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THE VISION FOR SPACE EXPLORATION: A DEDICATED ISSUE

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FOREWORD

THE VISION FOR SPACE EXPLORATION: SELECTED LEGAL ISSUES

Joanne Irene Gabrynowicz[*]

On January 14, 2004, the United States President, George W. Bush announced a New Vision for Space Exploration Program[1] which is "a new plan to explore space and extend a human presence across our solar system."[2] This issue of the *Journal of Space Law* is dedicated to some of the legal issues arising from that vision.

The first goal of the Space Exploration Vision is to "complete its work on the International Space Station..."[3] To this end, "[t]he Shuttle's chief purpose over the next several years will be to help finish assembly of the Station, and the Shuttle

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[1] Press Release, The White House, President Bush Announces New Vision for Space Exploration Program, Jan. 14, 2004, http://www.whitehouse.gov/news/releases/2004/01/20040114-3.html [hereinafter White House Press Release] (last visited Aug. 15, 2006).

[2] *Id.*

[3] Office of the Press Secretary Fact Sheet: A Renewed Spirit of Discovery, Jan. 14, 2004, http://www.whitehouse.gov/news/releases/2004/01/20040114-1.html (last visited Aug. 15, 2006).

will be retired by the end of this decade..."[4] Therefore, NASA is making the transition from the *Shuttle* program to programs supporting the Vision for Space Exploration. Eve Lyon, a senior attorney in NASA's Contract and Procurement Practice Group, offers a pragmatic analysis of what this can mean as a matter of contract law and organizational conflicts of interests. Her article, "Organizational Conflicts of Interest: A Practical Legal Issue in Implementing the Vision for Space Exploration, A View from the Trenches" provides the tenets of organizational conflicts of interest and explains some basic principles under U.S. Federal law. The article explores the three basic types of organizational conflicts of interest and discusses their differences. It also analyzes the four mechanisms available to resolve conflicts, and concludes with a suggested course of action for contracting officers and other legal professionals.

Another—and recently dynamic—issue raised by the Vision for Space Exploration is the existence, or not, of property rights in space. To the uninitiated, it may seem that this is a question of first impression, newly articulated by the current generation. However, in his review of the book, *Unreal Estate: The Men Who Sold the Moon* by Virgiliu Pop, Dr. James A. Vedda concludes that the author does a credible job of tracing the history of this rather old idea.

An integral part of the Space Exploration Vision is the invitation to "...other nations to share the challenges and opportunities..."[5] presented by this effort. An equally integral component of the Space Exploration Vision is to engage industry. In his article, "A Competitive Environment in Outer Space", Dr. P.P.C. Haanappel approaches both of these by addressing the legal aspects of competitiveness and antitrust from a European perspective. Particular attention is paid to international rules, the legislation of the United States, and legislation of the European Union. A U.S. perspective on the subject, and a recent court case involving one space company's experience with U.S. antitrust law, is also offered in this issue's case note, "Defining Antitrust Injury in Government Launch Contracting: The *Case*

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[4] *Id.*

[5] White House Press Release, *supra* note 1.

of SpaceX v. Boeing" by University of Mississippi second year law student, Jared W. Eastlack.

University of Mississippi School of Law Prof. Marc Harrold, an expert in U.S. immigration law, addresses a more futuristic aspect of Nations sharing the challenges and opportunities of the Space Exploration Vision. Noting international space law governs space and that future human habitations in space will likely be governed by National laws, he addresses the possibility of a non-U.S. astronaut seeking asylum in a settlement governed by U.S. law. Prof. Harrold analyzes the interface between the two bodies of law and the likely legal implications of such an event.

On the public side of the Space Exploration Vision is the question of space as a global commons, analogous to Antarctica and the high seas. In his article, "Legal Issues Relating to the Global Public Interest in Outer Space", Prof. Ram Jakhu discusses the idea of space as a global public interest starting with the 1967 Outer Space Treaty.[6] The paper identifies several areas where, according the author's view, the law is inadequate to address important aspects of space activity, including keeping space available for peaceful purposes, a condition necessary for long-term exploration. This idea is addressed by LaToya Tate, a third-year University of Mississippi School of Law student, and National Remote Sensing and Space Law Center researcher. In her article "The Status of the Outer Space Treaty at International Law During 'War' and 'Those Measures Short of War'" Ms. Tate analyzes the Outer Space Treaty's status during non-peaceful times and the changing legal nature of "war". She concludes that as a lawmaking treaty the Outer Space Treaty remains in force and that it neither terminates nor suspends.

Prof. Jakhu's article also notes that there is widely held view among space lawyers that the Outer Space Treaty is the constitution of outer space. However, in his article, "Transcending to a Space *Civilization*: The Next Three Steps Toward a Defining Constitution", Dr. George S. Robinson takes up the idea

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[6] Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies, Jan. 27, 1967, 610 U.N.S.T. 205 (entered into force Oct. 10, 1967) [hereinafter the Outer Space Treaty].

of what it would take, as a matter of jurisprudence, to intentionally draft a constitution—as a constitution—for a civilization that emerges from long term space exploration.

A comprehensive space law bibliography compiled since the last issue of the *Journal of Space Law* is a regular feature. This time it is provided by third year law student Brandon Newman and contains the latest space law case developments, recent publications, law journal articles, comments and notes, books, agreements, and legislation.

Finally, in her commentary, "The Vision for Space Exploration: Expanding the Envelope for Space Law Debates", Marcia S. Smith gets the last word on the subject of legal issues raised by the Vision for Space Exploration. Her final word is that there are no final words. She demonstrates there are still many more legal issues yet to be addressed: environmental; determination of rights; and, the ethics of finding life elsewhere, among others. These present humanity with a diverse array of issues, but Ms. Smith reminds us that they do, in fact, have a common theme: responsibility. Humans have a collective responsibility to be good stewards of new worlds. "Responsibility" is not the final word, but it is the perfect word with which to conclude this issue of the JOURNAL OF SPACE LAW, dedicated to the legal matters raised by the Vision for Space Exploration.

CALL FOR PAPERS

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Volume 32, Issue 2

The National Remote Sensing and Space Law Center of the University of Mississippi School of Law is delighted to announce that it will publish Volume 32, Issue 2 of the *Journal of Space Law* in the second half of 2006.

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A COMPETITIVE ENVIRONMENT IN OUTER SPACE

P.P.C. Haanappel[*]

I. INTRODUCTION

In the 1920s, air transport was considered a fledgling industry, an industry in its infancy, which could only be kept "in the air" by direct or indirect State subsidies.[1] Today, air transport and the aeronautical activities related to it are mature industries, at least in most countries, and they are increasingly subject to ordinary business rules and laws, including competition and antitrust laws. Commercial activities in outer space – for convenience sake we will call them astronautical activities- are of much more recent vintage. They began, mostly in the form of telecommunication satellites, in the 1960s.[2] When the Outer Space Treaty[3] was being drafted during that same decade, the debate as to what "freedom of exploration and use by

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[*] Professor of Air and Space Law, Leiden University. This paper was written as a contribution to the 20th Anniversary Conference of the International Institute of Air and Space Law at Leiden University under the title "A competitive aerospace environment: is globalisation the answer?" held at The Hague on 24 April 2006. This was the only paper on space law; that is one of the reasons for drawing many analogies in the paper with aviation law, the subject on which all other papers were presented. The author thanks Mr. S.S. Sagar Priyatham, LL.M. candidate and co-ordinator at Leiden University, for his research and advice.

[1] The so-called Warsaw Convention of 1929, with its system of financial limits on air carriers' liability, is typically a recognition of the fact that the fledgling air transport industry could not yet support an ordinary system of civil liability without financial ceilings. Convention for the Unification of Certain Rules Relating to International Transportation by Air, Oct. 12, 1929, 49 Stat. 3014, 137 L.N.T.S. 11 [hereinafter Warsaw Convention]. *See also* P.P.C. HAANAPPEL, THE LAW AND POLICY OF AIR SPACE AND OUTER SPACE: A COMPARATIVE APPROACH 17 (Kluwer Law International, The Hague / London / New York, 2003).

[2] See Nicolas M. Matte, *Commercial and Cultural Utilization of Outer Space,* AEROSPACE LAW, FROM SCIENTIFIC EXPLORATION TO COMMERCIAL UTILIZATION (Carswell / Pedone, 1977).

[3] Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies, Including the Moon and Other Celestial Bodies, Jan. 27, 1967, 18 U.S.T. 2410, 610 U.N.T.S. 205 [hereinafter Outer Space Treaty].

all States"[4] of outer space meant, was still very much alive. Could "use" mean *commercial* use and could *private enterprise* participate in such commercial use of outer space? Eventually, over the initial objections of the Soviets, the answer adopted in Article VI of the Outer Space Treaty became "yes". Commercial uses of outer space and commercial uses of such space by private enterprise are permissible, as long as they are conducted under the authorisation and supervision of the State responsible for such private enterprise.[5]

Today, both commercialisation and privatisation of outer space activities are progressing rapidly, particularly in the areas of space communication, navigation and surveillance (CNS) satellites, including mobile uses and aeronautical uses, and of remote sensing, including meteorological satellites. Yet, the astronautical industry cannot be called mature at this stage. It is still a young, fledgling industry, subject to high insurance rates and to the real risk of launch failures, and dependent on direct and indirect subsidies. The commercial uses of outer space occur almost invariably in Earth orbit, and they also include the future commercial uses of the *International Space Station* (*ISS*), of which the major utilisation nevertheless remains scientific, technical and exploratory. Virtually all outer space activities beyond Earth orbit seem to be of an exploratory nature, although such activities may in the end have commercial spin-offs. Thus, outer space activities are commercialising, privatising, maturing, but they have not yet reached the maturity of ordinary or almost ordinary industries, such as the aeronautical industry, with which the astronautical industry has a number of things in common and with which, on occasions, it can very well be compared.[6] Several such comparisons will be made in this paper.

This text will examine how, gradually, the law prepares outer space for a competitive environment. Particular attention will be paid to international rules; to United States (U.S.) and

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[4] *Id* at art. I.

[5] *See* NICOLAS M. MATTE, AEROSPACE LAW 308-310 (Sweet and Maxwell / Carswell, 1969).

[6] *See* HAANAPPEL, *supra* note 1, at 12-13.

European Union (E.U.) legislation. The application of antitrust and competition laws will play an important role therein. So will the law pertaining to the allocation of scarce resources in outer space, where certain analogies are drawn from air law. The paper certainly does not claim to be exhaustive. It rather wants to outline a number of tendencies or possible tendencies.

II. THE EXTENSION OF THE COMPETENCE OF THE E.U. TO OUTER SPACE ACTIVITIES

Probably only the E.U. can boast to have outer space activities written into its basic constitutional document, or almost. Although the draft treaty establishing a Constitution for Europe was voted down in referenda in France and in The Netherlands in the year 2005, it will in all likelihood resurface in future versions, especially its less controversial provisions. It does not seem controversial to write that the "discovery of space" will be amongst the Union's objectives[7] and that the Union, in co-operation with member States, will carry out action and implement programmes "in the areas of research, technological development and space".[8]

Obviously, these new constitutional provisions look at exploration, at research and development, rather than at competition in the astronautical industry. Yet, they do not stand in the way of the application of the E.U. general competition rules to commercial, astronautical activities, as has already been advocated for, amongst others, the European satellite navigation project *Galileo*[9] –a joint undertaking of the E.U. and the Euro-

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[7] *See* Stephan Hobe, *Draft Text of the Articles of the Treaty Establishing a Constitution for Europe (Art. 3 and Art. 12)*, *in* LEGAL ASPECTS OF THE FUTURE INSTITUTIONAL RELATIONSHIP BETWEEN THE EUROPEAN UNION AND THE EUROPEAN SPACE AGENCY (Institute of Air and Space Law, University of Cologne / DLR, May 2003).

[8] *Id.*

[9] *See* F.G. von der Dunk, *Of Co-Operation and Competition: GALILEO as a Subject of European Law*, *in* LEGAL ASPECTS OF THE FUTURE INSTITUTIONAL RELATIONSHIP BETWEEN THE EUROPEAN UNION AND THE EUROPEAN SPACE AGENCY 47, 58-62 (Institute of Air and Space Law, University of Cologne / DLR, May 2003).

pean Space Agency (ESA) –and as the following will show in more detail.[10]

III. E.U. SATELLITE COMMUNICATIONS LAW

One area where there have been tremendously significant commercialisation developments, is E.U. satellite communications law. Communications law is almost a legal science in and of itself, of which satellite communications law is only one part. As so often with outer space related activities, the space segment operates in an environment of absence of national sovereignty, whereas most uses of this space segment are Earth oriented, thus operating in an environment of national sovereignties, some of which may be in conflict with each other.

In the E.U. telecommunications field, there have been many legislative initiatives, and this legislative road map should probably be seen in the light of a typical E.U. policy, namely the policy of creating a level "playing field" between de-monopolised and cross-border service providers.

Some highlights from amongst E.U. space communications laws are the following: Commission Directive 94/46 of 13 October 1994, sometimes called the "satellite Directive", abolishes special and exclusive rights for the provision of satellite services and satellite Earth station equipment within the E.U. In order to facilitate access to the space segment, then still largely in the hands of international satellite organisations, like Intelsat and Inmarsat, the Directive already stressed the need to comply by E.U. competition law in this area. This obligation was considerably strengthened by Article 7 of Commission Directive 2002/77 of 16 September 2002 on competition in the markets for electronic communications networks and services. Therefore, these directives opened up the market.

E.U. Directive 97/13 of 10 April 1997 contains a general licensing regime for telecommunication services and it covers the

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[10] *See also* F.G. von der Dunk, *Private Enterprise and Public Interest in the European "Spacescape", Towards Harmonized National Space Legislation for Private Space Activities in Europe*, 249-253 (unpublished doctoral dissertation, McGill University International Institute of Air and Space Law, Montreal, Canada, 1998).

licensing of satellite systems. Licensing may be necessary in more than one E.U. Member State. Although I have not encountered any concrete conflicts in the literature, it is to be recalled that under Article VI of the Outer Space Treaty, it is the "appropriate State Party" that is responsible for the authorisation and continuing supervision of private enterprise in outer space.

It is another matter whether such conflict can be avoided in the application of Council Regulation 1321/2004 of 12 July 2004 on the establishment of structures for the management of the European satellite radio navigation programmes,[11] *Galileo* and EGNOS. As mentioned before, *Galileo* is a programme of the E.U. and the European Space Agency (ESA), and it is intended to have significant private sector participation.[12] The augmentation system EGNOS involves the E.U., ESA and Eurocontrol. The Regulation sets up a Community agency, called the European GNSS Supervisory Authority, and the Authority will, amongst other things, have licensing duties vis-à-vis the private concession holder of *Galileo* and the economic operator of EGNOS.[13] Well, as already twice mentioned Article VI of the Outer Space Treaty of 1967 is concerned, this Treaty only allows adherence by States, but not by international organisations, like the E.U., although the Treaty does contain provisions, in Article XIII, on member States' duties with respect to their participation in international intergovernmental organisations.[14]

Are we seeing something here in space telecommunications law that we have been familiar with in air law for the past twenty years? Does the difficulty of the E.U. fitting into the worldwide Outer Space Treaty resemble the sometimes-encountered difficulty of E.U. air transport law fitting into the worldwide system of the Chicago Convention on International

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[11] Council Regulation (EC) 1321/2004 of 12 July 2004 on the establishment of structures for the management of the European satellite radio-navigation programmes, O.J. L 246, 20/07/2004, at 1-9.

[12] *See* Council Regulation 876/2002/EC on setting up the Galileo Joint Undertaking, 2002 O.J. (L 138/1).

[13] *Id.* at arts. 1, 2.

[14] On the European GNSS Supervisory Authority in general, *see* F.G. von der Dunk, *Towards Monitoring Galileo: The European GNSS Supervisory Authority in statu nascendi*, 55 ZLW 100 (2006).

Civil Aviation of 1944?[15] Of course, it also needs to be mentioned that as a matter, at least of policy, but probably also of law, the provisions on the new E.U. agency cannot be implemented until the above discussed extension of the competence of the E.U. to outer space activities has been effectuated.

IV. THE APPLICATION OF ANTITRUST LAW

Next is the application of antitrust law, by which I mean the competition laws of the United States. In the areas that are examined in this paper, it is especially the U.S. "essential facilities doctrine", which is interesting.[16] The origins of the doctrine seem to lie in the common law, where the common carrier has a duty to serve all who apply at reasonable rates. In legislation, it finds its origin mostly in Section 2 of the *Sherman Act*[17] that forbids monopolisation. The doctrine is used by the courts as well as by the regulators, such as the Federal Communications Commission and the Federal Trade Commission. It has a broad application, amongst others in transport and communications, and in the latter field especially in the areas of interconnectivity and interoperability. Although good definitions are difficult and perhaps even dangerous to give, the concept of "essential facility" is a monopolistic facility, non-discriminatory access to which must be given to all who apply and that at reasonable prices.

Under E.U. competition law, the essential facilities doctrine has been received by the EC Commission, perhaps not so much as an independent doctrine, but rather as an application of the abuse of a dominant position under Article 82 of the E.U. Treaty. Two early cases are actually aviation cases: in *London European* v. *Sabena*, Sabena was held to have abused its dominant position in refusing to give access to its computerised res-

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[15] Convention on International Civil Aviation, Dec. 7, 1944, art. 1, 61 Stat 1180, 1180 [hereinafter Chicago Convention].

[16] See Antonio Bavasso, *Essential Facilities: The Rise of an "Epithet" and the Consolidation of a Doctrine*, *in* COMMUNICATIONS IN EU ANTITRUST LAW: MARKET POWER AND PUBLIC INTEREST 221 (Kluwer Law International, 2003).

[17] Sherman Act, 26 Stat. 209 (1890).

ervation system to a competitor, London European;[18] and in *British Midland* v. *Aer Lingus*, the termination by Aer Lingus of its interline agreement with British Midland was equally held to amount to an abuse of a dominant position.[19] It is especially the latter case, the interlining case, which is interesting in the context of this paper, since interlining is air transport's version of interconnectivity in telecommunications.

In E.U. telecommunications law, it should be mentioned that the legislators have intervened in the area that we are discussing, for instance by the adoption of Directive 97/33 of the European Parliament and the Council of 30 June 1997 on interconnection in telecommunications with regard to ensuring universal service and interoperability through application of the principles of Open Network Provision (ONP).

V. THE APPLICATION OF COMPETITION LAW

Back to the application of E.U. competition law to satellite communications, we see, as early as the year 1991, the Commission published Guidelines on the Application of EEC Competition Rules in the Telecommunications Sector,[20] but, at that time, they did not mean much specifically in the filed of satellites, because that area would not be liberalised until 1994, in the so-called "satellite Directive", mentioned earlier. Since that time, however, the E.U. competition laws have also been applied to space telecommunications, provided that, according to the rules of the *Wood Pulp* decision of the European Court of Justice,[21] they can be "localised" as to implementation and/or effect in the E.U.

Even though, as already indicated, the Treaty on the E.U. does not yet refer to outer space activities, its Articles 81, 82 and 86 apply to the competitive relations of undertakings and

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[18] London European Airways PLC v. Sabena, Belgian World Airlines, Case IV/32.318, 1988 O.J. (L 317) 47.

[19] Air Lingus, Case IV/33.544, 1992 O.J. (L 96/34).

[20] Guidelines on the Application of EEC Competition Rules in the Telecommunications Sector, 91/C233/02, 1991 O.J. (C 233).

[21] A. Alstrom Osakeyhtio v Commission, 1988 E.C.R. 5193 (hereinafter *Wood Pulp* Case).

states, involved in such activities. In the space telecommunications area, these Articles, former Regulation 17,[22] and former Regulation 4064/89[23] have been applied to infringements, service arrangements, acquisitions, strategic alliances and joint ventures.[24] It is interesting to note by way of comparison that the space telecommunications sector was governed by the general Regulation 17, whereas the air transport sector had more protective aviation specific legislation apply to it, namely Regulations 3975 and 3976, as amended.[25] In that respect, space telecommunications were ahead of air transport in their relation with competition law. Today, of course, both are governed by the new Regulation 1/2003 of 16 December 2002 on the implementation of the rules on competition laid down in Articles 81 and 82 of the Treaty.

What both industries also have in common, is that they have a lot of liberalisation and user oriented legislation apply to them, in the space sector notably ONP rules, with the consequence that both industries are heavily regulated, *ex ante*, transport and telecommunications law, and *ex post facto*, competition law. This is a sort of double legislative jeopardy, which seems unfair to a liberalised industry. In mature industries, it seems, *ex ante* regulation should be limited to licensing, with the remainder of the regulation, especially competition law, applying principally on an *ex post facto* basis. Licensing today may also include elements, it seems, of industry *self* regulation.

VI. CONFLICTS OF LAW

The major players in outer space and its applications are the U.S., the E.U., the Russian Federation, Japan, and in the future no doubt China. And, of course, there is a growing number of others, such as Argentina, Australia, Brazil, Canada –of long standing, and with associate membership in ESA– India and South Africa. They all have their own legal and regulatory

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[22] The general competition law implementing Regulation, now superseded.

[23] The Merger Regulation, Commission Regulation 4064/89 (superseded).

[24] See Colin D. Long, TELECOMMUNICATIONS LAW AND PRACTICE 285 (Sweet & Maxwell, 2nd ed., 1995).

[25] For these Regulations, *see* HAANAPPEL, *supra* note 1, at 138-140.

systems, between which conflicts cannot always be avoided, given also the no-frontier character of outer space activities. Conflicts are there to be solved. They can be solved bilaterally or multilaterally, judicially or extra-judicially, in private or in public law.

The opinion is often heard that participants in outer space activities should have their own space-specific dispute settlement system.[26] I am not so sure, especially once the astronautical industry has become mature and can, like other industries, avail itself of generally available dispute settlement systems. I will revert to this question later, under the heading of the World Trade Organisation (WTO).

Three areas of potential conflict need special mention: mergers, subsidies, and the *ISS*. The General Electric / Honeywell Merger case show to what extent antitrust and competition law policies in the U.S. and in the E.U. may clash.[27] The U.S. approves a concentration; the E.U. disapproves it. Tomorrow the reverse may be true. As perhaps in the future more astronautical industry concentration takes place, will such policy disputes also affect outer space endeavours?

Both the U.S. and the E.U. will continue, at least for the foreseeable future, to subsidise outer space activities. Both legally can,[28] but disputes may arise. The Arianespace monopoly may be a good example,[29] and one wonders whether the Airbus-Boeing subsidy dispute might serve as an appropriate precedent.[30]

Also, the question has been asked whether commercial activities involving the *ISS* would require a special dispute set-

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[26] Currently, such system only exists within the Liability Convention in the form of a Claims Commission: *see* Convention on International Liability for Damage Caused by Space Objects, *in force* 1 September 1972, 24 U.S.T. 2389, TIAS 7762, 961 UNTS 187 [hereinafter Liability Convention].

[27] *See, The GE/Honeywell Merger Case: Reaching the Limits of International Competition Policymaking*, 2 (no. 12) GERMAN L.J. 1-10 (2001).

[28] In the E.U., only member States are under restrictions with respect to State aids, not the Union itself.

[29] *See* Nathanael A. Horsley, *The Arianespace Monopoly, EU Competition law, and the Structure of Future European Launch Markets*, 20 AIR & SPACE L. 87 (2005).

[30] *See* Ruwantissa Abeyratne, *The Airbus-Boeing Subsidies Dispute – Some Preliminary Legal Issues*, 30 AIR & SPACE L. 379 (2005).

tlement mechanism. One author has, it seems to me appropriately, suggested WTO for this purpose.[31]

Finally, now that it has become evident that there will be several CNS systems in the world, rather than just one under the umbrella of the International Civil Aviation Organization (ICAO), compatibility between these systems must be ensured. In that respect it is hopeful to note that the U.S. and the E.U. have signed an agreement with respect to the frequency allocation and interoperability of the US Global Positioning Satellite System (GPS) and Europe's *Galileo*.[32]

VII. THE ALLOCATION OF SCARCE RESOURCES IN OUTER SPACE: COMPARISON OF ITU / WARC AND ICAO / IATA RULES

A truism as it may be, outer space is infinitely larger than air space, and hence it is likely to have fewer scarce resources than air space. Yet, for over thirty years now, the equatorial geostationary orbit has been declared such a limited natural resource. It is the preferred location for communication satellites intended to have worldwide coverage. Through the International Telecommunication Union (ITU) and the Radio Regulations of its World Administrative Conferences (WARCs), frequencies in this orbit are allotted on a first-come, first-served basis, without, however, creating any right of permanency to these frequencies.[33] This can be compared with the best known system of allocation of scarce resources in air space, the slot allocation system of the Scheduling Guidelines and Conferences of the International Air Transport Association (IATA),[34] which find

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[31] *See* A.C. Swan, *Competition Policy and the International Space Station*, *in* 16 STUDIES IN AIR AND SPACE LAW, "PROJECT 2001" – LEGAL FRAMEWORK FOR THE COMMERCIAL USE OF OUTER SPACE, RECOMMENDATIONS AND CONCLUSIONS TO DEVELOP THE PRESENT STATE OF THE LAW 375 (K.–H. Böckstiegel, ed.,2002).

[32] *See* Agreement on the Promotion, Provision and Use of GALILEO and GPS Satellite-Based Navigation Systems and Related Applications, *available at* ec.europa.eu/dgs/energy_transport/galileo/documents/doc/2004_06_21_summit_2004_en.pdf (last visited Aug. 15, 2006).

[33] *See* HAANAPPEL, *supra* note 1, at 24, 39-40. This system of allocation is not to be confused with questions of space traffic management, safety questions that, *inter alia,* seek to avoid space debris from doing damage to space objects.

[34] HAANAPPEL, *supra* note 1, at 153-156. *See also*, Regulation (EC) No 793/2004 of the European Parliament and of the Council of 21 April 2004 amending Council Regula-

their legal basis in the uniformity requirement of Article 15 the Chicago Convention.[35]

Whereas first-come, first-served is not enunciated in so many words in the IATA rules, it amounts to that, as long as there are sufficient arrival and departure slots at airports and airport runways available. Where the biggest difference between ITU and IATA rules lie, are in the "absence of permanency" of ITU versus the grandfather or historical precedence rights of the IATA system. It is submitted that the IATA system is, from the point of view of law and economics, superior to the ITU system in that it recognises that financial investments in slots have been made that need some permanency so as to keep their economic value. Granted that the original ITU rules of the 1970s were made under pressure from certain equatorial nations claiming sovereignty rights in the geostationary orbit, this does not mean that they should stay the same forever.[36] The need of "have not" states for frequencies can also be met by the setting up of pools of unused or newly created slots, like in the IATA system. In order to avoid overbooking of frequency allocations, use-it-or-loose it rules can be adopted. From the U.S. domestic system of airport slot allocation, the occasional use of slot auctions or lotteries could be copied.

VIII. THE FUTURE ROLE OF THE WTO: IS GLOBALISATION THE ANSWER?

Getting closer to the end of this paper, and getting closer to the main theme of the 20th Anniversary Conference of Leiden's International Institute of Air and Space Law: is globalisation the answer, especially in a WTO context? Compared with air transport, where the General Agreement on Trade in Services (GATS) only has a rather insignificant Annex on Air Transport Services apply to it, communications, including space communications, are much more extensively covered by the umbrella of

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tion (EEC) No 95/93 on common rules for the allocation of slots at Community airports, *available at* http://eur-lex.europa.eu/LexUriServ/site/en/oj/2004/l_138/l_13820040430en00500060.pdf (last visited Aug. 15, 2006).

[35] Chicago Convention, *supra* note 15.

[36] See references in HAANAPPEL, *supra* note 1, at 24, 39-40.

the WTO. Together, the Annex on Telecommunications to the GATS Agreement of April 1994 and the Fourth Protocol to the GATS Agreement of April 1996 / February 1997, dealing with basic telecommunications, provide that participating States commit themselves to allow foreign satellite communication operators to offer their services on a reciprocal, non-discriminatory basis in their countries. In addition, there is the potential application of the TRIPS agreement, dealing with intellectual property rights, and of the WTO dispute settlement rules to space communications. Future application of a "Standardisation Code"[37] and of the Agreement on Subsidies and Countervailing Duties (SCM) is also not excluded.

Indeed, the globalisation of WTO seems the way forward in space law, not only for telecommunications, but also for other privatised commercial outer space activities. In this respect, commercial outer space activities have an edge on air transport services, where bilateral air transport and services agreements are so enshrined in sixty years of tradition that they are hard to get rid off in favour of a WTO regime, and that certainly as long as the United States does not seem willing to abandon the system of bilateral agreements in international aviation.

Finally, a note to say that a GATS Party making a specific commitment in the field of outer space activities seems to accord very well with the "appropriate State Party" in Article VI of the Outer Space Treaty.

IX. CONCLUDING REMARKS

It seems that the astronautical industry is rapidly becoming a mature, privatised or at least commercialised industry and that the law is adjusting to that situation very well. However, like in aeronautics, in astronautics governments will never leave the industry really alone, and this is because of national defence and national security considerations. After all, one and

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[37] Code of Good Practice for the Preparation, Adoption and Application of Standards, *in* Agreement on Technical Barriers to Trade, Dec. 15, 1993, *available at* http://www.iso.org/iso/en/comms-markets/wto/pdf/tbt-a3.pdf#search=%22Code%20of%20Good%20Practice%20for%20the%20Preparation%2C%20Adoption%20and%20Application%20of%20Standards%22 (last visited Aug. 15, 2006).

the same aircraft, or one and the same satellite or satellite system can fulfill both civil and military purposes. For aircraft, the Civil Reserve Air Fleet (CRAF) programme in the U.S. would be a good example. For spacecraft, let's, for instance, not forget that GPS is in principle a military programme of the American Department of Defence (DOD) with civil applications, or that remote sensing satellites can be used both for military and civil purposes.[38]

[38] In which case the U.N. Principles on Remote Sensing only apply to some of the civil, but not to the military uses of remote sensing satellites: *see* HAANAPPEL, *supra* note 1, at 159-160.

ASYLUM-SEEKERS IN OUTER SPACE, A PERSPECTIVE ON THE INTERSECTION BETWEEN INTERNATIONAL SPACE LAW AND U.S. IMMIGRATION LAW

Marc M. Harrold[*]

[W]e'll soon have to grapple with the question: what law should govern, not only the relationship between Earth (particularly the United States) and space societies but, perhaps more importantly, what law should govern within space societies themselves and among space inhabitants who will people space communities...[1]

Like the advent and rapid proliferation of human activity in outer-space, the law surrounding asylum is heavily steeped in international law and was, in many cases, fueled and shaped by the fear-driven competition between the super-powers during the Cold War.[2] From the time *Sputnik* was launched in 1957, the U.S. began to fear it was lagging behind Soviet scientists in

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[1] Justice William J. Brennan, Jr., address at the American Law Institute Annual Dinner (May 21, 1987).

[2] *See* Yun Zhao, *An International Space Authority: A Governance Model for a Space Commercialization Regime* 30 J. OF SPACE L. 277 (2004) ("The race for accomplishment in outer space was a mark of the Cold War period."). Clearly, the law (including the U.S. Supreme Court) was impacted by the fervor of the Cold War era.

> This was the beginning of the cold war, and the nation was much concerned with national security and the likelihood that Communists and Communist sympathizers were serving in critical positions in government, or were acting as spies for the Soviet Union. Some of these concerns proved justified, as in the case of Alger Hiss, and of Julius and Ethel Rosenberg. Others were quite trumped up, such as Senator Joe McCarthy's demanding to know "who promoted Major Peress"—an Army dentist stationed at Form Monmouth.

WILLIAM H. REHNQUIST, THE SUPREME COURT 193 (Knopf) (2004). *See also* Bruce Moomaw, The Space Age Born of The Cold War is Over, www.spacedaily.com/news/oped-03e.html (Feb. 2, 2003) (last visited June 16, 2006).

technology and space exploration.[3] The end of the Cold War has led to a revitalized level of cooperation between and among industrialized and technologically advanced nations that will lead to an increase in space travel involving nationals of more than one country as well as a high probability that multi-national teams of astronauts and cosmonauts will live and work together within the confines of various vessels, both in the form of space stations (the most notable being the *International Space Station* (*ISS*) and more permanent (though not yet realized) space settlements.[4]

While it is generally accepted that the most likely location of these yet-to-exist settlements will be the Moon, and later Mars, the precedents developed both in U.S. domestic law and within the broader context of international law will provide the foundation for the system of governance that will affect generations of humans living in future "realities" we may not yet comprehend or even imagine.

This essay will examine potential situations where an individual engaged in space travel or space-habitation attempts to seek protection under U.S. law and either remain in the U.S. indefinitely, or at least not return to their country of origin, due to a fear of persecution or torture in her country of origin.

Admittedly, at this time, this is a highly speculative essay that attempts to predict the likely intersection between U.S. immigration law with the legal authority and background that comprise the field of space law. The fact that this article is "highly speculative" does not detract from its relevance, how-

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[3] CNN Interactive, *Cold War Experience – Life Without the Cold War*, www.cnn.com/SPECIALS/cold.war/experience/technology/) (last visited June 16, 2006).

[4] *See* Patrick Collins & Koichi Yonemoto, *Legal and Regulatory Issues for Passenger Space Travel* http://www.spacefuture.com/pr/archive/legal_and_regulatory_issues_for_passenger_space_travel.shtml (last visited June 8, 2006).

> As the Cold War and its imperatives recede into the past, there is debate about the proper role of government space agencies. Although space science is appropriate for government funding on a par with other scientific research, it is increasingly recognized that government organizations developing vehicles and performing space activities conflict with the objective of encouraging the growth of commercial space activities.

Id.

ever.[5] Intersections of existing areas of law and outer-space travel and habitation are inevitable and challenging.[6] Numerous examples of intersections between traditional law and other types of technological advancements exist. For example, U.S. Fourth Amendment law has been highly affected by the advent of technology as computers are frequently utilized in more sophisticated types of criminal activity than that seen before the dawn of the "Information Age."[7] U.S. First Amendment law has been, or will be, almost completely redefined because of the rapid increases in technology.[8] Not because of the way it will handle new messages, but, instead how it will handle the Internet, a new *medium* with a level of speed and expansive "publication" that could not be imagined just a generation earlier.[9]

This essay represents an early attempt at what I believe will be a dramatic expansion of limitless areas of the law as human beings begin to reside outside the confines of "this small planet" we call Earth.[10] Just as intellectual property law is now

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[5] Other highly relevant articles have been written about the intersection between space law and more traditional areas of jurisprudence. *See e.g.*, Hans P. Sinha, *Criminal Jurisdiction on the International Space Station*, 30 J. SPACE L. 85 (2004); Paul M. Secunda, *A Mosquito in the Ointment: Adverse HIPAA Implications for Health-Related Remote Sensing Research and a "Reasonable" Solution*, 30 J. SPACE L. 251 (2004).

[6] *See e.g.*, Ruwantissa Abeyratne, *The Application of Intellectual Property Rights to Outer Space Activities* 29 J. SPACE L. 1 (2003); Sinha, *supra* note 5; Secunda, *supra* note 5.

[7] *See generally* Morgan Cloud, *Rube Goldberg Meets the Constitution: The Supreme Court, Technology and the Fourth Amendment* 72 MISS. L.J. 5-9 (Fall 2002).

[8] *See* MARC M. HARROLD, OBSERVATIONS OF WHITE NOISE: AN 'ACID TEST' FOR THE FIRST AMENDMENT (iUniverse 2005).

> In the grand scheme, America is experimental-theater to the time-tested dramas of Europe, Asia, Africa and the Middle East. We are governed by a relatively brief document drafted by wealthy farmers in an Agrarian society, challenged by the advent of Industrialization, and now attempting to "plug itself in" to the Information Age brought on by a dramatic technological revolution.

Id. at 111.

[9] A final example can be found within the realm of property law. The dramatic rise of intellectual property law into every facet of society has prompted certain practitioners and scholars to conclude that a basic legal education should include not only the traditional types of property law: real and personal, but also less tangible types of property collectively coined as "intellectual."

[10] "For in the final analysis, our most basic common link, is that we inhabit this small planet, we all breath the same air, we all cherish our children's futures, and we are all mortal." John F. Kennedy, *Speech at The American University*, Washington, D.C., June 10, 1963.

deemed by many to be a crucial area for any attorney because of this (almost) co-equal type of property law, a generation from now, space law, and the manner in which it effects other areas of jurisprudence, may become a core topic for a basic legal education.

As a final introductory note, though the speculative nature of this essay does not detract from its relevance, this high level of freestyle prediction does allow for an amount of exposition seldom appropriate in an academic setting. This is an opportunity of which I take full advantage.

I. RELEVANT SPACE LAW AUTHORITY AND BACKGROUND

For our purposes, the relevant space law authority and background will stem almost exclusively from international treaties while applicable U.S. immigration law, detailed in Part II, *ante*, will stem primarily from U.S. domestic law in the form of federal statutes.[11]

The first major international treaty at issue is the *Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies*, hereinafter "Outer Space Treaty."[12] The most relevant provisions are: Articles II, III and V.

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[11] One exception will be brief discussion in Part II related to the "Convention Against Torture" or "CAT" which is derived from Article III of the U.N. Convention Against Torture. Withholding of Removal stems from the same treaty obligation but is codified into the I.N.A. Part III(a), *ante*, will include discussion of laws specifically related to the International Space Station (I.S.S.) (which stem, in part, from Treaty obligations).

[12] Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies, Jan. 27, 1967, 610 U.N.S.T. 205 (entered into force Oct. 10, 1967) [hereinafter the Outer Space Treaty] (notable depositaries: Russian Federation, United Kingdom of Great Britain and Northern Ireland and United States of America).

> Article II
>
> Outer space, including the Moon and other celestial bodies, *is not subject to national appropriation by claim or sovereignty*, by means of use or occupation, or by any other means.[13]
>
> Article III
>
> States Parties to the Treaty shall carry on activities in the exploration and use of outer space, including the Moon and other celestial bodies, *in accordance with international law*, including the Charter of the United Nations, in the interest of maintaining international peace and security and promoting international cooperation and understanding.[14]
>
> Article III is important because of its language adhering to international law.
>
> Article V ¶ 1
>
> States Parties to the Treaty shall regard astronauts as *envoys of mankind* in outer space and shall render to them all possible assistance in the event of accident, distress, or emergency landing on the territory of another State Party or on the high seas.[15]

The Outer Space Treaty contains a section related to the registry of space "object[s]" and is relevant to the law of asylum given the manner in which longer-term space habitation is to be achieved generally.

> A State Party to the treaty on whose registry an *object launched into outer space* is carried shall retain jurisdiction and control over such object, and over personnel thereof, while in outer space or on a celestial body. Ownership of objects launched into outer space, *including objects landed or constructed on a celestial body, and of their component parts*, is

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[13] *Id.* at art. II (emphasis added).
[14] *Id.* at art. III (emphasis added).
[15] *Id.* at art. V ¶ 1 (emphasis added).

> not affected by their presence in outer space or on a celestial body or by their return to Earth.[16]

In the (even far) foreseeable future, it appears that any and all space habitation (as opposed to short-term travel) will take the form of space stations launched into outer-space[17] from the Earth to orbit the Earth in outer-space or settlements built on celestial bodies (primarily the Moon or Mars) built, in part, from materials launched from the Earth to be constructed and updated on the surface of the celestial body.[18]

The next major relevant Treaty is the *Agreement on the Rescue of Astronauts, the Return of Astronauts and the Return of Objects Launched into Outer Space*, hereinafter "Return and Rescue Agreement."[19] The Preamble to the Treaty notes:

> *Noting* the great importance of the Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer States, including the Moon and Other Celestial Bodies,[20] which calls for the rendering of all possible assistance to astronauts in the event of accident, distress or emergency landing, the prompt and safe return of astronauts, and the return of objects launched into outer space.

Return and Rescue Agreement is most relevant in the event of "accident" or "distress" generally in the event of this essay it is most relevant in the context of Part III(c) "*Unplanned Return to Earth*" referred to as "emergency landing," above.

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[16] Outer Space Treaty, *supra* note 12, at art. VIII. (emphasis added). The actual registration of objects launched into outer space is detailed in the Convention on Registration of Objects Launched into Outer Space (Registration Convention) treaty entered into force Sept. 15, 1976 (signatory Secretary-General of the United Nations).

[17] *Id.* ("...object launched into outer space...").

[18] *Id.* ("...including objects landed or constructed on a celestial body, and of their component parts..."). "No humans will live in space itself but rather will live in the machines (i.e., space stations, etc.) which provide an artificial environment for human life." George Paul Sloup, *Legal Aspects of Large Space Structures: Factors Leading to the Development of the Jurisprudence of "Astrolaw"*, PROCEEDINGS OF THE TWENTY-SEVENTH COLLOQUIUM ON THE LAW OF OUTER SPACE 270, 271 (1984).

[19] Agreement on the Rescue of Astronauts, the Return of Astronauts, and the Return of Objects Launched into Outer Space, Apr. 22, 1968, 19 U.S.T. 7570, 672 U.N.T.S. 119 [hereinafter Rescue Agreement] (notable depositaries: Russian Federation, United Kingdom of Great Britain and Northern Ireland and United States of America).

[20] Resolution 2222 (XXI), annex.

II. GENERAL OVERVIEW OF RELEVANT FORMS OF "RELIEF"

A. Introduction

> Since its very beginnings, America has been a refuge for the persecuted—a "city on the hill" beckoning the victims of political, religious, ethnic, and other forms of repression. That tradition continues to this day.[21]

The United States has always been, or at least portrayed itself, as a type of international safe-haven on the world-stage.[22]

A comprehensive review of U.S. immigration law is outside the scope of this discussion.[23] For our immediate purposes, there are three primary forms of relief relevant to this essay: (1) asylum (the most desired form of relief); (2) withholding of removal; and (3) relief under the Convention Against Torture (CAT).[24]

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[21] U.S. Commission on Immigration Reform, *U.S. Refugee Policy: Taking Leadership*, at 1 (1997).

[22] *See* Cato Institute Publication, Michele Pistone, *Asylum Crackdown Threatens Lives and Ideals*, available at www.cato.org/daily/4-08-98.html (last visited June 16, 2006) (article arguing that America's role as a "safe haven" has been diminished due to recent immigration laws).

> Throughout its history, the United States has been a refuge for people fleeing oppression at the hands of their governments. But new immigration laws have put that tradition in jeopardy. They impose procedural hurdles that in many cases will prevent genuine victims of persecution from attaining asylum in the United States.

Id.

[23] Sources of Immigration Power: Commerce Clause: Art I., § 8, cl. 3; Migration and Importation Clause: Art. I., cl. 1; Naturalization Clause: Art. I., § 8, cl. 4; Power to declare war generally.

[24] A chart is provided as Appendix 1 to detail the sometimes confusing distinctions between the three separate forms of relief set forth in this Section.

B. Asylum

U.S. law provides that a refugee,[25] present in the U.S. that demonstrates a well-founded fear of future persecution[26] on account[27] of race, religion, nationality, membership in a particular social group or political opinion.[28] The burden is on the appli-

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[25] The Immigration and Nationality Act (INA) defines "refugee" in § 101(a)(42) (A) as:

> [A]ny person who is outside any country of such person's nationality or, in the case of a person having no nationality, is outside any country in which such person last habitually resided, and who is unable or unwilling to return to, and is unable or unwilling to avail himself or herself of the protection of, that country because of persecution or a well-founded fear of persecution on account of race, religion, nationality, membership in a particular social group, or political opinion, or....

Immigration and Nationality Act, 8 U.S.C. § 1101 - 1537 (part B omitted). The primary difference between asylum and refugee applicants is "that those seeking refugee status apply from outside the United States. Asylum-seekers must be in the United States or applying for admission at a port of entry." *See* U.S. Department of Justice Executive Office for Immigration Review (EOIR) Office of Legislative and Public Affairs, *Fact Sheet Q & A* (April 28, 2005). In this context, we are dealing with asylum-seekers, not refugees in the legal sense.

[26] One reason that the asylum process is difficult to understand and / or predict is that the core term "persecution" is not defined specifically by statute, regulation or treaty. Generally, "persecution" will involve harm or other suffering inflicted by a government or in the absence of adequate governmental control. Bodily harm is not necessary for a finding of "persecution" in every instance and it appears that "persecution" is harm beyond what the general public may find to be simply unfair or unjust. *See e.g., Matter of Kasinga*, Int. Dec. 3278 (BIA 1996).

[27] For discussion of the boundaries of the "on account of" requirement, *see*, INS v. Elias-Zacarias, 502 U.S. 478 (1992).

[28] There are a limitless number of factors that go into the discretionary determination of whether an applicant has demonstrated a fear of persecution on account of the listed factors (race, religion, nationality, membership in a particular social group or political opinion). While the U.S. government is frequently criticized for its handling of this determination and its policies related to grants of asylum, there is no doubt that asylum officers and Immigration Judges have a very challenging task facing them: in many cases trying to predict the future in life and death situations in distant lands while at the same time ensuring that the burdens set forth by Congress and the legislative process are met.

> Asylum cases present significant challenges of both fact and law. How can adjudicators predict what would fall an individual upon return to a distant country? What proof should applicants offer? How can adjudicators tell if the applicant is embroidering the story, or making it up out of whole cloth? What sorts of harm amount to persecution? How great must the risk be to make the fear well-founded? When does persecution have an adequate nexus to one of the five grounds listed in the statute? What is one to make of the most vague or open-ended factor in that list, membership in a particular social group?

cant to demonstrate a "well-founded fear" or "reasonable possibility" that he/she will face persecution (on account of at least one of the listed grounds) if returned to their home country.[29] If an applicant can show past persecution, there is a presumption that future persecution will occur.[30] Regardless of other factors, there are certain outright bars to receiving asylum in the U.S. that would be applicable to the situations described herein.[31] Asylum is a discretionary form of relief.[32] As such, even if an

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> How should asylum claimants be housed and cared for while their cases are adjudicated? Under what circumstances should they be detained?

David A. Martin, *Adelaide Abankwah, Fauziya Kasinga, and the Dilemmas of Political Asylum*, *in* IMMIGRATION STORIES 245, 246 (David A. Martin and Peter H. Schuck, eds. 2005). Beyond being codified into statute under U.S. law, the principle of non-refoulement is recognized as a component of international law. *See* The Office of the United Nations High Commission for Refugees, *Chapter 2 Safeguarding asylum: Challenges to protection*, *in* THE STATE OF THE WORLD'S REFUGEES 2006, *available at* www.unhcr.org/cgi-bin/texis/vtx/publi/opendoc.htm (last visited June 16, 2006). It appears that this principle of international law would be applicable in outer-space:

> At the very heart of the international asylum and refugee protection regime is the right of people whose lives and liberty are at risk to seek safety and security in another state. This principle underpins the notion of *non-refoulement*, which protects people from being returned to the frontiers of a country where they would be placed at risk on account of their race, religion, nationality, membership of a particular social group or political opinion. This principle is now recognized as a component of customary international law and is therefore considered binding on all states, including those that are not signatories to the 1951 UN Refugee Convention.

Id.

[29] INS v. Cardozo-Fonseca, 480 U.S. 421 (1987); Matter of Mogharrabi, 19 I & N. Dec. 439 (BIA 1987).

[30] If an asylum applicant establishes past persecution, there is a presumption of a well-founded fear of future persecution. This presumption can be overcome by the government if it can show that there are changed country conditions since the time of that past persecution. 8 C.F.R. § 208.13(b)(1)(ii).

[31] Individuals who: have firmly resettled in another country prior to arriving in the United States; have ordered, incited, assisted, or otherwise participated in the persecution of any person on account of race, religion, nationality, membership in a particular social group, or political opinion; have a previous conviction of a particularly serious crime (includes aggravated felonies); committed a serious nonpolitical crime outside the United State; pose a danger to the security of the United States; are members or representatives of a foreign terrorist organization; or have engaged in or incited terrorist activity. *See Fact Sheet Q & A*, *supra* note 25.

[32] The power of a nation-state to exclude aliens. This tenet is not only part of domestic U.S. immigration law but also International Law and English Common Law:

> It is an accepted maxim of international law, that every sovereign nation has the power, as inherent in sovereignty, and essential to self-preservation, to forbid the entrance of foreigners within its dominions, or to admit them only in

applicant meets the legal burden to receive relief as an asylee, the Attorney General, through his/her representatives can still deny the application. An applicant applies for asylum in the U.S. through the filing of a Form I-589.[33] An asylum application must be filed within one (1) year of the applicant's arrival in the U.S., unless "changed country conditions" can be provided that articulate why the application was filed later than one (1) year after arrival.[34] There are two general asylum-approaches: affirmative and defensive. Affirmative asylum is when an application (I-589) is filed with the government while the applicant is not "in proceedings" and thus has not been issued a Notice to Appear (N.T.A.).[35] Defensive is when an N.T.A. has been filed and the applicant is "in proceedings." This essay will only require a discussion of affirmative asylum as it is difficult to imagine a situation where an astronaut or similar individual would have been present inside the United States and would have received a N.T.A. prior to traveling into space and then finding himself or herself in one of the situations detailed in Part III, below.[36]

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such cases or upon such conditions as it may see fit to prescribe. Vattel, Lib. 2, §§ 94, 100; Phillimore (3d ed.) c.10, § 220.

Nishimura Ekiu v. United States, 142 U.S. 651, 659 (1892); Attila Ataner, *Refugee Interdiction and the Outer Limits of Sovereignty* 3 J. OF L. & EQUAL. 7, 9 (Spring 2004).

[33] The I-589 is specifically a (form) OMB No. 1615-0067.

[34] Intuitively, if an individual is claiming that they are "fleeing" persecution, it makes more sense for them to come forward on their own instead of remaining in the U.S. for some period of time and then coming forward for asylum (or other type of) relief only after the government begins Removal proceedings. In other words, if you are really "fleeing" persecution, the first thing you would do upon entering U.S. soil would be to claim asylum. Given the situations set forth in Part III, below, the one-year filing will not be relevant.

[35] Put simply: "in proceedings" means that the government has filed paperwork alleging that grounds exist for Removal of the immigrant or alien; thus, the individual is normally attempting to defend against the allegations by filing an asylum claim (defensive). Not "in proceedings" means that the individual comes forward on their own, prior to being issued an N.T.A. or notice by the government that it is going to attempt to remove the individual. Intuitively, if an individual is claiming that they are "fleeing" persecution, it makes more sense for them to come forward on their own instead of remaining in the U.S. for some period of time and then coming forward for asylum (or other type of) relief only after the government begins Removal proceedings. In other words, if you are really "fleeing" persecution, the first thing you would do upon entering U.S. soil would be to claim asylum.

[36] One challenge for any individual seeking asylum, withholding or CAT (or any other type of immigration relief) is, especially post 9/11, a general feeling of "nativism"

C. Withholding of Removal

Withholding of Removal is set forth in the Immigration and Naturalization Act (INA) and implements Article 33 of the 1951 Refugee Convention.[37] Withholding of Removal differs from asylum in that it merely prohibits an alien's return to a specific country, whereas asylum allows an individual to remain in the United States. The U.S. government may, in lieu of allowing the individual to remain in the U.S., remove the individual to a third country where he or she would not be tortured.[38]

D. Convention Against Torture

Relief under the Convention Against Torture (hereinafter, and generally referred to as, "CAT") is a treaty obligation under Article 3 of the United Nations Convention Against Torture.[39] The standard set forth under Article 3 is that signatory nations, in this case the U.S., agrees not to "expel, return or extradite" a

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within the U.S. As a pragmatic note, it would seem that a foreign astronaut is more akin to a famous athlete or artist that seeks to remain in the U.S. after seeking a specific form of relief. "Nativism" is a somewhat cyclical political and social reality that faces individuals attempting to migrate to the U.S.:

> It would not be the first time in American history that nativist sentiment prevailed. When waves of immigrants from Southern and Eastern Europe arrived at the turn of the 20th century, doomsayers argued that the foreigners would never assimilate into Anglo culture. The result: a 1924 law establishing a quota system that sought to limit entry. More recently, the massive immigrant influx of the 1990's provoked a backlash personified by California Gov. Pete Wilson, who tried to deny education and health services to illegal aliens. Though that wave of both legal and illegal immigration has tapered a bit, the proportion of the undocumented has ballooned. According to the studies by the Pew Hispanic Center, the illegal population living in the United States has grown from 5 million in 1996 to as many as 12 million today. Of the total 78 percent came from Mexico and the rest of Latin America—the vast majority of whom were fleeing poverty.

Arian Campo-Flores, *America's Divide*, NEWSEEK (April 10, 2006), at 34-35.

[37] Application for Withholding of Removal / Withholding under CAT is also made on a Form I-589; OMB No. 1615-0067.

[38] Withholding of Removal can be terminated if the case is re-opened and DHS establishes that the alien is not likely to be tortured in that country.

[39] *See* Convention Against Torture and Other Cruel, Inhuman or Degrading Treatment or Punishment, Dec. 10, 1984, S. Treaty Doc. No. 100-20, 1465 U.N.T.S. 85.

person to another country where he or she would be subject to torture.[40]

III. SCENARIOS GIVING RISE TO ASYLUM-CLAIMS IN OUTER-SPACE AND ANALYSIS RELATED TO AN EXPANSION OF JURISPRUDENCE

A. International Space Station (ISS)

The *ISS* is the latest in a long-line of space human-habitation arrangements dating back to the early 1970s when three groups of three men each spent twenty-eight days, fifty-nine days, and eighty-four days, respectively on board the *Skylab* space station.[41] These missions were followed by long-term space habitation aboard the Soviet (and later Russian) *MIR* space station.[42] The *ISS* allows a group of humans to live and work in outer-space. The most recent crew staffing the *ISS* is *Expedition 13* and is an international assembly consisting of one U.S. astronaut, one Russian cosmonaut, one European Space Agency astronaut, and one Brazilian astronaut.[43] International cooperation is a valuable component to the *ISS*, however, it is this international cooperation and nationals from more than one nation living and working on the *ISS* (or other "object" contemplated in the Outer Space Treaty Article VIII) that can give rise to a claim of asylum from a non-U.S. citizen astronaut while in an area that can be claimed in a territorial manner by the U.S. because of the language, "A State Party to the treaty on whose

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[40] *See e.g.*, Matter of A-H-, 23 I&N Dec. 774 (BIA 2005). CAT is a more recent form of relief available to the Immigration Courts. The enabling regulations are found at 8 C.F.R. §§ 208.16-18, 1208.16-18.

[41] Skylab Kennedy Space Center, *Skylab Operations Summary*, http://www-pao.ksc.nasa.gov/history/skylab/skylab-operations.htm (last visited July 3, 2006).

[42] MIR (which can mean both "world" and "peace" in Russian) was a highly successful Soviet, and later Russian, orbital station. It was first launched on February 19, 1986 and was "de-orbited" intentionally which caused it to break up re-entering Earth's atmosphere on March 23, 2001. Twenty-eight (28) duration long crews occupied the orbiter. It was occupied for 4,594 days and orbited for a total of 5,511 days.

[43] National Aeronautics and Space Administration, *Space Station Crew*, http://www.nasa.gov/mission_pages/station/expeditions/expedition13/index.html (last visited Aug. 18, 2006).

registry an *object launched into outer space* is carried shall retain jurisdiction and control over such object...."[44]

B. Settlement: Moon or Mars

Overcoming proximity has been the litmus test for technological advancements in space. In other words, it is not a coincidence that humans first traveled around the Earth, then went on to the Moon, and next (most likely) to Mars. It is realistic to believe that if humans are to inhabit celestial bodies specifically, and outer-space generally, the most achievable destinations appear to be dictated by proximity to Earth: the Moon or Mars. This approach is, in fact, the basis of the Vision for Space Exploration. [45]

The scenario of an asylum-seeker in a space settlement, whether on the Moon or Mars, is somewhat more amorphous than simply walking to another sovereign Nation's module of the ISS.[46] The different factual scenarios would be dependent on the level of Nation-State diversity on the celestial body and the advancement of the settlement to include representative humans from different sovereign Nations.

Thus, if the U.S. were to have some type of permanent settlement on a celestial body, and a non-U.S. citizen was to seek asylum while physically present in this settlement, there is a strong argument that the individual should be allowed to avail themselves of the process similar to being on any other sovereign territory of the U.S.[47] While an individual could seek asylum, it is highly likely that, due to the *discretionary nature* of asylum, the Attorney General would deny any grant of asylum

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[44] Outer Space Treaty, *supra* note 12, at art. VIII. *See supra* note 16 and accompanying text.

[45] National Aeronautics and Space Administration, *NASA Invests in Private Sector Space Flight*, http://www.nasa.gov/mission_pages/exploration/main/ (last visited July 3, 2006).

[46] *See supra* Section III.A.

[47] Another reason that this analysis is speculative is that, at least if the individual seeking asylum is an astronaut, (*i.e.*, not a private individual on a commercial spaceflight) the individual seeking asylum, withholding or deferral under CAT is not normally the type of person who finds themselves "on the outs" with their host government. Simply put, in most nations, astronauts are heroes, unlikely targets of persecution or torture.

because of the precedent it would set and the disruption that it would cause to international cooperation amongst nations in outer-space.[48]

While asylum is discretionary, the forms of relief set forth under Article 3 of the U.N. Convention Against Torture and Other Cruel, Inhumane or Degrading Treatment or Punishment[49] are not discretionary and, should the legal burdens for each form of relief otherwise be met, the countervailing harm that it would cause to international cooperation would not be a sufficient, or legally sustainable, reason to deny the forms of relief, respectively.

C. Unplanned Return to Earth

With plans for increased frequency of human space flight and exploration, both governmental and commercial, the frequency of situations where a space flight may have to return to Earth in an unplanned or accidental manner will also proportionally increase.[50] Just as circumstances arise that cause airplanes within Earth's atmosphere to land in a location other than its planned destination, this can also occur when a spacecraft meant to land or "return" to one location on Earth, must land in another.

What happens if an individual of one sovereign Nation is forced to land on Earth in the jurisdiction of another sovereign Nation? For example, what if a Russian Cosmonaut, slated to land a spacecraft in an area controlled by the Russian govern-

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[48] *See supra* note 32 and accompanying text.

[49] The Senate adopted its resolution Oct. 27, 1990 and President Clinton deposited the ratification with the U.N. Secretary General on Nov. 20, 1994. CAT was incorporated into U.S. domestic law through the passage of the Foreign Affairs Reform and Restructuring Act (FARRA), Pub. L. No. 105-277, 112 Stat. 2681, Div. G.

[50] In this section I am only dealing with situations where the landing is forced due to some type of accident or unforeseen set of circumstances and not when an individual might intentionally "defect" with some type of spacecraft to the United States in hopes of smuggling technology or receiving asylum after the fact. There is some precedent for this type of action. For example, on September 21, 1953 "North Korean pilot Lt. Noh Kum Suk defect[ed] and fl[ew] his MiG-15 to Kimpo AB, South Korea. He [was] granted asylum and given $100,000." *See* Air Force Historical Studies Office, *United States Air Force from Establishment to February 1996*, *available at* www.airforcehistory.hq.af.mil/PopTopics/chrono.htm (last visited June 22, 2006).

ment, or not otherwise controlled by the U.S. for our purposes, is forced to land off the coast of Hawaii or in White Sands, New Mexico? Can the Cosmonaut exit the spacecraft, step foot on "U.S. soil" and apply for asylum in the same manner that a refugee arriving in Hawaii or New Mexico otherwise could? This scenario appears to be the most likely of the three and the one that will occur first.

While, from a more traditional immigration law analysis, it would not appear that the distance traveled to reach sovereign U.S. soil, or whether the U.S. "soil" was on Earth or in space, would alter the legal conclusion, in this case, it appears that it could.

Specifically, the U.S. position taken on the Return and Rescue Agreement during negotiations reveals that many nations did not want the treaty provisions to "take precedent over national statutes providing for asylum."[51] The U.S. position rejects the possibility of asylum and that the Agreement provides for "safe, unconditional and prompt return of astronauts."[52]

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[51] CARL G. CHRISTOL, THE MODERN INTERNATIONAL LAW OF OUTER SPACE 175 (Pergamon Press, 2d ed., 1984). It appears that during negotiations some countries took different stances on this issue. For example, Austria stated that "it wished to be able to continue to offer asylum in keeping with its 'traditional policies towards aliens,' France also supported this interpretation." *Id.* Specifically to the U.S.:

> [I]n testimony before the Senate Committee on Foreign Relations it was stated by Ambassador Goldberg that Article 5 "calls for the unconditional return of astronauts." The same position was taken by the Senate Committee on Foreign Relations in recommending affirmative action by the Senate. In the words of Senator Fulbright, "Article 5 provides for the safe, unconditional, and prompt return of astronauts in the event of accident or other emergency." In his letter transmitting the Treaty to the Senate for its advice, President Johnson accepted the foregoing construction of Article 5.

Id. at 175-76.

[52] One caveat: although it appears that the negotiations and intent at the time of the Return and Rescue Agreement would control, the Nations appear to more specifically contemplate asylum than the other forms of relief, especially those provided for by later U.N. Treaty (*i.e.*, CAT). While it appears that U.S intentions during negotiations would control with regards to asylum (which is discretionary) the analysis is not as clear or easy to predict in the context of CAT where the legal obligations are created by a separate binding treaty.

CONCLUSION

Any time one engages in speculation, it is possible, even probable, that dissatisfaction will follow. This article is written as much to stir discussion and debate as to answer questions in any absolute manner.

All analysis in this context must be tempered by the realistic and pragmatic political ramifications were any of the above scenarios (set forth in Part III(a)-(c), above) to actually occur. I have restricted my analysis as closely as possible to what the applicable law, by analogy in most cases, would require. However, it is easy to imagine how, in the context of space travel, national security, international comity, and the predictable onslaught of world-wide media attention, the United States might act in a manner that does not strictly comply with applicable immigration laws or Treaty obligations.

Finally, this article reveals, beyond its specific substance and analysis, a prime example of an inherent conflict that will challenge our society as we proceed into the new Millennium: increased specialization coupled with more frequent topical overlap. Rapid advances in technology necessitate a sharp increase in the need for the specialization of knowledge. However, these same advances and interweaving of society and technology also leads to an increase in the frequency that normally distinct subject areas will overlap. As humankind is provided with new opportunities to travel and live, an inevitable overlap is created with the existing governing laws of the sovereign Nation-States that fund and conduct such advanced travel and habitation. This specific overlap is just a drop in the bucket; the collision and evolution of bodies of law, both where they conflict and where they can improve or aggregate one another is just one example in an infinite combination of possibilities.

LEGAL ISSUES RELATING TO THE GLOBAL PUBLIC INTEREST IN OUTER SPACE

Ram Jakhu[*]

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 humankind, 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 over 100 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

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[1] Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies, Jan. 27, 1967, 610 U.N.S.T. 205 (entered into force Oct. 10, 1967) [hereinafter the Outer Space Treaty].

[2] Agreement on the Rescue of Astronauts, the Return of Astronauts, and the Return of Objects Launched into Outer Space, Apr. 22, 1968, 19 U.S.T. 7570, 672 U.N.T.S. 119 [hereinafter Rescue Agreement]; Convention on International Liability for Damage Caused by Space Objects, Mar. 29, 1972, 24 U.S.T. 2389, T.I.A.S. No. 7762 [hereinafter Liability Convention]; Convention on Registration of Objects Launched into Outer Space, Jan. 14 1975, 28 U.S.T. 695, 1023 U.N.T.S. 15 [hereinafter Registration Convention]; and the Agreement Governing the Activities of States on the Moon and Other Celestial Bodies, 18 I.L.M. 1434, 1363 U.N.T.S. 3 [hereinafter the Moon Agreement].

other important law-making treaties,[3] they 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 discrimination of any kind. This article 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 article 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

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[3] For example, U.N. Charter; Constitution and Convention of the International Telecommunication Union with Annex, Dec. 22, 1992 (as amended in Marrakesh in 2004); International Telecommunication Union, World Administrative Radio Conference Radio Regulations, (1979, 2004 edition); Treaty Banning Nuclear Weapon Tests in the Atmosphere, in Outer Space and Under Water, Aug. 5, 1963, 14 U.S.T. 1313, T.I.A.S. 5433, 480 U.N.T.S. 43 [hereinafter Treaty Banning Nuclear Weapon Tests]; Convention Relating to the Distribution of Programme-Carrying Signals Transmitted by Satellite, May 21, 1974, 1144 U.N.T.S. 3; and International Convention Concerning the Use of Broadcasting in the Cause of Peace, Sept. 23, 1936, 186 LNTS 301.

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 Outer Space 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 article discusses unilateral space policies, various areas of space use (such as launch services, telecommunications, remote sensing, navigation services, and military uses), and the latest national 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 national 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 article 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, and for the maintenance of international peace and security, and thus for the continuous implementation of 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, to enhance and protect the common interest of all humankind 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 international legal principles and 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. The Treaty's 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

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[4] For this purpose, the most important and pertinent tool is the Vienna Convention on the Law of Treaties. Vienna Convention on the Law of Treaties, May 23, 1969, 1155 U.N.T.S. 331, 8 I.L.M. 679. 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 connection with the conclusion of the treaty;
   (b) any instrument which was made by one or more parties in connection 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;

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]

(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.

Id. at art. 31.

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.

Id. at art. 32.

[5] WIKIPEDIA, THE FREE ENCYCLOPEDIA, *Treaty*, http://en.wikipedia.org/wiki/Treaty#Interpretation (last visited June 15, 2006).

[6] Interpretation of Peace Treaties with Bulgaria, Hungary and Romania (First Phase), Advisory Opinion, 1925 I.C.J. 65 (Mar. 30).

[7] Vienna Convention on the Law of Treaties, *supra* note 4, at art. 31 (1).

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 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 unilateral 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 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 a 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

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[8] *Id.* at art. 26.

[9] *Id.* at art. 60(2)(c).

[10] *Id.* at art. 60(3).

[11] LaGrand Case (Germany v. USA), 2001 I.C.J. 104, 2001 WL 34402492 (June 27, 2001). *See also infra* note 171, and the accompanying text.

[12] Advisory Opinion on the Legal Consequences for States of the Continued Presence of South Africa in Namibia (South West Africa) notwithstanding Security Council Resolution 276 (1970), Advisory Opinion, 1971 I.C.J. 16 (June 21).

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 are law-making treaties and establish general legal principles, such as the Outer Space Treaty.

Therefore, the object, purpose, context, history of negotiation and ratification, and circumstances for the conclusion of the Outer Space Treaty make the meaning of the broadly 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 article 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, understood and applied.

I. 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.

A. Space Activities, for the Benefit and in the Interests of all Countries

The Outer Space Treaty, 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."[13] Through the strong and well articulated proposal of Brazil, this "common interest" principle was in-

[13] Outer Space Treaty, *supra* note 1, at art. I, para. 1.

cluded 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."[14] 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."[15] 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

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[14] Official Records of the U.N. General Assembly, Summary Records of Meetings, 21st Sess., 1st Comm., at 427-428 (Sept. 20 – Dec. 17, 1966) (emphasis added) [hereinafter Official Records].

[15] U.N. GAOR, 21st Sess., 57th mtg. at 12, U.N. Doc. A/AC.105/C.2/SR.57 (Oct. 20, 1966).

are incumbent upon States towards the international community as a whole ("obligations *erga omnes*").[16]

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."[17]

B. Freedom of Exploration and Use of Outer Space

Article I, Paragraph 2, of the Outer Space Treaty[18] laid down the fundamental legal principle of freedom of exploration and use of outer space by all States. However, freedom to explore and use outer space is not absolute and thus can be exercised only within the limitations prescribed by law. It also categorically and unambiguously denied any and all claims of national sovereignty, especially traditional territorial sovereignty, to outer space and celestial bodies.[19] While Article I, Paragraph

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[16] Barcelona Traction, Light and Power Company, Limited (Belg. v. Spain), 1970 I.C.J. 3 (Feb. 5) [hereinafter Barcelona Traction]. For detailed analysis, see Maurizio Ragazzi, *The Appearance of the Concept of Obligations Erga Omnes on the Agenda: The Dictum of the International Court in the Barcelona Traction Case, in* THE CONCEPT OF INTERNATIONAL OBLIGATIONS ERGA OMNES (Oxford Univ. Press, 2000); James Crawford, *Responsibility to the International Community as a Whole*, http://lcil.law.cam.ac.uk/Snyderlect00(f).doc (last visited June 15, 2006).

[17] 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.

CARL CHRISTOL, THE MODERN INTERNATIONAL LAW OF OUTER SPACE 47-48 (Pergamon Press ed., 1982).

[18] "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." Outer Space Treaty, *supra* note 1, at art. I, para. 2.

[19] 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." C. WILFRED JENKS & ARTHUR LARSON, SOVEREIGNTY WITHIN THE LAW 433 (Dobbs Ferry, N.Y., Oceana, 1965). Similarly, Sir Gerald Fitzmaurice said that "States are sovereign; but this does not imply for them an unlimited freedom of action". Gerald Fitzmaurice, *The General Principles of International Law Considered from the Standpoint of the Rule of Law*, 92 RECUEIL DES COURS 49 (1957).

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."[20]

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,[21] and thus affirms the equal rights of all States to explore and use outer space.[22] 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."[23] 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*.

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[20] Outer Space Treaty, *supra* note 1, at art. I.

[21] "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." EDWIN DEWITT DICKINSON, THE EQUALITY OF STATES IN INTERNATIONAL LAW 3 (Harvard Univ. Press, 1920).

[22] 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 Records, *supra* note 14, at 429.

[23] MANFRED LACHS, THE LAW OF OUTER SPACE: AN EXPERIENCE IN CONTEMPORARY LAW-MAKING 15 (Sijthoff Leiden 1972).

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 case[24] 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."[25] The judgment of the Permanent Court in the Lotus case was rejected by subsequent international conventions.[26]

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 in-

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[24] Case of the S.S. "Lotus" (Fr. v. Turk.), 1927 P.C.I.J. (Ser. A) No. 10, at 18 (Sept. 7).

[25] IAN BROWNLIE, PRINCIPLES OF PUBLIC INTERNATIONAL LAW 301 (Oxford Univ. Press, 2003).

[26] *See e.g.,* International Convention for the Unification of Certain Rules relating to Penal Jurisdiction in Matters of Collision and other Incidents of Navigation, May 10, 1952, 439 U.N.T.S. 233; Convention on the High Seas, art. 11, Apr. 29, 1958, 13 U.S.T. 2312, T.I.A.S. No. 5200, 450 U.N.T.S. 82; and Convention on the Law of the Sea, art. 27, Dec. 10, 1982, U.N. Doc. A/CONF.62/122 [hereinafter Convention on the Law of the Sea] which 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.

creasingly gaining recognition.[27] The Covenants of the League of Nations and the Charter of the United Nations have played an important 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 coexistence between sovereign States. It is essentially a collection of 'don'ts' (prohibitions). On the other hand, the developing 'cooperative' 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."[28] 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 as quoted by Vereshchetin 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."[29] 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 politi-

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[27] Barcelona Traction, *supra* note 16. *See also*, Statute of the International Tribunal for Rwanda, 33 I.L.M. 1602, S.C. Res. 955, U.N. SCOR, 49th Sess., 3453d mtg. at 3, U.N. Doc. S/RES/955 (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 1991, May 25, 1993, U.N. Doc. S/25704 at 36, annex (1993) and S/25704/Add.1, U.N. Doc. S/RES/827 (1993).

[28] Wolfgang Friedmann, *National Sovereignty, International Cooperation and the Reality of International Law*, 10 UCLA L. REV.739, 744 (1963).

[29] V.S. Vereshchetin, *Against Arbitrary Interpretation of Some Important Provisions of International Space Law*, 25 COLLOQUIUM ON THE LAW OF OUTER SPACE 153 (1982).

cally sounder interpretation."[30] 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."[31] It is the Outer Space Treaty that has put an end to the influence of Lotus by (i) stressing the common interest of humankind 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."

The freedom of use of outer space does not include its "misuse" or "abuse." Under international law, the concept of "abuse of rights"[32] provides that States are responsible for their acts "which are not unlawful in the sense of being prohibited"[33] but cause injury to other States. According to Lauterpacht quoted by Brownlie, "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."[34] 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."[35]

C. 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

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[30] Ivan Vlasic, *Disarmament Decade, Outer Space and International Law*, 26(2) MCGILL L.J.135, 171 (1981) (a footnote in the original has been omitted).

[31] CARL CHRISTOL, THE INTERNATIONAL LAW OF OUTER SPACE 267 (Pergamon Press, 1962).

[32] Anglo-Norwegian Fisheries (U.K v. Nor.), 1951 I.C.J. 116 (Dec. 18); *see also* BROWNLIE, *supra* note 25, at 429.

[33] BROWNLIE, *supra* note 25, at 429.

[34] *Id.* at 430.

[35] U.N. GAOR, 21st Sess., 362nd mtg. at 2, U.N. Doc. A/AC.105/C.2/SR.362 (1982).

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 can 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."[36]

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 can lawfully appropriate any part of outer space.[37] 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.[38] 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.[39] 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 continu-

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[36] D. Goedhuis, *Some Recent Trends in the Interpretation and the Implementation of the Rules of International Space Law*, 19 COLUM. J. TRANSNAT'L L. 212, 214 (1981) [hereinafter Goedhuis, *Some Recent Trends*].

[37] Stephen Gorove, *Interpreting Article II of the Outer Space Treaty*, 37 FORDHAM L. REV. 349, 351 (1969); Henri A. Wassenbergh, *Responsibility and Liability for Non-Governmental Activities in Outer Space*, *in* ECSL SUMMER COURSE ON SPACE LAW AND POLICY: BASIC MATERIALS 197 (1994).

[38] Outer Space Treaty, *supra* note 1, at art. VI.

[39] "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." D. Goedhuis, *Legal Aspects of the Utilization of Outer Space*, 17 NETH. INT'L & L. REV 25, 36 (1970).

ously supervise their activities.[40] 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.[41] 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 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

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[40] For details see, NICHOLAS MATEESCO MATTE, AEROSPACE LAW 309 (London, Distributed by Sweet & Maxwell, 1969).

[41] 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 27-28 (Comm. Print 1967) [hereinafter STAFF REPORT] (on file with author). 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* Paul G. Dembling,, *Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and other Celestial Bodies, in* 1 MANUAL ON SPACE LAW 1, 17 (Nandasiri Jasentuliyana, & Roy S.K. Lee, 1979).

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*.[42]

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."[43] 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."[44] 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' in the wider sense is involved. States are thus

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[42] *Treaty on Outer Space: Hearing Before the Comm on Foreign Relations*, 90th Cong. 105-106 (1967) (emphasis added).

[43] Carl Christol, *Article 2 of the 1967 Principles Treaty Revisited*, IX ANNALS OF AIR AND SPACE L. 217, 236 (1984). 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". *Id.*

[44] Quoted by Christol, *id.* at 218.

barred from establishing proprietary links in regard to the new dimension."[45]

D. 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.[46] 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.[47] 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."[48] 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."[49] 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 activi-

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[45] *Id.*

[46] 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, at 4).

[47] *See Anglo-Norwegian Fisheries*, *supra* note 32. *See also* BROWNLIE, *supra* note 25, at 429-30.

[48] 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." Outer Space Treaty, *supra* note 1, at art IX.

[49] LACHS, *supra* note 23, at 117.

ties of others in the peaceful exploration and use of outer space."[50]

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 special effect to "certain economic interests peculiar to a region,"[51] 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 international treaty law but have also become a part of customary international law (and *jus cogens*) binding upon all States.[52] 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

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[50] The Outer Space Act (1986 Chapter 38, § 5(2)(b)) (U.K.).

[51] *Anglo-Norwegian Fisheries, supra* note 32, at 133.

[52] *See* Ivan A. Vlasic, *The Growth of Space Law 1957-65: Achievements and Issues, in* YEARBOOK OF AIR AND SPACE LAW 365, 379-380 (Rene H. Mankiewicz ed. 1965). *See also* MATTE, *supra* note 40, at 30-31 nn.60-62; IMRE ANTHONY CSABAFI, THE CONCEPT OF STATE JURISDICTION IN INTERNATIONAL SPACE LAW 47 (The Hague: Nijhoff, 1971); Goedhuis, *Some Recent Trends, supra* note 36, at 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 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." North Sea Continental Shelf (F.R.G./Den.; F.R.G. Neth), 1969 I.C.J. 3, paras. 60-82 (Feb. 20). 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.

Id.

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.

E. 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."[53] 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 *infra* in subsection III. E.).

F. 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:

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[53] C. WILFRED JENKS, SPACE LAW 209 (Fredrick A. Praeger, 1965).

- facilitate and encourage international cooperation in conducting scientific investigations;[54]
- carry out space activities "in the interest of maintaining international peace and security and promoting international cooperation and understanding;"[55]
- afford opportunities to observe the flight of space objects launched by them;[56] 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.[57]

G. 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.[58] 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.[59] In essence, the Rescue Agreement entails global responsibility to support space activities of space-faring nations, whose number still remains limited.

H. 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

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[54] Outer Space Treaty, *supra* note 1, at art. I, para. 3.
[55] *Id.* at art. III.
[56] *Id.* at art. X.
[57] *Id.* at art. XI.
[58] *Id.* at art. V.
[59] Rescue Agreement, *supra* note 2.

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."[60] 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.[61] The Outer Space Treaty attempts to achieve globally sustainable exploration and use of outer space not only by the contemporary population but by future generations as well.

I. 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,[62] is obligated to exercise "continuous supervision" of its private entities engaged in space activities. Similarly, under Article VI of the Outer Space Treaty,

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[60] Outer Space Treaty, *supra* note 1, at art. 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," Article 1 of the 1963 Treaty Banning Nuclear Weapon Tests in the Atmosphere, in Outer Space and Under Water, prohibits the carrying out of any nuclear weapon test explosion in outer space. Treaty Banning Nuclear Weapon Tests, *supra* note 3, at art. 1.

[61] Outer Space Treaty, *supra* note 1, at art. IX.

[62] Article II of the Registration Convention obliges the launching State to "register the [launched] space object by means of an entry in an appropriate registry which it shall maintain." Registration Convention, *supra* note 2, at art. II. Additionally, 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." Outer Space Treaty, *supra* note 1, at art. VIII.

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 concerned activity.[63] 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 States, public or private entities, or by intergovernmental organizations.

J. Absolute Liability for Damage Caused by Certain Space Objects

Under Article VII of the Outer Space Treaty, each launching State[64] 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."[65] 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

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[63] *See*, United Nations, Report of the International Law Commission, 53rd Sess. (April 23 - June 1, 2001 and July 2 - Aug. 10, 2001); U.N. GAOR, 56th Sess., ch. IV, U.N. Doc. A/56/10 (Oct. 24, 2001).

[64] 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." Outer Space Treaty, *supra* note 1, at art. VII.

[65] Liability Convention, *supra* note 2, at art. II.

States under the 1968 Rescue Agreement,[66] the space powers accepted, as a compromise, the principle of absolute liability. Similar to the principle of State responsibility (discussed *supra* in subsection I.I.), 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.[67] It is also interesting to note that the provisions of the 1968 Rescue Agreement have been respected in several incidents[68] and the burden on non-space-faring States has been manageable as none of them suffered any serious human and financial losses.

K. 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,

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[66] Rescue Agreement, *supra* note 2.

[67] *See infra* note 198 and the accompanying text.

[68] *See generally, Argentine authorities seeking US help in identifying piece of space junk*, SPACE DAILY, Jan. 21, 2004, http://www.spacedaily.com/2004/040121225802.g8r47dqk.html (last visited June 16, 2006); *Colombia gazes nervously skyward, fearing shower from Italian satellite*, SPACE DAILY, Apr. 26, 2003, http://www.spacedaily.com/2003/030426162406.ntkbos42.html (last visited June 19, 2006); *Italian satellite debris may hit Indonesia in April: space agency*, SPACE DAILY, Mar. 25, 2003, http://www.spacedaily.com/2003/030325052011.2giab41i.html (last visited June 19, 2006); 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, U.N. Doc. A/AC.105/803/Add.1 (17 March 2003); Peter Dykstra, *Spacecraft debris likely to hit Earth in days: NASA*, CNN.COM, Apr. 4, 2002, http://www.cnn.com/2002/TECH/space/04/04/satellite.drop/index.html (last visited June 19, 2006); 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, U.N. Doc. A/AC.105/762 (3 April 2001).

so that they could continue to be used by all States "exclusively for peaceful purposes."[69]

L. Duty of Openness and Transparency

The current international space regime includes a norm of transparency. States are under duty to inform the U.N. 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.[70] 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.[71] 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 agreements[72] and even became one of the bases for the recognition of freedom of collection and distribution of satellite remote data as recognized in the 1986 UN Principles on Remote Sensing (as discussed *infra* in subsection II.C.).

M. 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

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[69] Outer Space Treaty, *supra* note 1, at art. IV. For a detailed discussion of this issue, *see infra* subsection "II.E. Military Uses and Weaponization of Space".

[70] Outer Space Treaty, *supra* note 1, at art. XI.

[71] *Id.* at art. XII.

[72] Treaty on the Limitation of Anti-Ballistic Missile Systems, U.S.-U.S.S.R, May 26, 1972, 23 U.S.T. 3435, T.I.A.S. 7503; Protocol to the Treaty between the United States of America and the Union of Soviet Socialist Republics on the Limitation of Anti-Ballistic Missile Systems, May 24, 1976, 27 U.S.T. 1645, T.I.A.S. 8276; and The Comprehensive Test Ban Treaty 1996, opened for signature on 24 September 1996; not entered into force yet, *available at* http://www.state.gov/www/global/arms/treaties/ctb.html (last visited July 12, 2006).

opened to all States for signature and ratification or adherence.[73] 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, the scope and nature of which is described in this section, 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 humanity 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 humankind are contrary to the global public interest in outer space.

II. CHALLENGES TO THE GLOBAL PUBLIC INTEREST IN OUTER SPACE

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.

A. 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 vehicles, 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.

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[73] Outer Space Treaty, *supra* note 1, at art. XIV.

Launch technology is essentially a dual-purpose capability; a rocket is a missile for delivering bombs and also a launch vehicle for placing satellites in orbit for economic or scientific purposes or 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. Some 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.

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 because of the U.S. attempts to maintain American hegemony in two related matters; i.e. 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."[74] 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.[75] 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.[76] 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:

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[74] Peter van Fenema, *Effects of U.S. Policies on the International Trade in Launch Services*, *in* 40 COLLOQUIUM ON THE LAW OF OUTER SPACE 146, 149 (1998).

[75] *See, Eutelsat Buys Lifetime Lease For 12 Transponders On Russia's AM22 Bird*, SPACE DAILY, Mar. 18, 2004, http://www.spacedaily.com/news/satellite-biz-04zo.html (last visited June 21, 2006); *Eutelsat Prepares Its Largest Satellite, W3A, for March Launch*, SPACE DAILY, Feb. 13, 2004, http://www.spacedaily.com/news/satellite-biz-04u.html (last visited June 21, 2006).

[76] *See, Arianespace Maintains Pole Position In Civil Launch Market*, SPACE DAILY, Jan. 7, 2004, http://www.spacedaily.com/news/launchers-04b.html (last visited June 23, 2006).

• U.S. export laws strictly control the launch of satellites containing American technology with the use of non-American launch vehicles;[77]

• Under the 1984 Commercial Space Launch Act,[78] 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 Act[79] and the Regulations Relating to the Licensing of Private Land Remote-Sensing Space Systems,[80] the U.S. Government exercises 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.[81]

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.[82] Ari-

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[77] For details, see Ram Jakhu and Joseph Wilson, *The New United States Export Control Regime: Its Impact on the Communications Satellite Industry*, XXV ANNALS OF AIR AND SPACE L. 157 (2000); David Lihani, *Shifts in U.S. Export Controls Force Changes Upon Commercial Satellite Manufacturers and Space Launch Providers, in* 41 COLLOQUIUM ON THE LAW OF OUTER SPACE 208 (1999); Pamela L. Meredith & Sean P. Fleming, *U.S. Space Technology Exports: The Current Political Climate*, 27 (1) J. SPACE L. 35 (1999).

[78] Commercial Space Launch Act, 49 U.S.C. §§ 2601-2623 (1988 & 2004).

[79] Land Remote Sensing Policy Act, Pub. L. No. 102-555, 106 Stat. 4163, 15 U.S.C. § 5601-5672.

[80] Licensing of Private Land Remote Sensing Systems, 15 C.F.R. §§ 960.1-960.15 (2006).

[81] "Radarsat-2, imaging satellite also could fall under US jurisdiction." Jason Bates, *NOAA Lifts Cap on Foreign Investment in Satellite Imaging*, SPACE NEWS, Aug. 14, 2000, http://dev.space.com/spacenews/archive00/sn2000.fff100.html (last visited July 25, 2006).

[82] *See*, ASSOC. ADMIN. FOR COMM. SPACE TRANSP., F.A.A., COMMERCIAL SPACE TRANSPORTATION: 2002 YEAR IN REVIEW 5-6 (2003).

anespace's revenue in 2003 was $525 million out of $1.2 billion for the global market.[83] 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 earned about $140 million primarily due to the strong entry of the multinational Sea Launch and Russian launch providers.[84]

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.[85] 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.[86] 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 outer space activities.

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

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[83] *See*, ASSOC. ADMIN. FOR COMM. SPACE TRANSP., F.A.A., COMMERCIAL SPACE TRANSPORTATION: 2003 YEAR IN REVIEW 6-7 (2004).

[84] *See*, ASSOC. ADMIN. FOR COMM. SPACE TRANSP., F.A.A., COMMERCIAL SPACE TRANSPORTATION: 2004 YEAR IN REVIEW, 7 (2005).

[85] 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*, SPACE DAILY, Feb. 19, 2003, http://www.spacedaily.com/2003-03/030219194948.haywgbed.html (last visited June 23, 2006).

[86] *See, India awards more satellite launch contracts to Arianespace*, SPACE DAILY, Apr. 10, 2003, http://www.spacedaily.com/2003/030410073310.i329qk7q.html (last visited June 23, 2006).

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.[87] In the mid-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.[88] General Dynamics of the U.S., Arianespace of France, and Glavkosmos of Russia responded. When the American company asked for $800 million and the Arianespace 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

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[87] *Indian space agency in talks with global firms to tap markets*, SPACE DAILY, Apr. 30, 2003, http://www.spacedaily.com/2003/030430041557.rykx3ivw.html (last visited June 30, 2006); *India To Launch Indonesian Satellite*, SPACE DAILY, Sep. 17, 2004, http://www.spacedaily.com/ news/microsat-04m.html (last visited June 30, 2006).

[88] Aman Hingorani, *The U.S. Sanctions on the Indo-Russian Rocket-Engine Deal*, 28 J. OF WORLD TRADE, 59, 64 (1994).

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 *infra* in subsection II.A.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."[89] 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."[90] The concerned politicians and scientists in India felt that the U.S. had imposed 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

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[89] *Id.* at 65.

[90] *Id.* at 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 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." *Id* at 59.

2003, GSLV successfully placed into orbit a 1,825-kilogramme experimental telecommunications satellite.[91] In September 2004, India launched a satellite for the country's educational network using GLSV, which India intends to use "to enter the lucrative commercial satellite launch market."[92] Starting in mid-2007, India is expected to begin manufacturing at the rate of one per year its GSLVs to be powered by indigenously built cryogenic engines.[93]

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 cooperation in the field of space activities since January 2004.[94] This

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[91] *India successfully tests satellite launcher*, SPACE DAILY, May 8, 2003, http://www.spacedaily.com/2003/030508135840.7q2cea0s.html (last visited June 30, 2006).

[92] *India launches learning satellite*, BBC NEWS, Sept. 20, 2004, http://news.bbc.co.uk/2/hi/south_asia/3672608.stm (last visited June 30, 2006).

[93] Press Trust of India, *Indigenous GSLV launch in 2007: ISRO*, Hyderabad, January 31, 2005, http://www.hindustantimes.com/news/181_1222136, 000600030008.htm (last visited Jan. 31, 2005) (on file with author).

[94] *See, Bush unveils deeper US-India space, nuclear cooperation*, SPACE DAILY, Jan, 12, 2004, http://www.spacedaily.com/2004/040112222734.c2g2d9wp.html (last visited June 30, 2006); *Space cooperation between US, India can benefit developing world: analysts*, SPACE DAILY, Jun. 20, 2004, http://www.spacedaily.com/2004/040620073433.ud2jw1jl.html (last visited June 30, 2006); *India, US to collaborate on advanced environmental satellite*, SPACE DAILY, Jun. 25, 2004, http://www.spacedaily.com/2004/040625112001.x2dcfhm7.html (last visited June 30, 2006); *Indian PM calls for mutual trust with US in high tech areas*, SPACE DAILY, Jun. 21, 2004, http://www.spacedaily.com/2004/040621192532.9h1rzvkm.html (last visited June 30, 2006); *US seeks expansion of satellite pact with India*, SPACE DAILY, Jun. 22,

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.[95] 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.

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 July 2006, there are thirty-four (34) States that have agreed to adhere to these guidelines, which are known as the Missile Technology Control Regime (MTCR).[96] The MTCR restricts the export of delivery systems, and related technology, capable of carrying a 500 kilogram pay-

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2004, http://www.spacedaily.com/2004/040622011633.blgm82xk.html (last visited June 30, 2006).

[95] *See*, U.S. Dept. of State, Joint Statement on U.S.-India Joint Working Group on Civil Space Cooperation, July 14, 2005, http://www.state.gov/p/sa/rls/pr/2005/49656.htm (last visited June 30, 2006).

[96] Argentina (1993), Australia (1990), Austria (1991), Belgium (1990), Brazil (1995), Bulgaria (2004), 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). Missile Technology Control Regime, MTCR Partners, http://www.mtcr.info/english/partners.html (last visited July 12, 2006).

load at least 300 kilometers, as well as systems intended for the delivery of weapons of mass destruction (WMD), which include nuclear, chemical, and biological weapons.[97] 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.[98]

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.[99] 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.[100]

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

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[97] For details, *see* U.S. Dept. of State, *Missile Technology Control Regime (MTCR) Questions and Answers*, Aug. 2, 2004, http://www.state.gov/t/np/rls/fs/27517.htm (last visited June 30, 2006); Federation of American Scientists, *Missile Technology Control Regime (MTCR)*, http://www.fas.org/nuke/control/mtcr/ (last visited July 3, 2006); Arms Control Association, *The Missile Technology Control Regime at a Glance*, Sept. 2004, http://www.armscontrol.org/factsheets/mtcr.asp (last visited July 2, 2006).

[98] *See, e.g.*, International Traffic In Arms Regulations, 22 C.F.R. §§ 120.1-120.32 (2006).

[99] Regulations of the People's Republic of China on Export Control of Missiles and Missile-related Items and Technologies, (promulgated by the P.R.C. State Council, Sept. 10, 1997), Decree No. 230, http://www.fmprc.gov.cn/chn/wjb/zzjg/jks/jksxwlb/t66896.htm (last visited July 2, 2006).

[100] *US and China hold "productive" missile talks, no result announced*, SPACE DAILY, Dec. 1, 2001, http://spacedaily.com/news/011201003521.l5axbldl.html (last visited July 2, 2006). 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* Shirley A.Kan, *China and Proliferation of Weapons of Mass Destruction and Missiles: Policy Issues*," CRS REPORT FOR CONGRESS, updated April 6, 2006, http://www.usembassy.it/pdf/other/RL31555.pdf (last visited July 2, 2006).

(Thiokol) engine to power its H2A launch vehicle."[101] 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 *supra* in subsection II.A.2.) and (ii) enter into bilateral launch agreements with the U.S. to be allowed to launch foreign satellites equipped with the American technology[102] (as discussed *infra* in subsection II.A.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."[103] However, as we have seen in the case of India (as discussed *supra* in subsection II.A.2.), peaceful uses of launch technology could also become subject to MTCR restrictions.[104] 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.'"[105]

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[101] Peter van Fenema, *supra* note 74, at 151.

[102] Marcia S. Smith, *Space Launch Vehicles: Government Activities, Commercial Competition, and Satellite Exports*, CRS ISSUE BRIEF FOR CONGRESS 14-16, updated March 20, 2006, http://www.fas.org/sgp/crs/space/IB93062.pdf (last visited July 2, 2006).

[103] Foreign Affairs and International Trade Canada, Missile Proliferation and the Missile Technology Control Regime, http://www.dfait-maeci.gc.ca/arms/missile-en.asp (last visited June 30, 2006).

[104] Also see the statement of the U.S. State Department spokesperson, *supra* note 89.

[105] *Space & Satellite Market Surpasses $103B, To Reach $158B By 2010*, SPACE DAILY, Aug. 10, 2005, http://www.spacedaily.com/news/industry-05zg.html (last visited July 2, 2006).

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 agreements[106] in order to be allowed to launch satellites manufactured in 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.[107] 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."[108] The three bilateral agreements were designed to be transitional measures enabling entry of the new space launch companies into the international market.[109] 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 ef-

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[106] For details, see Smith, *supra* note 102; Trade Compliance Center, *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*, http://www.uni-koeln.de/jur-fak/instluft/proj2001/web-docs/russia-commercial.html (last visited July 2, 2006); Federation of American Scientists, *US-Ukraine Missile Agreement, State Department fact sheet on the Ukraine-US Memorandum of Understanding on the Transfer of Missile Equipment and Technology. (940803)*, Aug. 3, 1994, http://www.fas.org/nuke/control/mtcr/text/940803-355651.htm (last visited July 2, 2006); Trade Compliance Center, *Statement by the Press Secretary, "Ukraine Space Launch Agreement," The White House : Office of the Press Secretary,U.S.-Ukraine Agreement on Commercial Space Launch Services,* Feb. 21, 1996, http://www.uni-koeln.de/jur-fak/instluft/proj2001/web-docs/ukraine-space.html (last visited July 2, 2006).

[107] Smith, *supra* note 102, at 14.

[108] *Id.* at 11.

[109] Russia Commercial Space Launch Agreement, *supra* note 106, at 1 and 2.

fect of these provisions has thus clearly been mainly economic and political, and not specifically military in nature.[110] Under the agreement with Russia (as discussed *supra* in subsection II.A.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,[111] the Tiananmen Square incident, and a host of other political and strategic reasons.[112] These three bilateral agreements have now expired. A launch by any of these three countries of a satellite manufactured in the 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.[113]

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

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[110] 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.

[111] *See*, THE FINAL REPORT OF THE SELECT COMMITTEE ON U.S. NATIONAL SECURITY AND MILITARY/COMMERCIAL CONCERNS WITH THE PEOPLES' REPUBLIC OF CHINA, H.R. REP. NO. 105-851 (1999), *available at* http://www.house.gov/coxreport/pref/preface.html (last visited July 2, 2006).

[112] For a detailed analysis, see Robert D. Lamb, *Satellites, Security, and Scandal: Understanding the Politics of Export Control* (Center for Int'l and Security Stud. at Md., Working Paper, 2005), http://www.cissm.umd.edu/papers/files/satellites_security....pdf (last visited July 6, 2006).

[113] *See supra* note 77.

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;[114] (b) further strengthening the MTCR;[115] or more importantly, (c) negotiating an international space launch services agreement, preferably through the World Trade Organization (WTO), which would provide for readily available services to all member States of the WTO at competi-

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[114] For details, see International Global Control System Experts Meeting (Moscow, Mar. 16, 2000), http://www.fas.org/nuke/control/mtcr/news/GSC_content.htm (last visited July 10, 2006): 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.

Id.

[115] For details, see Dinshaw Mistry, *Beyond the MTCR: Building a Comprehensive Regime to Contain Ballistic Missile Proliferation*, 27(4) INT'L SECURITY 119-149 (2003), http://muse.jhu.edu/journals/international_security/v027/27.4mistry.pdf (last visited July 10, 2006): 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.

Id. at 120.

tive 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 in outer space.

B. 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).

1. Participation in Global Satellite Telecommunications Organizations[116]

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.[117] Its first implementation was effected through the 1963 INTELSAT Interim Agreements, which were expanded in 1971.[118] 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

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[116] For a detailed discussion of this subject, see Ram S. Jakhu, *Safeguarding the Concept of Public Service and the Global Public Interest in Telecommunications*,5(1) SINGAPORE J. OF INT'L AND COMP. L. 71 (2001) [hereinafter Jakhu, *Safeguarding the Concept*]. The material in this subsection is taken from that article but has been updated and adapted for the purpose of this article. The permission to use this material has been received from SINGAPORE JOURNAL OF INTERNATIONAL AND COMPARATIVE LAW.

[117] "[C]ommunication by means of satellites should be available to the nations of the world as soon as practicable on a global and non-discriminatory basis." International Cooperation in the Peaceful Uses of Outer Space, G.A. Res. 1721(XVI), at D, 1085th plen. Mtg. (Dec. 20, 1961).

[118] Agreement Relating to the International Telecommunications Satellite Organization (INTELSAT), Aug. 20, 1971, 23 UST 3813, TIAS 7532, 10 ILM 1909.

public telecommunications services of high quality and reliability to be available on a non-discriminatory basis to all areas of the world."[119] Similar provisions had been made in the INMARSAT Convention guaranteeing non-discriminatory (a) access to its space segment[120] and (b) charges for its services.[121]

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.[122]

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

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[119] *Id.* at art. III.

[120] 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, art. 7(1) (Sept. 3, 1976).

[121] *Id.* at art. 19(2).

[122] 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, Nov. 17, 1999, http://www.intelsat.com/news/policy/pletter17nov.htm (last visited Dec. 20, 2000) (on file with author).

forced their dismantlement.[123] The Act imposed several severe restrictions on INTELSAT's operations pending pro-competitive privatization.[124] INTELSAT had expressed its unhappiness with the ORBIT Act since it considered the Act as a unilateral action of the U.S. Congress imposed on a 143-member intergovernmental organization.[125]

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).[126] 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 counties 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 compa-

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[123] Open-market Reorganization for the Betterment of International Telecommunications Act, Pub. L. No. 106-180, 114 Stat. 48 (2000) (codified at 47 U.S.C. 761-69 (2000)).

[124] Some of these 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. *Id.* at 47 U.S.C. § 761a.

[125] *Burns INTELSAT Privatization Bill Approved in Senate*, SATELLITE WEEK, July 5, 1999.

[126] *On the Privatization of INTELSAT*, 28 J. SPACE L., 101-19 (2000). *See also*, Jakhu, *Safeguarding the Concept, supra* note 116.

nies 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.[127] 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.

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 se-

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[127] Press Release, Federal Communications Commission, 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), Sept. 15, 1999, http://www.fcc.gov/Bureaus/International/News_Releases/1999/nrin9028.html (last visited July 10, 2006).

curing 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 U.N. 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. [128] While no definition of "equitable access" is found in the ITU Constitution, some of the provisions make the meaning and scope 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 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.

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[128] 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." Constitution of the International Telecommunication Union, Dec. 22, 1992. 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.

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."[129] 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."[130] 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.[131]

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. The "paper satellite" problem has been real and wide spread.[132] 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.[133]

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[129] International Telecommunication Union, *Paper Tigers: The Scramble for Space Spectrum* [hereinafter *Paper Tigers*], http://www.itu.int/newsarchive/pp02/media_information/feature_satellite.html (last visited July 10, 2006).

[130] *Intelsat Will Return 8 Orbital Slots to ITU*, SATELLITE WEEK, Dec. 14, 1998.

[131] *Id.*

[132] F. Lyall, *Paralysis by Phantom: Problems of the ITU Filing Procedures*," 39 COLLOQUIUM ON THE LAW OF OUTER SPACE 187 (1996).

[133] *Paper Tigers, supra* note 129.

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 reported[134] that almost all States owing money to the ITU for satellite filings have not paid significant portions of their dues.[135] Though the non-payment of dues might not result in the loss of orbital slots, this shows that the ITU doesn't have any effective 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 of all States, should be

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[134] International Telecommunication Union, note by the Secretary-General, *Statement of Amounts owed in Connection with Invoices for the Processing of Satellite Network Filings,* ITU Council, Doc. No. C04/EP/10(Rev.1)-E, (June 10, 2004), http://www.itu.int/md/S06-CL-INF-0001/en (last visited July 10, 2006).

[135] The ITU Council decided that "for amounts owed in connection with satellite network filings, no interest shall be charged on overdue payments." International Telecommunication Union, *Overdue payments for satellite network filings*, ITU Council Dec. 522, Doc. No. C04/99-E, (June 23, 2004).

created to provide telecommunications services to all countries on a non-discriminatory basis.

C. Satellite Remote Sensing[136]

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.[137] Under this compromise,[138] 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 data[139] and the processed data[140] concerning its territory.

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[136] For a detailed discussion of this subject, see Ram Jakhu, *International Law Regarding the Acquisition and Dissemination of Satellite Imagery*, 29 (1&2) J. OF SPACE L. 65 (2003). The material in this subsection is taken from that article but has been updated and adapted for the purpose of this article. The permission to use this material has been received from JOURNAL OF SPACE LAW.

[137] Principles Relating to Remote Sensing of the Earth from Outer Space, G.A. Res. 41/65, U.N. Doc. A/RES/41/65 (Dec. 3, 1986).

[138] "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." *Id.* at princ. XII.

[139] 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

The sensed State has also been entitled to have access to the available analyzed information[141] concerning its territory. Thus the Resolution clearly establishes a fair balance of interests of all States.[142]

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.[143] 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 com-

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space by telemetry in the form of electromagnetic signals, by photographic film, magnetic tape or any other means." *Id.* at princ. I.

[140] The term "processed data" means "the products resulting from the processing of the primary data, needed to make such data usable." *Id.*

[141] The term "analyzed information" means "the information resulting from the interpretation of processed data, inputs of data and knowledge from other sources." *Id.*

[142] 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." Philippe Gaudrat & Paul Henry Tuinder, *The Legal Status of Remote Sensing Data: Issues of Access and Distribution*, *in* OUTLOOK ON SPACE LAW OVER THE NEXT 30 YEARS 351, 353 (G. Lafferranderie & D. Crowther, eds., 1997).

[143] It must also be noted that Principle XII of the Resolution 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 51 and accompanying text.

plex 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 Systems[144] 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 of the United States. In addition, a licensee is obliged to make available to any sensed Stated only unenhanced data[145] 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.[146] 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.[147] 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;

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[144] Licensing of Private Land Remote Sensing Systems, 15 C.F.R § 960.1-960.15 (2006).

[145] The Licensing of Private Land Remote Sensing Systems regulations define "Unenhanced data" as,

> 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.

Id. § 960.3.

[146] *Id.* § 960.11(b)(10).

[147] *Id.* § 960.4.

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.[148] 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 Canadian RADARSAT system)[149] 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.[150] In November 2004, the Government of Can-

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[148] The Licensing of Private Land Remote Sensing Systems regulations state that:

> 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. 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.

Id. § 960.3.

Furthermore, "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.

Id.

[149] *See* Bates, *supra* note 81.

[150] In 1999, the Canadian Ministers for Defense and Foreign Affairs jointly issued a policy statement according to which Canada will develop new legislation to control

ada introduced in Parliament a draft legislation (Bill C-25) that became law on 25 November 2005.[151] The new Act enables 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 U.N. Resolution on Remote Sensing, (b) seriously impedes non-discriminatory access to satellite imagery even for peaceful civilian and commercial purposes and peace-

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commercial remote sensing satellites. The following is one of the several principles that guided 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 ...
>
> (12) 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.

Press Release, Foreign Affairs and International Trade Canada, Canada to Control Imaging Satellites, No. 134, (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". *Id.*

[151] Remote Sensing Space Act, 2005 Statutes of Canada, ch. 45. 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. Bill C-25: An Act Governing the Operation of Remote Sensing Space Systems, (Dec. 20, 2004), *available at* http://www.parl.gc.ca/common/Bills_ls.asp?lang=E&ls=c25&source=library_prb&Parl=38&Ses=1 (last visited July 10, 2006).

> 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.

Minister of Foreign Affairs, University of British Columbia Government Relations, http://www.governmentrelations.ubc.ca/informed/jan2005/toknow.html (last visited July 10, 2006).

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,[152] there is a strong possibility that these satellites 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 U.N. 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.

D. 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."[153]

The U.S. 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

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[152] 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 is an issue that will take on increasing importance." Richard B. Myers, *Moving towards a Transparent Battlespace,* DEF. REV. MAG. (1999).

[153] *Commission White Paper on Space: a New European Frontier for an Expanding Union,* at 10, COM (2003) 673 final (Nov. 11, 2003), http://www.sbf.admin.ch/htm/services/publikationen/international/raumfahrt/whitepaper-e.pdf (last visited July 10, 2006).

armed forces retain exclusive control over them.[154] 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.

From the outset, the U.S. has opposed the creation of *Galileo*, insisting that this system will pose a threat to U.S. security, could interfere with military uses of GPS, and would be an unnecessary duplication of GPS.[155] 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.' "[156] 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.[157]

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[154] International Civil Aviation Organization, Council, *Final Report on the Work of the Secretariat Study Group on the Legal Aspects of CNS/ATM Systems*, ICAO Doc. No. C-WP/12197 (Feb. 17, 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).

[155] *Galileo: Issues Still To Be Solved Before Agreement With The U.S.*, SPACE DAILY, Feb. 9, 2004, http://www.spacedaily.com/news/gps-euro-04a.html (last visited July 10, 2006). 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." *US Warns EU About Galileo's Possible Military Conflicts*, SPACE DAILY Dec. 18, 2001, http://www.spacedaily.com/news/gps-euro-01g.html (last visited July 10, 2006).

[156] Ian Sample, *Europe and US clash on satellite system*, THE GUARDIAN, Dec. 8, 2003, http://www.guardian.co.uk/uk_news/story/0,3604,1102126,00.html (last visited June 30, 2006).

[157] "[I]n 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." *China Joins EU Space Program To Break*

After four years of intense negotiations between the E.U. and the U.S., an agreement on major issues, including interoperability of both the systems, was reached in February 2004.[158] 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 U.S. military and NATO."[159] 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."[160] Although several legal and procedural issues related to national security remain to be addressed, it is important to note that this 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.[161] Canada as well as Israel (with its €20-50

US GPS Monopoly, SPACE DAILY, Sept. 27, 2003, http://www.spacedaily.com/news/gps-03zc.html (last visited June 30, 2006).

[158] European Commission, *EU and US reach agreement on GALILEO*, Mar. 9, 2004, http://ec.europa.eu/comm/space/news/article_781_en.html (last visited July 10, 2006).

[159] "US, EU sign agreement on satellites," SPACE DAILY, June 26, 2004, http://www.spacedaily.com/2004/040626094838.jljplzlh.html (last visited July 10, 2006).

[160] *Id.*

[161] *See, Europe Helps China Setup Satellite Navigation Center*, SPACE DAILY, Sept. 19, 2003, http://www.spacedaily.com/news/gps-03x.html (last visited June 30, 2006);

million) will also participate in the system.[162] The Russians have agreed to launch the first two *Galileo* experimental satellites.[163] Such wide international participation cannot be expected either from the U.S. 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.[164]

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 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

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China signs agreement with EU on Galileo project, SPACE DAILY, Oct. 30, 2003, http://www.spacedaily.com/2003/ 031030124730.ppien2mq.html (last visited June 30, 2006); *China Tests European Satellite Positioning System*, SPACE DAILY, Jan. 19, 2004, http://www.spacedaily.com/news/gps-04f.html (last visited June 30, 2006); and *India to Invest in Galileo satellite project: EU*, SPACE DAILY, Oct. 30, 2003, http://www.spacedaily.com/2003/031030141843.79tqo71o.html (last visited June 30, 2006).

[162] *Israel signs up to European satellite project*, SPACE DAILY, Mar. 17, 2004, http://www.spacedaily.com/2004/040317190214.phid3q06.html (last visited June 30, 2006). *See also*, European Commission, *EU and Israel GALILEO agreement*, Mar. 22, 2004, http://ec.europa.eu/comm/space/news/article_783_en.html (last visited July 10, 2006).

[163] *Russians To Launch First Two Of EU's Galileo GPS Satellites*, SPACE DAILY, Mar. 3, 2004, http://www.spacedaily.com/news/gps-04v.html (last visited July 10, 2006).

[164] 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." *US Could Shoot Down Euro GPS Satellites If Used By China In Wartime: Report*, SPACE DAILY, Oct. 24, 2004, http://www.spacedaily.com/news/milspace-04zc.html (last visited June 30, 2006).

have become each other's second largest trading partners."[165] 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.

E. Military Uses and Weaponization of Space

Article IV of the Outer Space Treaty deals with certain military uses of outer space and celestial bodies.[166] 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

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[165] *See, China, EU Developing "Mature Partnership"*, SPACE DAILY, May 5, 2004, http://www.spacedaily.com/news/china-04zb.html (last visited June 30, 2006).

[166] 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.

Outer Space Treaty, *supra* note 1, at art. IV.

the term should be understood to include "civilian" and "military non-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.[167]

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.[168] In fact, there is no inconsistency in these two statements. As discussed below,[169] 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

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[167] 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 17, pursuant to Pub. L. 106-65, Jan. 11, 2001 [hereinafter REPORT OF THE COMMISSION], http://www.defenselink.mil/pubs/space20010111.pdf (last visited July 10, 2006). 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* PEACEFUL AND NON-PEACEFUL USES OF SPACE: PROBLEMS OF DEFINITION FOR THE PREVENTION OF AN ARMS RACE 37, 45 (New York: Taylor & Francis, Bhupendra Jasani, ed., 1991).

[168] 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." *China Says It Opposes Militarization Of Outer Space*, SPACE DAILY, May 19, 2005, http://www.spacedaily.com/news/milspace-05za.html (last visited June 30, 2006) *See also, China Calls For Preventing Outer Space Arms Race*, SPACE DAILY, Aug. 27, 2004, http://www.spacedaily.com/news/china-04zzb.html (last visited July 1, 2006); Press Release, U.N., China accepts "Five Ambassadors" Proposal on Prevention of an Arms Race in Outer Space as amended (Aug. 7, 2003), http://www2.unog.ch/news2/documents/newsen/dc0333e.htm (last visited July 1, 2006).

[169] *See, infra,* subsection "III.D. Space Militarization and Weaponization".

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 excessive 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.[170] Ambassador Arthur Goldberg, who had participated on behalf of the U.S. in the negotiation of the Treaty in 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."[171] 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."[172] 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."[173] 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."[174]

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[170] *See, supra* notes 4-12, and the accompanying text.

[171] STAFF REPORT, *supra* note 41, at 33.

[172] *The Outer Space Treaty: Hearings before the Comm. of Foreign Relations, U.S. Senate,* 90th Cong. 148 (1967) (statement of Amb. Arthur J. Goldberg).

[173] STAFF REPORT, *supra* note 41, at 16.

[174] *Letter of Transmittal to the Senate of the United States by President Lyndon Johnson: Hearings before the Comm Of Foreign Relations, U.S. Senate, 90th* Cong. 105, at 107.

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;[175] (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.

There is clear evidence that shows strong international support for such a broad interpretation of the Outer Space Treaty. In a series of U.N. 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.[176] 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 *infra* subsection III.D.).

As noted above, starting in 1958 the U.N. 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 sig-

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[175] 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." Outer Space Treaty, *supra* note 1, at art. III.

[176] Prevention of an Arms Race in Outer Space, G.A. Res. 59/065, U.N. Doc. A/RES/59/065 (Dec. 17, 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).

nificant arms control matters, it also remains dormant on outer space issues. It is disheartening to note that while the U.N.G.A. 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 some major space powers, believe that this body should only address non-military space issues.

III. FUTURE LEGAL REGIME FOR SPACE GOVERNANCE

It seems imperative that a discussion about the legal regime for future space governance should commence with an assessment of the law-making process and the forum (or fora) that could be conducive to making the necessary progress.

A. 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 U.N. 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.[177] The membership of COPUOS is based on the principle

[177] 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. International Cooperation in the Peaceful Uses of Outer Space, G.A. Res. 57/116,

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.[178]

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 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.[179]

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.[180] Adoption of the consensus rule ensured that the decision-making process in the COPUOS would be fair to all member States.

U.N. Doc. A/RES/57/116 (Dec. 11, 2002), adopted without a vote. Libya and Thailand were added by G.A Res. 59/116, para. 44 (Jan. 25, 2005).

[178] 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." Nandasiri Jasentuliyana, *The Lawmaking Process in the United Nations*, *in* SPACE LAW: DEVELOPMENT AND SCOPE 33 (Praeger Publishers, 1992).

[179] For detailed discussions, see *id.*; Ram Jakhu, *Developing Countries and the Fundamental Principles of International Space Law*, in Wolfgang Abendroth & Rafael Gutiérrez Girardott, NEW DIRECTIONS IN INTERNATIONAL LAW 351-373 (Frankfurt; New York : Campus Verlag, 1982).

[180] 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." (On file with author).

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 U.N.G.A. resolution by a majority vote.[181] 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,[182] 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 International Interests in Mobile Equipment[183] — 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

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[181] Principles Governing the Use by States of Artificial Earth Satellites for International Direct Television Broadcasting, G.A. Res. 37/92, U.N. Doc. A/RES/37/92 (Dec. 10, 1982).

[182] Moon Agreement, *supra* note 2.

[183] Report of the Legal Subcommittee on its Fortieth Session, Held in Vienna from 2 to 12 April 2001, G.A. A/AC.105/763 (Apr. 24, 2001) [hereinafter Report of the Legal Subcommittee].

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 easier to agree upon resolutions than on binding treaties. However, as we have seen in the cases of the 1961 Resolution on Satellite Telecommunications[184] and the 1986 Resolution on Remote Sensing,[185] 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 Convention on the Prohibition of the Use, Stockpiling, Production and Transfer of Anti-Personnel Mines and on their Destruction (hereinafter, Anti-Personnel Mines Convention)[186] 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 be a great success as about 150 States have signed or ratified

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[184] *See, supra* subsection "II.B. Satellite Communications".

[185] As discussed in *supra* subsection "II.C. Satellite Remote Sensing".

[186] Convention on the Prohibition of the Use, Stockpiling, Production and Transfer of Anti-Personnel Mines and on their Destruction, Sept. 18, 1997 [hereinafter Anti-Personnel Mines Convention], *available at* http://www.un.org/millennium/law/xxvi-22.htm (last visited July 12, 2006).

it.[187] Influenced by strong support for 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.[188]

B. 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.[189] While a majority of countries insist on the necessity of establishing such a boundary, several other 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 aris-

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[187] The Anti-Personnel Mines Convention entered into force on 1 March 1999 and there are about 150 ratifications, accessions, or approvals as of July 2006; http://www.mines.gc.ca/convention-en.asp (last visited July 12, 2006). Jody Williams, 1997 Nobel Laureate for Peace, speaking about Canada's challenge to negotiate a treaty against anti-personnel landmines in one year, has stated, "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 success of the ban movement." Foreign Affairs and International Trade Canada, Canada's Guide to the Global Ban on Landmines, http://www.mines.gc.ca/II/II_B-en.asp (last visited July 12, 2006).

[188] For details, see Rebecca Johnson, *Multilateral Approaches to Preventing the Weaponization of Space*, 56 DISARMAMENT DIPL. (April 2001), http://www.acronym.org.uk/dd/ dd56/56rej.htm (last visited July 10, 2006).

[189] 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."

ing from collisions that could occur between aerospace objects and aircraft."[190]

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 eventually was formalized in the Law of the Sea Convention.[191] 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,[192] 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."[193] 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.[194]

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[190] Report of the Legal Subcommittee, *supra* note 183.

[191] Convention on the Law of the Sea, *supra* note 26, at art. 3.

[192] Space Activities Act 1998, § 8, Acts of Parliament of the Commonwealth of Australia No. 23, s. 18(e)(assented to Dec. 21, 1998). as amended in 2004. *See also*, National Regulatory Régimes, http://www.spacelaw.com.au/ content/reg_in_australia.htm (last visited July 12, 2006).

[193] UN Document A/AC. 105/C.2/L.139 (Apr. 4, 1983).

[194] *Private craft makes space history*, BBC NEWS, June 21, 2004, http://news.bbc.co.uk/go/pr/fr/-/1/hi/sci/tech/3811881.stm (last visited July 11, 2006); *Private space craft set for historic manned flight*, SPACE DAILY, June 21, 2004, http://www.spacedaily.com/ 2004/040621072911.5e6t6bj4.html (last visited July 11, 2006).

C. 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.[195] 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.[196] 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.[197] Such debris not only pose a threat to active satellites in the or-

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[195] For details on space debris, see U.S. CONGRESS, OFFICE OF TECHNOLOGY ASSESSMENT, ORBITING DEBRIS: A SPACE ENVIRONMENTAL PROBLEM, OTA-BP-ISC-72, (Washington, D.C.: U.S. Govt. Print. Office, 1990; Walter Flury, *Space Debris*, 4(4) PREPARING FOR THE FUTURE (Dec. 1994), *available at* http://esapub.esrin.esa.it/pff/pffv4n4/ppfflunr4.htm (last visited July 11, 2006); *Keeping Space Free Of Debris*, SPACE DAILY, Nov. 27, 2003, http://www.spacedaily.com/news/debris-03a.html (last visited July 11, 2006); *Alarm system to help China's first manned space shuttle avoid collisions*, SPACE DAILY, Aug. 11, 2003, http://www.spacedaily.com/2003/030811045619.px27s7gd.html (last visited July 11, 2006); *Argentine authorities seeking US help in identifying piece of space junk*, SPACE DAILY, Jan. 21, 2004, http://www.spacedaily.com/2004/040121225802.g8r47dqk.html (last visited July 11, 2006); *Colombia gaze nervously skyward, fearing shower from Italian satellite*, SPACE DAILY, April 26, 2003, http://www.spacedaily.com/2003/030426162406.ntkbos42.html (last visited July 11, 2006); Note verbale dated 8 March 2001 from the Permanent Mission of Saudi Arabia to the United Nations (Vienna) addressed to the Secretary-General (Notification of discovered space debris), U.N. Doc. A/AC.105/762 (Apr. 3, 2001); *Insurers fear space junk" Italian insurer Generali warns of debris at Venice space insurance conference*, Apr. 17, 1997, http://www.satobs.org/seesat/Apr-1997/0164.html (last visited July 12, 2006); *Earth's Growing Orbital Ring Of Machines and Debris*, SPACE DAILY, May 14, 2001, http://www.spacedaily.com/news/debris-01b.html (last visited July 11, 2006); Phillip D. Anz-Meador, *Constellations Spawn Debris Rings Around Earth*, SPACE DAILY, Oct. 2000, http://www.spacedaily.com/news/debris-00d.html (last visited July 11, 2006).

[196] SPACE SECURITY INDEX 2004 4(Northview Press Ltd., Waterloo, 2005).

[197] "[T]he known and assessed population of debris is growing, and the probabilities of potentially damaging collisions will consequently increase." TECHNICAL REPORT ON SPACE DEBRIS BY THE SCIENTIFIC AND TECHNICAL SUBCOMMITTEE OF THE COMMITTEE ON THE PEACEFUL USES OF OUTER SPACE, U.N. Doc. A/AC.105/720, http://sn-callisto.jsc.nasa.gov/library/UN_Report_on_Space_Debris99.pdf (last visited July 12, 2006).

bit 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.[198]

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.

A few States, including the U.S., have already started to implement modest national space debris reduction policies.[199] 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.[200] Such initiatives are useful in the short term, but the effective-

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[198] *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 Apr. 2, 1981, http://www.jaxa.jp/jda/library/space-law/chapter_3/3-2-2-1_e.html (last visited July 12, 2006).

[199] For details, see NASA, Policy to Limit Orbital Debris Generation, NASA Policy Directive 8710.3 (1997); U.S. Department of Defense (United States Space Command - USSPACECOM), Space Debris Policy USSPACECOM Regulation 57-2 (June 6, 1991); Licensing of Private Remote Sensing Systems, *supra* note 80, at §§ 960.3 and 960.11; Press Release, Federal Communications Commission, FCC opens proceeding regarding mitigation of orbital debris, Mar. 14, 2002, http://www.fcc.gov/Bureaus/International/News_Releases/2002/nrin0204.html.

[200] Inter-Agency Space Debris Coordination Committee, *IADC Space Debris Mitigation Guidelines*, IADC-02-01 (Oct. 15, 2002), http://www.iadc-online.org/docs_pub/IADC-101502.Mit.Guidelines.pdf (last visited July 11, 2006).

ness 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."[201] 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 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 can seriously harm and restrict future use of outer space and thus is contrary to the global public interest in outer space.

D. 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 mili-

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[201] Report of the Scientific and Technical Subcommittee on its forty-first session, UN Doc. A/AC.105/823 (Mar. 8, 2004), at para. 89.

tary operations in war was for the first time convincingly demonstrated during the Gulf War in 1991.[202]

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."[203]

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[202] US General Richard B. Myers has 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." *To Receive Testimony on National Security Space Programs and Policies, in Review of the Defense Authorization Request for Fiscal Year 2000 and the Future Years Defense Program: Hearing Before the Senate Armed Services Comm. Strategic Forces Subcomm. on Military Space Programs*, 107th Cong. (2000) (written testimony of U.S.A.F General Richard B. Myers, Commander-in-Chief, U.S. Space Command), http://armed-services.senate.gov/statemnt/1999/990322rm.pdf (last visited July 13, 2006).

[203] Foreign Affairs and Internatonal Trade Canada, THE NON-WEAPONIZATION OF OUTER SPACE, http://www.dfait-maeci.gc.ca/arms/outer3-en.asp#1 (last visited July 11, 2006). *See, A Primer on Ballistic Missile Defence: Information and backstory on ballistic missiles and ballistic missile defence,* http://www.mapleleafweb.com/education/spotlight/issue_61/primer.html (last visited Jun. 25, 2005):

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.[204]

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."[205] 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,[206] but also in view of almost unanimous rejection by the international community of this position, expressed most recently in the December 2004 U.N. General Assembly Resolution.[207] 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:

> In the long-term, US plans for ballistic missile defence involve using a "layered" system, with land, sea, and air platforms to shoot down incoming missiles. Air and sea-based platforms (that will include use of special aircraft and seacraft and associated weapons) would be positioned as close to the launch site of an enemy missile as possible; the outgoing missile would be shot down shortly after launch. The ground-based system (such as the one currently being deployed) would intercept missiles – either when they are hurtling through space, high in the Earth's atmosphere, or when the missile makes its final approach towards its target.

[204] For details, see UNITED STATES SPACE COMMAND, VISION FOR 2020 (Feb. 1997), http://www.fas.org/spp/military/docops/usspac/visbook.pdf (last visited Jun. 25, 2006); and THE WHITE HOUSE, THE NATIONAL SECURITY STRATEGY OF THE UNITED STATES OF AMERICA (Sept. 2002).

[205] REPORT OF THE COMMISSION, *supra* note 167.

[206] *See, supra* notes 24-29, and the accompanying text.

[207] Prevention of an arms race in outer space, U.N. GAOR, 58th Sess., U.N. Doc. A/RES/58/36 (Jan. 8, 2004) adopted with 174 votes in favour, 4 against (i.e., Federated States of Micronesia, Israel, Marshall Islands, United States of America), and no abstention.

> The development, testing and deployment of space-based anti-satellite and ballistic missile defence 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 favour of implicit permission for its use by the first nation to successfully deploy such weapons in outer space. Access to outer space via space launch vehicles might then need to run a gauntlet of orbiting space-based weapons.[208]

While some States, including Australia, Japan, and the U.K., support at least some aspects of the American BMD project,[209] China and Russia have consistently been voicing their concerns about the weaponization of space, which could in their view trigger a space arms race.[210] In addition, several European nations, particularly Germany and France, remain "unconvinced of [BMD's] necessity."[211] Canada has consistently opposed all efforts to weaponize outer space, including space-based missile defense.[212] 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

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[208] THE NON-WEAPONIZATION OF OUTER SPACE, *supra* note 203.

[209] *See, Australia agrees to join US missile defense program*, SPACE WAR, Dec. 4, 2003, http://www.spacewar.com/2003/031204065649.7opikieg.html (last visited July 11, 2006); *Japan says it will join US missile defense system*, SPACE WAR, Dec. 19, 2003, http://www.spacewar.com/2003/031219025501.06sbwku0.html (last visited July 11, 2006); *Britain agrees to US missile defence request*, CHANNEL NEWS ASIA INTERNATIONAL, Feb. 5, 2003, http://www.channelnewsasia.com/stories_archive/europe/view/31610/1/.html (last visited July 11, 2006).

[210] Press Release, U.N., China and Russia Present New Contributions to Conference on Banning Weapons in Outer Space (Aug. 26, 2004), http://www2.unog.ch/news2/documents/newsen/dc04033e.htm (last visited July 11, 2006). *See also*, Peoples' Republic of China & Russ. Fed., *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*, Doc. No. CD/1679 (working paper, June 28, 2002); *China slams US missile plan; other world reaction mixed*, SPACE DAILY, Feb. 6, 2001, http://www.spacedaily.com/news/010502093735.ltl6ot5z.html (last visited July 11, 2006).

[211] D. Barrie, *Rumsfeld Fails to Win Foreign Ministers' Support for NMD*, SPACE NEWS, June 4, 2001, at 18.

[212] 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." Jeff Sallot, *U.S. space arms plan draws ire of Canada*, THE GLOBE AND MAIL, July 26, 2001, at A 9.

U.S. through NORAD for the defense of North America but will not concentrate on missile defense.[213]

The probability of a space arms race is real and imminent. The development and eventual deployment of an U.S. 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 U.S. space "dominance" develop unchallenged. In December 2004, the U.N. General Assembly recognized that "prevention of an arms race in outer space would avert a grave danger for international peace and security."[214] 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."[215] 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."[216]

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

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[213] *Canada Will Not Participate In US Missile Defence Program*, SPACE WAR, Feb. 24, 2005, http://www.spacewar.com/news/bmdo-05i.html (last visited July 11, 2006); *Canada won't join missile defence plan*, CBC NEWS, Feb. 24, 2005, http://www.cbc.ca/story/canada/national/2005/02/24/missile-canada050224.html (last visited July 11, 2006).

[214] Prevention of an Arms Race in Outer Space, *supra* note 176.

[215] *Id.*

[216] REPORT OF THE COMMISSION, *supra* note 167, at 17-18.

control. The international community, through the U.N., must take an urgent and concerted action to prevent a space arms race before it is too late. A specific 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.[217] The negotiation for the resolution should be undertaken by the Legal Subcommittee of the COPUOS[218] 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.

E. Legal Regime for the Moon and Other Celestial Bodies[219]

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

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[217] "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." Moon Agreement, *supra* note 2, at art. 3.2.

[218] We should keep in mind that Outer Space Treaty, negotiated though the COPUOS, was considered as an "important arms control" treaty, see *supra* note 173 and the accompanying text.

[219] For a detailed discussion of this subject, see Ram Jakhu, *Twenty Years of the Moon Agreement: Space Law Challenges for Returning to the Moon,* 54 ZEITSCHRIFT FÜR LUFT-UND WELTRAUMRECHT 243 (2005). The material in this subsection is taken from that article but has been updated and adapted for the purpose of this article. The permission to use this material has been received from ZEITSCHRIFT FÜR LUFT-UND WELTRAUMRECHT.