² As discussed in *supra* subsection 2.2 of this paper.

¹⁸³ As discussed in *supra* subsection 2.3 of this paper.

¹⁸⁴ Convention on the Prohibition of the Use, Stockpiling, Production and Transfer of Anti-Personnel Mines and on their Destruction, signed on 3-4 December 1997 in Ottawa, Canada; available at <http://www.un.org/millennium/law/xxvi-22.htm> (accessed 15 March 2005).

¹⁸⁵ The Convention entered into force on 1 March 1999 and there are 145 ratifications, accessions, or approvals as of 20 December 2004; available at <http://www.mines.gc.ca/convention-en.asp> (accessed 23 February 2005). “While even the truly pro-ban States at the October 1996 Ottawa meetings were horrified by the challenge, it was precisely Canada’s willingness to step outside of ‘normal’ diplomatic process which was another key element in the

this the Convention, several non-signatory States have recently declared their unilateral moratoriums on the use, production, stockpiling, and transfer of anti-personnel mines. Admitting that the issues related to landmines and outer space activities are not similar, perhaps, the precedent of ‘Ottawa Process’ could be used to deal with some specific and urgent space-related issues.¹⁸⁶

3.2. Boundary between air space and outer space

The question of the boundary between air space and outer space is one of the oldest still-unresolved items on the agenda of the Legal Subcommittee of COPUOS.¹⁸⁷ While a majority of countries insist on the necessity of establishing such a boundary, several industrial States, led by the U.S. and a few of its allies, strongly object, claiming that the absence of a demarcation between air space and outer space has caused no problems up to now. The proponents of establishing a boundary line point out that since the legal regimes that govern air space and outer space are utterly dissimilar, clear demarcation is necessary. One advocate of this view stressed in the Legal Subcommittee of COPUOS that “definition and delimitation of outer space [are] indispensable for member States to have a legal basis on which to regulate their national territories and to resolve issues arising from collisions that could occur between aerospace objects and aircraft.”¹⁸⁸

A similar problem in the Law of the Sea was resolved in the 1960s when a boundary was established between the territorial sea and the high seas. This occurred after a number of States began unilaterally extending the breadth of their territorial sea to twelve miles, a practice that

success of the ban movement.”: Jody Williams, 1997 Nobel Laureate for Peace, speaking about Canada’s challenge to negotiate a treaty against anti-personnel landmines in one year; available at http://www.mines.gc.ca/II/II_B-en.asp (accessed 23 February 2005).

¹⁸⁶ For details, see Johnson, Rebecca, “Multilateral Approaches to Preventing the Weaponization of Space,” *Disarmament Diplomacy*, Issue no. 56 (April 2001), available at: <http://www.acronym.org.uk/dd/dd56/56rej.htm> (accessed 30 July 2005).

¹⁸⁷ One of the items on the agenda of the Legal Subcommittee is: “Matters relating to: (a) The definition and delimitation of outer space; (b) The character and utilization of the geostationary orbit, including consideration of ways and means to ensure the rational and equitable use of the geostationary orbit without prejudice to the role of the International Telecommunication Union.”

¹⁸⁸ UN Doc. A/AC.105/763 (24 April 2001).

eventually was formalized in the Law of the Sea Convention.¹⁸⁹ National initiatives might also provide the impetus for international agreement on a clear air space–outer space demarcation line. For example, Australia’s 1998 Space Activities Act,¹⁹⁰ which governs all launches above 100 kilometers, seems to recognize that outer space begins at the altitude of 100 kilometers. The Australian view on the height of the air space is similar to what the Soviet Union had proposed at the 1979 Session of the Legal Subcommittee of COPUOS (and reiterated in 1983): “The boundary between outer space and air space shall be established by agreement among States at an altitude not exceeding 110 kilometers above the sea level, and shall be legally confirmed by the conclusion of an international legal instrument of a binding character.”¹⁹¹ In this context it is also interesting to note that the recent launch of the first privately funded aerospace vehicle, SpaceShipOne, which ‘flew’ up to an altitude of 100 km (62 miles), underscored the fact that outer space possibly begins at the height of 100 km above the Earth.¹⁹²

3.3. Space debris

At present, only about 6 to 7 percent of the 8,000 to 9,000 regularly tracked man-made space objects are operating satellites, whereas the rest, 94 to 93 percent, are space debris.¹⁹³

¹⁸⁹ Article 3, United Nations Convention on the Law of the Sea (and the Agreement relating to the implementation of Part XI of the Convention), signed at Montego Bay, Jamaica, 10 December 1982, Entered into force: 16 November 1994 (there are 148 ratifications as of 1 January 2005); available at http://www.un.org/Depts/los/convention_agreements/convention_overview_convention.htm (accessed 12 April 2005).

¹⁹⁰ Section 8 on ‘Definitions,’ An Act About Space Activities, and for Related Purposes (No. 123 of 1998) as amended in 2004. Also see “National Regulatory Régimes” at http://www.spacelaw.com.au/content/reg_in_australia.htm (accessed 24 December 2004)

¹⁹¹ UN Document A/AC.105/C.2/L.139 of 4 April 1983.

¹⁹² “Private craft makes space history,” available at <http://news.bbc.co.uk/go/pr/fr/-/1/hi/sci/tech/3811881.stm> (accessed 22 June 2004); “Private space craft set for historic manned flight,” Mojave, California (AFP) Jun 21, 2004, available at <http://www.spacedaily.com/2004/040621072911.5e6t6bj4.html> (accessed 22 June 2004).

¹⁹³ For details on space debris, see *Orbiting Debris: A Space Environmental Problem*, October 1990, OTA-BP-ISC-72; Flury, W., Space Debris, Mission Analysis Section, ESOC, ESA, available at <http://esapub.esrin.esa.it/pff/pffv4n4/ppfflunr4.htm> (accessed 12-Nov-99); “Keeping Space Free Of Debris,” Paris - Nov 27, 2003, available at <http://www.spacedaily.com/news/debris-03a.html> (accessed 11 September 2004); “Alarm system to help China’s first manned space shuttle avoid collisions,” Beijing (AFP) 11 August 2003, available at <http://www.spacedaily.com/2003/030811045619.px27s7gd.html> (12 March 2004); “Argentine authorities seeking US help in identifying piece of space junk,” Buenos Aires (AFP) 21 January 2004, available at <http://www.spacedaily.com/2004/040121225802.g8r47dqk.html> (accessed 23 January 2004); “Colombia gaze nervously skyward, fearing shower from Italian satellite,” Bogota (AFP) 26 April 2003, available at <http://www.spacedaily.com/2003/030426162406.ntkbos42.html> (accessed 28 April 2003); Space Debris Note to the UN by Saudi Arabia, UN Doc. A/AC.105/762 of 3 April 2001; “Insurers fear space junk” Italian insurer Generali

There have been several recorded close encounters with space debris and one confirmed collision, in which the spent third stage of Ariane Flight 16 collided with and destroyed the French military micro-satellite CERISE on 24 July 1996.¹⁹⁴ Due to rapidly increasing space debris, the use of outer space is steadily becoming even more dangerous and expensive. Several studies conducted by various experts and organizations as well as the views expressed in the COPUOS Scientific and Technical Subcommittee show that the problem of space debris is serious.¹⁹⁵ Such debris not only pose a threat to active satellites in the orbit but could also cause damage on the surface of the Earth if they fall back to Earth. For example, the Soviet satellite COSMOS 954 disintegrated in 1978 and scattered radioactive debris over a large area in Northern Canada.¹⁹⁶

The rationale for legal controls of space debris lies in the strong possibility of serious damage to operating spacecraft as the amount of debris is increasing rapidly. A collision of a piece of space debris with an active military satellite, such as the CERISE accident, during a period of high tension could have very serious implications between the concerned States. To control and reduce these hazards, the major users of space should take the initiative as their activities and assets in space are at higher risk. Non-space powers should also be concerned; being the latecomers in the use of outer space, they would bear the heavier risks, particularly because of the presence of space debris in the geostationary orbit. In that orbit, the possibility of physical collisions between space debris and active satellites is becoming serious, even though a large majority of countries do not yet have a single satellite in that orbit.

warns of debris at Venice space insurance conference, 17 April 1997, available at <http://www.satobs.org/seesat/Apr-1997/0164.html> (accessed 05 May 2004); "Earth's Growing Orbital Ring Of Machines and Debris," Moscow, 14 May 2001, available at <http://www.spacedaily.com/news/debris-01b.html> (accessed 11 September 2004); Anz-Meador, P., "Constellations Spawn Debris Rings Around Earth," for Orbital Debris News: JSC Houston, October 2000, available at <http://www.spacedaily.com/news/debris-00d.html> (accessed 11 September 2004); etc.

¹⁹⁴ *Space Security Index* 2004 (Waterloo, 2005), p. 4.

¹⁹⁵ According to Technical Report on Space Debris by the Scientific and Technical Subcommittee of the Committee on the Peaceful Uses of Outer Space, "the known and assessed population of debris is growing, and the probabilities of potentially damaging collisions will consequently increase": available at <http://www.oosa.unvienna.org/isis/pub/sdtechrep1/sect04.html> (accessed 04 February 2004).

¹⁹⁶ See *Settlement of Claim between Canada and the Union of Soviet Socialist Republics for Damage Caused by Cosmos 954*, Canadian Department of External Affairs Communique No. 27, Released on 2 April 1981.

A few States, including the U.S., have already started to implement modest national space debris reduction policies.¹⁹⁷ The space agencies of Canada, China, Europe, India, Russia, and the U.S. have also been consulting with each other on this issue through an informal group called the Inter-Agency Space Debris Coordination Committee (IADC) and have adopted voluntary guidelines for mitigation of space debris production.¹⁹⁸ Such initiatives are useful in the short term, but the effectiveness of national and even plurilateral regulatory initiatives would be limited since a single major accident could create hazards for space activities of all States. At the UN, the Scientific and Technical Subcommittee of the COPUOS has been discussing the issue of space debris since 1994. Even after a decade of deliberations, the Subcommittee did not achieve anything concrete except to agree “that member States, in particular space-faring countries, should pay more attention to the problem of collision of space objects, including those with nuclear power sources on board, with space debris and to other aspects of space debris, as well as its reentry into the atmosphere.”¹⁹⁹ Several States expressed the desire to endorse the IADC voluntary guidelines but no decision was taken. Such reluctance on the part of States, especially the major space-faring-nations, in the adoption of international legal rules (or even voluntary guidelines) to regulate space debris could be only due to the fact that they have not been willing to accept any legal controls on their freedom of action.

Since the issue of space debris is not currently being addressed by the Legal Subcommittee of the COPUOS, it is suggested that this item be placed on the agenda of the Subcommittee with a view to drafting regulations to control this threat. However, as a starting point the Legal Subcommittee should basically endorse the guidelines that have already been drafted by the IADC and later develop binding regulations. Uncontrolled growth of space debris

¹⁹⁷ For details, see the November 1996 National Aeronautics and Space Administration Policy Directive (NPD) 8710.XX, on “Policy to Limit Orbital Debris Generation”; the US Department of Defense (United States Space Command - USSPACECOM), Space Debris Policy USSPACECOM Regulation 57-2 (Headquarters United States Space Command, Peterson Air Force Base, Colorado 80914-5003, 6 June 1991); the Department of Commerce, National Oceanic and Atmospheric Administration 15 CFR Part 960 [Federal Register: July 31, 2000 (Volume 65, Number 147)], Licensing of Private Land Remote-Sensing Space Systems; Interim Final Rule, Sections, 960.3 and 960.11; Federal Communications Commission News, “FCC opens proceeding regarding mitigation of orbital debris,” 14 March 2002.

¹⁹⁸ IADC space debris mitigation guidelines, IADC-02-01 (15 October 2002), available at http://www.iadc-online.org/docs_pub/IADC-101502.Mit.Guidelines.pdf (accessed 23 July 2005).

¹⁹⁹ United Nations General Assembly, *Report of the Scientific and Technical Subcommittee on its forty-first session*, held in Vienna from 16 to 27 February 2004, UN Doc. A/AC.105/823 (8 March 2004), para. 89.

can seriously harm and restrict future use of outer space and thus is contrary to the global public interest in outer space.

3.4. Space militarization and weaponization

Military satellites enhance the potential of virtually all weapons systems. Early warning, meteorological, and navigation satellite systems provide efficient and reliable assistance to modern weapons systems. The importance of satellites for military operations in war was for the first time convincingly demonstrated during the Gulf War in 1991.²⁰⁰

During the 1980s and 90s, extensive technological efforts and advances were made in the development of weapons to be used in, to, and from space to attack satellites in orbit, missiles and warheads in transit through space, and objects on the surface of the Earth. Interest in the development of space weapons has been increasing with (i) the growing dependence on space assets for the operation of armed forces and terrestrial weapons, and (ii) the adoption of new aggressive military doctrines.

The weaponization of space can take on a variety of forms: first, there are space strike or orbital bombardment weapon systems. Second, there are anti-satellite (ASAT) weapon systems, the sole purpose of which is to degrade, damage, or destroy other satellites. Any country that can launch a satellite into orbit could have at least a rudimentary capability to destroy other satellites, due to the high velocities encountered in orbit and the inherent fragility of satellites. Finally, there are ballistic missile defense (BMD) weapon systems. “Some variants of BMD systems may be based in outer space and be used to destroy incoming ballistic missiles through the boost and mid-course phases of their flight. Putative weapons, such as orbiting space-based lasers based on ‘exotic’ technologies or variants of conventionally armed and kinetic energy ‘kill-mechanism’ missile interceptors may be capable of performing all three functions.”²⁰¹

²⁰⁰ In his written Testimony presented to the Senate Armed Services Committee Strategic Forces Subcommittee (March 22, 1999, Peterson AFB, Colorado), the US General Richard B. Myers expressed that “the successes of DESERT FOX and, for that matter all future military operations, are directly linked to on-orbit assets that are operated by my Component Commanders. ... Space capabilities are so integral to successful operations that we will never again execute a contingency operation or war plan without the benefit of the space-based systems providing weather, warning, navigation, communication, and intelligence information”: available at <http://www.spacecom.af.mil/usspace/speech14.htm> (accessed 10 January 2001).

²⁰¹ “The Non-weaponization of Outer Space”: available at <http://www.dfait-maeci.gc.ca/arms/outer3-en.asp> (accessed 23 April 2003). “Long-range US BMD plans envision a ‘layered’ approach to intercepting missiles by

Recently, dramatic changes have occurred in the military space doctrine of the U.S., which now includes (i) striving to achieve space control and dominance, and (ii) the ability to deny the use of space to others.²⁰²

It seems that, perhaps relying on the *obiter dictum* of the Lotus case, the U.S. Government believes that “[t]here is no blanket prohibition in international law on placing or using weapons in space, applying force from space to Earth or conducting military operations in and through space.”²⁰³ However, the fallacy of this position from the international law perspective is evident, not only because of inapplicability of the Lotus decision to outer space activities,²⁰⁴ but also in view of almost unanimous rejection by the international community of this position, expressed most recently in the December 2004 UN General Assembly Resolution.²⁰⁵ The Resolution recalls “the obligation of all States to observe the provisions of the Charter of the United Nations regarding the use or threat of use of force in their international relations, including in their space activities.”

Placing weapons in outer space would pose a significant threat to world peace as well as to civilian satellites and could deny access to space in practice to all. According to the Canadian Department of Foreign Affairs and International Trade:

The development, testing and deployment of space-based anti-satellite and ballistic missile defense systems, in addition to threatening the current peaceful uses of outer space, could also extinguish the explicit right of use of outer space of any nation in favor of implicit permission for its use by the first nation to successfully deploy such weapons

using land (large interceptor rockets or mobile launchers such as the current US ‘Patriot’ system), sea (‘Aegis’ class missile ships), and air (airborne laser) platforms to shoot down incoming missiles. Air- and sea-based platforms can be positioned close to the launch site to intercept a hostile missile during its ‘boost phase’ (the period just after a missile’s launch). Land-based platforms are better at intercepting missiles during the ‘mid-course phase’ (when the missile is coasting through space or high in the atmosphere) and ‘terminal phase’ (when the missile makes its final approach toward its intended target)”: Canada and Ballistic Missile Defence, “Discussions with the United States on possible Canadian participation in the Ballistic Missile Defense of North America,” available at <http://www.dfait.gc.ca/department/focus/bmd-en.asp> (accessed 15 January 2004).

²⁰² For details, see *Joint Vision 2020 Report of the United States Space Command*, available at <http://www.spacecom.af.mil/usspace/> (accessed 25 January 2001); and *The National Security Strategy of the United States of America*, September 2002.

²⁰³ Executive Summary, *Report of the Commission to Assess United States National Security Space Management and Organization*, (chaired by Donald H. Rumsfeld), Pursuant to Public Law 106-65, January 11, 2001, p. 17.

²⁰⁴ See *supra* notes 23 to 29, and the accompanying text.

²⁰⁵ United National General Assembly Resolution on “Prevention of an arms race in outer space,” No. A/RES/58/36, adopted on 8 January 2004 with 174 votes in favour, 4 against (i.e., Federated States of Micronesia, Israel, Marshall Islands, United States of America), and no abstention.

in outer space. Access to outer space via space launch vehicles might then need to run a gauntlet of orbiting space-based weapons.”²⁰⁶

While some States, including Australia, Japan, and the U.K., support at least some aspects of the American BMD project,²⁰⁷ China and Russia have consistently been voicing their concerns about the weaponization of space, which could in their view trigger a space arms race.²⁰⁸ In addition, several European nations, particularly Germany and France, remain “unconvinced of [BMD’s] necessity.”²⁰⁹ Canada has consistently opposed all efforts to weaponize outer space, including space-based missile defense.²¹⁰ After lengthy internal policy discussions, Canada decided on 24 February 2005 not to join the U.S. Ballistic Missile Defense system. Canada will continue working with the U.S. through NORAD for the defense of North America but will not concentrate on missile defense.²¹¹

The probability of a space arms race is real and imminent. The development and eventual deployment of an American BMD system or offensive space weapons would create more international tensions because it is highly unlikely that the two major space powers that the U.S. sees as its principal potential adversaries, Russia and China, will let American space ‘dominance’ develop unchallenged. In December 2004, the UN General Assembly recognized

²⁰⁶ *The Non-weaponization of Outer Space*, available at <http://www.dfait-maeci.gc.ca/arms/outer3-en.asp> (accessed 23 January 2003).

²⁰⁷ See “Australia agrees to join US missile defense program,” Canberra (AFP) Dec 04, 2003, available at <http://www.spacewar.com/2003/031204065649.7opikieg.html> (accessed 11 September 2004); “Japan says it will join US missile defense system,” Tokyo (AFP) Dec 19, 2003, available at <http://www.spacewar.com/2003/031219025501.06sbwku0.html> (accessed 11 September 2004); “Britain agrees to US missile defence request,” London (AFP) Feb 05, 2003, available at <http://www.spacedaily.com/2003/030205172355.v9jukd9c.html> (accessed 28 April 2003).

²⁰⁸ United Nations Press Release, China and Russia Present New Contributions to Conference on Banning Weapons in Outer Space, available at <http://www2.unog.ch/news2/documents/newsen/dc04033e.htm> (accessed 02 April 2005). Also See the Working Paper of the Peoples’ Republic of China and the Russian Federation entitled “Possible Elements for a Future International Legal Agreement on the Prevention of the Deployment of Weapons in Outer Space, The Threat or Use of Force Against Outer Space Objects,” presented to the Conference on Disarmament, document CD/1679 of 28 June 2002; “China slams US missile plan; other world reaction mixed,” available at <http://www.spacedaily.com/news/010502093735.lt16ot5z.html> (accessed 02 May 2001); “Russia Expects ABM Treaty Compliance,” available at <http://www.spacedaily.com/spacecast/news/bmdo-99m.html> (accessed 13-Oct-99).

²⁰⁹ Barrie, D., “Rumsfeld Fails to Win Foreign Ministers’ Support for NMD,” *Space News*, June 4, 2001, p. 18.

²¹⁰ Canada’s former Foreign Affairs Minister John Manley said that Canada was “unalterably opposed” to the American BMD, which “would be very destabilizing because it could provoke unpredictable responses”: J. Sallot, “U.S. space arms plan draws ire of Canada,” *The Globe and Mail*, Toronto, July 26, 2001, p. A 9.

²¹¹ “Canada Will Not Participate In US Missile Defence Program” Montreal (AFP) Feb 24, 2005; available at <http://www.spacewar.com/news/bmdo-05i.html> (accessed 25 February 2005); *CBC News*, “Canada won’t join missile defence plan” Last Updated Thu, 24 Feb 2005, available at <http://www.cbc.ca/story/canada/national/2005/02/24/missile-canada050224.html> (accessed 24 February 2005).

that “prevention of an arms race in outer space would avert a grave danger for international peace and security.”²¹² The General Assembly called upon “all States, in particular those with major space capabilities, to contribute actively to the objective of the peaceful use of outer space and of the prevention of an arms race in outer space and to refrain from actions contrary to that objective and to the relevant existing treaties in the interest of maintaining international peace and security and promoting international cooperation.”²¹³ However, as noted above, the U.S. is of the opinion that international law contains no prohibition against using conventional weapons in space or applying force from space. For that reason, it is reluctant to discuss and negotiate any international treaty which might indirectly or even by implication compromise its position. The 2001 Rumsfeld Commission Report candidly expressed that, “[t]he U.S. must be cautious of agreements intended for one purpose that, when added to a larger web of treaties or regulations, may have the unintended consequences of restricting future activities in space.”²¹⁴

Currently, as far as is known, there are no weapons in outer space. However, at least one space power is making preparations to use outer space for warfighting, dominance, and control. The international community, through the UN, must take an urgent and concerted action to prevent a space arms race before it is too late. The standard resolutions obviously remain ineffective. A resolution on general principles should be drafted and adopted to clarify and strengthen those already included in several treaties governing outer space, particularly the Outer Space Treaty, in order to prevent an arms race in outer space and to protect its peaceful uses for all States. The proposed resolution should expressly and clearly prohibit in time of peace any threat or use of force in and from outer space. Article 3 (2) of the 1979 Moon Agreement contains a useful precedent for such a prohibition.²¹⁵ The negotiation for the resolution should be

²¹² UNGA, “Prevention of an arms race in outer space,” Resolution A/RES/59/065 adopted on 17 December 2004. The Resolution was adopted by 178 votes in favor, none against and with 4 abstentions (i.e., Haiti, Israel, Palau, and the United States).

²¹³ *Ibid.*

²¹⁴ Executive Summary, Report of the Commission to Assess United States National Security Space Management and Organization, (chaired by Donald H. Rumsfeld), Pursuant to Public Law 106-65, January 11, 2001, pp. 17-18.

²¹⁵ Article 3.2 of the 1979 Moon Agreement, *op. cit. supra* note 2, specifies that, “Any threat or use of force or any other hostile act or threat of hostile act on the moon is prohibited. It is likewise prohibited to use the Moon in order to commit any such act or to engage in any such threat in relation to the Earth, the Moon, spacecraft, the personnel of spacecraft or man-made space objects.”

undertaken by the Legal Subcommittee of the COPUOS²¹⁶ because the decade-long deliberations in the Conference on Disarmament continue to remain deadlocked. Eventually, the Conference could undertake the negotiation of precise and detailed agreements implementing the principles included in the resolution adopted by the COPUOS. It is the right as well as the responsibility of the COPUOS to ensure that outer space be used for truly peaceful purposes and to enhance the global public interest in outer space for the benefit of all mankind.

3.5. Legal regime for the Moon and other celestial bodies²¹⁷

The 1979 Moon Agreement that establishes a specific legal regime (though applicable only to the States Parties to the Agreement) for the Moon and other celestial bodies is the last of the five international treaties that have been negotiated in the Legal Subcommittee of the COPUOS. The most important and innovative provision of this treaty deals with equitable sharing of the benefits from the exploitation of the natural resources of the Moon and other celestial bodies. Under Article 11 of the Agreement, the Moon, other celestial bodies, and their natural resources are declared the ‘common heritage of mankind’ (CHM). The concept of CHM was first proposed by Aldo Armando Cocca, representative of Argentina, during the 1967 discussions in the Legal Subcommittee of the COPUOS. This concept was later taken up by the Ambassador of Malta in the discussion on the equitable sharing of the resources of the high seas and finally was included in the 1982 Convention on the Law of the Sea. For the first time, the concept of CHM was transformed into a principle of international law and was included in the Moon Agreement in 1979. Under the Agreement, an international régime needs to be established to govern the exploitation of natural resources of the Moon. Such a regime must include provisions relating to an “equitable sharing by all States Parties in the benefits derived from those resources, whereby the interests and needs of the developing countries, as well as the efforts of those countries which have contributed either directly or indirectly to the exploration of

²¹⁶ We should keep in mind that Outer Space Treaty, negotiated through the COPUOS, was considered as an “important arms control” treaty, see *supra* note 171 and the accompanying text.

²¹⁷ For a detailed discussion of this subject, see Jakhu, Ram S., “Twenty Years of the Moon Agreement: Space Law Challenges for Returning to the Moon”, 54 *Zeitschrift Für Luft-und Weltraumrecht*, 2005, pp. 243 et seq. The material in this subsection is taken from that article but has been updated and adapted for the purpose of this paper. The permission to use this material has been received from *Zeitschrift Für Luft-und Weltraumrecht*.

the Moon, shall be given special consideration.”²¹⁸ This provision of the Moon Agreement needs to be respected only after the establishment of a detailed international regime (perhaps covering both an expanded treaty and an organization), which is mandated at that point in the future when the exploitation of the natural resources of the Moon would be “about to become feasible.” Before the establishment of such a regime, the provisions of Article 6 (2) remain applicable. They state that:

In carrying out scientific investigations and in furtherance of the provisions of this Agreement, the States Parties shall have the right to collect on and remove from the Moon samples of its mineral and other substances. Such samples shall remain at the disposal of those States Parties which caused them to be collected and may be used by them for scientific purposes. States Parties shall have regard to the desirability of making a portion of such samples available to other interested States Parties and the international scientific community for scientific investigation. States Parties may in the course of scientific investigations also *use mineral and other substances of the Moon in quantities appropriate for the support of their missions* [emphasis added].

Since this provision is supportive of private entities during the period of explorations of natural resources of the Moon, one should not read the Moon Agreement as being against private initiatives, investment, and interests. Unfortunately, there seems to be misinformation about the application of the Moon Agreement, even in some official circles. For example, the U.S. Army Space Reference Text on Space Policy and Law mentions that the 1979 Moon Agreement “was signed by five countries but not the United States or the Soviet Union. It states that the Moon is a common heritage for all mankind which implies that all nations would share equally in any benefits derived from Moon exploration. If the U.S. signed this treaty it would be hard to get private firms to invest in future Moon projects if they had to divide the profits.”²¹⁹

While the CHM is the most significant principle of the Moon Agreement, it is also the most controversial one. It is generally believed that because of this principle the Moon Agreement attracted only a limited number (i.e. eleven) of ratifications. However, the low number of ratifications has in fact been primarily due to two other factors: first, the exploration

²¹⁸ The Moon Agreement, op. cit, *supra* note 2, Article 11 (7) (d).

²¹⁹ Chapter 3, *Space Policy and Law*, [US] Army Space Reference Text, available at http://www.fas.org/spp/military/docops/army/ref_text/chap3im.htm (date accessed 20 January 2005). This document was prepared by Space Division, HQ TRADOC. Recommended changes should be submitted on DA Form 2028 to: Commander, U.S. Army Training and Doctrine Command, ATTN: ATCD-HS, Fort Monroe, VA 23651-5000. The purpose of this Reference Text is to provide information on space systems and their use as they relate to U.S. Army operations. The intended users are U.S. Army commanders, staff officers and Noncommissioned Officers, students attending Army courses of instruction and their instructors.

of the Moon has almost ended about thirty years ago; and second, there is a general lack of interest in the international space regime, both in developing and developed countries. Nevertheless, this situation may change once European States, China, India and others succeed in launching their missions to the Moon.²²⁰ That development will dramatically alter the geopolitical perception of the Moon and a global interest will grow for the development of a legal regime to govern the Moon and other celestial bodies. The 2004 American decision to resume exploration of the Moon and to use its resources for missions to Mars has already rekindled interest in the politics and appropriate regulatory regime for these celestial bodies.²²¹ The recent ratification of the Moon Agreement by Belgium on 29 June 2004 (effective on 29 July 2004) may be the start of a new trend in increased interest in Moon exploration and the 1979 Moon Agreement. Added interest in the Agreement is provided by the activities of several private entities in the U.S. and other countries that are ‘selling’ pieces of land on the Moon.²²² Irrespective of the fact that such ‘selling’ has no legal basis,²²³ global public interest in outer space necessitates that clear rules must be established both at international and national levels.

²²⁰ “Europe’s Moon mission blasts off” (September 28, 2003), available at <http://www.cnn.com/2003/TECH/space/09/28/moon.launch/index.html> (accessed 29 September 2003); “Europe’s lunar adventure begins” (September 28, 2003), available at <http://news.bbc.co.uk/2/hi/science/nature/3136004.stm> (accessed 29 September 2003); David Whitehouse, “China sets its sights on the Moon,” (3 December 2003), available at <http://news.bbc.co.uk/2/hi/science/nature/3288043.stm> (accessed 03 December 2003); “China Outlines 4 Scientific Goals For Moon Project” (Beijing - Nov 10, 2003), available at <http://www.spacewar.com/2003/031114170322.ybbnwtl0.html> (accessed 14 November 2003); Wei Long, “China Eyes Territorial Claim Of Outer Space,” available at <http://www.spacedaily.com/news/china-02f.html> (accessed 21 January 2002); for details of Chinese Space Policies and Activities, available at http://www.cnsa.gov.cn/fg_e.htm (accessed 09 September 2002); “Indian cabinet approves proposal for unmanned Moon mission” (New Delhi, Sep 11, 2003), available at <http://www.spacedaily.com/2003/030911164033.fm12qa0c.html> (accessed 15 January 2004); “Unmanned Moon mission could catapult India to global league: space chief” (Bangalore, India, Apr 29, 2003), available at <http://www.spacedaily.com/2003/030429012615.mjvka2bc.html> (29 January 2003); Pratap Chakravarty, “India Craves The Moon To Crown Its Space Odyssey,” Space Daily, 12 March 2001, available at <http://www.spacedaily.com/spacecast/news/india-00c.html> (accessed 15 March 2001).

²²¹ “Bush proposal to send man to Mars (9 January, 2004), available at <http://news.bbc.co.uk/2/hi/science/nature/3381531.stm#text> (accessed 09/01/2004); “Bush unveils vision for Moon and beyond: President seeks \$1 billion more in NASA funding (January 14, 2004), available at <http://www.cnn.com/2004/TECH/space/01/14/bush.space/index.html> (accessed 14 January 2004).

²²² Stenger, Richard, “Prime lunar real estate for sale - but hurry” November 20, 2000, available at <http://www.cnn.com/2000/TECH/space/11/20/lunar.land/index.html> (accessed 14 January 2004).

²²³ See Statement by the Board of Directors Of the International Institute of Space Law (IISL) On Claims to Property Rights Regarding The Moon and Other Celestial Bodies (2004): “according to international law, and pursuant to Article VI [of the Outer Space Treaty], the activities of non-governmental entities (private parties) are national activities. The prohibition of national appropriation by Article II thus includes appropriation by non-governmental entities (i.e., private entities whether individuals or corporations) since that would be a national activity. The prohibition of national appropriation also precludes the application of any national legislation on a territorial basis to validate a ‘private claim.’ Hence, it is not sufficient for sellers of lunar deeds to point to national

It is impossible to predict whether the nature and scope of the future regime governing activities on the Moon will be based exclusively on the current Moon Agreement or on a new agreement. Whatever the substance of the future lunar regime, it should include the principle of CHM. If the principle of CHM could be retained in the Law of the Sea Convention, there is no logical reason for excluding this principle from the future legal regime to govern the exploitation of the natural resources of the Moon and other celestial bodies.

The Moon Agreement has incorporated global public interest in the exploration and use of the Moon and certainly contains a ‘balance of interests’ of the space powers (which would be engaged in the exploration and eventual exploitation of natural resources of Moon) and those of the rest of the international community. Therefore, all States should ratify the Moon Agreement as soon as possible.

3.6. Comprehensive space treaty

An informal proposal is before the Legal Subcommittee of the COPUOS recommending the drafting of a single comprehensive outer space convention. China, Greece, and the Russian Federation have submitted a working paper to that effect.²²⁴ This is an interesting initiative and it merits serious consideration. The main purpose of existing space treaties has been to establish fundamental legal principles to govern the space activities of the States. In general, however, these treaties have become outdated due to significant changes in the global geopolitical situation and are inadequate to address the challenges posed by increases in the variety of space activities, especially those that are being undertaken for commercial purposes. They need to be updated. It would be in the interest of all States for the general principles of space law, scattered throughout five treaties, to be transformed into a single, consistent, modern, and comprehensive legal document to enhance inclusive global public interest and to promote responsible uses of outer space. However, the conclusion of a comprehensive space treaty unfortunately might be politically risky at this stage. Some States, particularly those with major space capabilities, might

law, or the silence of national authorities, to justify their ostensible claims. The sellers of such deeds are unable to acquire legal title to their claims. Accordingly, the deeds they sell have no legal value or significance, and convey no recognized rights whatsoever.” available at http://www.iafastro-iisl.com/additional%20pages/Statement_Moon.htm (accessed 02 July 2004).

²²⁴ UN Doc. A/AC.105/C.2/L.236 (2002).

use negotiations over the text of a new agreement to weaken some of the key provisions of the Outer Space Treaty, including those that create global public interest in outer space.

The adoption by the COPUOS of an additional Protocol to the Outer Space Treaty may be an option since it would need to be ratified by only the interested States and not all States Parties to the Outer Space Treaty. Such protocol should include (1) the fundamental legal principles (particularly those that establish the global public interest) that have already been adopted; (2) clear rules of law that would govern all space activities, including those undertaken by private entities and covering issues related to space debris, intellectual property rights, etc.; (3) unambiguous definitions of the terms used; (4) an efficient dispute settlement mechanism; and (5) sufficient provisions for the protocol's amendment.

Conclusion

From the beginning of the space age the international community unambiguously recognized a global public interest in outer space. This involves the obligation of each State to explore and use outer space and celestial bodies for the benefit and interests of all countries, which accords supremacy for the inclusive interests of the international community over exclusive rights of individual States. It also entails the right of each State to explore and use outer space and celestial bodies for peaceful purposes, without discrimination of any kind or appropriation by any means. However, due to a lack of sufficiently and precisely developed international law to protect and enhance global public interest in outer space, some States have started adopting national laws and policies to promote their exclusive national benefits and are thereby jeopardizing the inclusive interest of the international community. Freedom of use is being considered as a license for abuse. Unilateral and exclusive space policies pursued and activities undertaken by some States are being rationalized under the principle of (unfettered) freedom of use, without due regard to the corresponding interests of other States. Recent insistence by certain States on arbitrary interpretation of the provisions of the Outer Space Treaty (which establishes global public interest in outer space) poses serious challenges to the current and future international legal order of outer space and creates grave barriers to the further development of international space law.

The Outer Space Treaty, which achieves a fair balance of interests among space powers and non-space powers by intentionally incorporating numerous innovative legal principles, is not only an international agreement of high importance (as the constitution of outer space) establishing rule of law in outer space, but also a manifesto of genuine expectations of all segments of mankind. It is therefore imperative that not only the letter but also the spirit of the Treaty govern space activities of States. Activities contrary to both the spirit and letter of the Treaty would shatter the belief in the rule of law and in the international democratic law-making process.

The United Nations's COPUOS is the appropriate place to tackle most space-related problems but progress in the Committee is being blocked by the consensus rule. That rule must not be considered sacrosanct, especially when the interests of humankind are at stake. Like-minded nations that have space programs should become more actively engaged in COPUOS, preferably with the support of major space powers, or even without them if it becomes necessary, to pursue policy and regulatory initiatives on matters of importance to them and other States.

Current international space law consists mainly of general principles. Therefore, sometimes it is difficult to determine if any particular action, or a series of actions, of a State is in violation of any specific provision of an international space treaty, though that action may be contrary to these general legal principles. In certain cases or situations, there may not appear to be a specific disagreement that needs to be resolved through the formal legal means of international dispute settlement. In addition, States that are adversely affected by such actions may feel reluctant to bring that matter before a formal judicial tribunal because of political, financial, or other reasons. At the same time, there is no independent and international expert body that could adjudge the actions of States with respect to the exploration and use of outer space. Therefore, an independent international space law tribunal or panel — which may be designated as the International Commission of Space Jurists, or ICSJ — should be established with the mandate to express its opinions on specific matters referred to it by any national or international public or private entity.²²⁵ The proposed tribunal could be created on the same

²²⁵ In this regard, the recent drafting by the Board of the IISL of a Statement on the Property Rights on the Moon, is a valuable step in the right direction. See *supra* note 223.

model as the International Commission of Jurists²²⁶ or any other similar international independent panel of legal experts. The opinions of such a tribunal would be available for use by the States members of the Legal Subcommittee of the COPUOS and thus will have extensive persuasive value and impact on the further development of international space law. This process could also help in protecting and promoting global public interest in outer space, which has been the foundation and core of international legal order of outer space.

In September 2004, the Secretary General of the United Nations, Kofi Annan, speaking to the General Assembly in New York, portrayed a very dismal current state of the world. The main reason for such a situation, according to him, is humanity's disregard for the rule of law in international affairs:

[T]oday the rule of law is at risk around the world.... At the international level, all States — strong and weak, big and small — need a framework of fair rules, which each can be confident that others will obey. Just as, within a country, respect for the law depends on the sense that all have a say in making and implementing it, so it is in our global community. No nation must feel excluded. All must feel that international law belongs to them, and protects their legitimate interests.²²⁷

The rule of law rather than the rule of force should apply not only to international relations on the Earth but also to all activities in and from outer space. The first rationale for the creation of the United Nations and the establishment a new global international legal order after the devastating Second World War, as mentioned in the Preamble of the UN Charter, was “to save succeeding generations from the scourge of war, which twice in our lifetime has brought untold sorrow to mankind.” The same rationale should serve as an urgent motivation to uphold global public interest in the exploration and use of outer space and even the survival of humankind.

²²⁶ “The International Commission of Jurists is comprised of sixty lawyers (including senior judges, attorneys and academics) dedicated to ensuring respect for international human rights standards through the law. The Commissioners are all individuals known for their experience, knowledge and fundamental commitment to human rights. The composition of the Commission aims to reflect the gender and geographical diversity of the world and its many legal systems”: available at http://www.icj.org/rubrique.php?id_rubrique=13&lang=en (accessed 18 March 2005).

²²⁷ “Key extracts: Annan at the UN,” BBC news, 2004/09/21, available at <http://news.bbc.co.uk/go/pr/fr/-/2/hi/americas/3678030.stm> (accessed 21 September 2004).