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UNIVERSITY OF MISSISSIPPI SCHOOL OF LAW
A JOURNAL DEVOTED TO SPACE LAW AND THE LEGAL PROBLEMS ARISING OUT OF HUMAN ACTIVITIES IN OUTER SPACE.

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All correspondence with reference to this publication should be directed to the *Journal of Space Law*, P.O. Box 308 University of Mississippi Law Center, University, Mississippi 38677, JSL@olemiss.edu, tel: 1.662.915.6857, or fax: 1.662.915.6921.

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-- In Memoriam --
This volume is dedicated to the memory of
Dr. Stephen Gorove
1917 - 2001

Journal of Space Law
Founder
Chair, Editorial Board and Advisors
1973 - 2001

FOREWORD

THE *JOURNAL OF SPACE LAW*: THE NEW CENTURY

Joanne Irene Gabrynowicz[*]

The 29th volume of the JOURNAL OF SPACE LAW marks both an ending and a beginning. It is the first volume to be published since the passing of the JOURNAL'S founder and editor, Dr. Stephen Gorove. Dr. Gorove founded the JOURNAL in 1973 and under his guidance, it developed into the most respected space law journal in the world. For more than a quarter of a century, space law legislators, academics, students, practitioners, policymakers, and those aspiring to join their ranks, have consulted the JOURNAL for the best and most recent thinking on space law and its development. Now, in 2003, the JOURNAL will continue under new direction but with the same goal established by Dr. Gorove: to provide a dedicated forum to address the legal problems arising out of human activities in space.

A more auspicious time to do so would be hard to imagine. In the first years of the 21st Century, the world witnessed the launch of Nigeria's *NigeriaSat1*, a remote sensing satellite and a 14-orbit, 21-hour, 23-minute mission of the *ShengZhou-5* which carried the first Chinese Taikonaut into space, making China the third nation to place a human in space. These missions exemplify the emergence of the next generation of space-

* Joanne Irene Gabrynowicz is the Editor-in-Chief of the JOURNAL OF SPACE LAW. She is also a professor of space law and remote sensing law and the Director of the National Remote Sensing and Space Law Center at the University of Mississippi School of Law. Prof. Gabrynowicz was the recipient of the 2001 *Women in Aerospace Outstanding International Award* and is a member of the International Institute of Space Law and the American Bar Association Forum on Air and Space Law. She may be reached at www.spacelaw.olemiss.edu.

faring nations. The space community has recognized that newly - active and recently advancing space nations require expertise and guidance to develop their domestic space law and legal institutions.

In 1999, the Third United Nations Conference on the Exploration and Peaceful Uses of Outer Space (UNISPACE III) noted "[t]he need for effective laws and policies on space activities, not just on an international level but also on the national level, [and it] is becoming clear to the increasing number of States now actively involved in the field of space." In 2001, the American Astronautical Society concluded that,

> The accessibility to and integration into our daily lives of numerous commercial applications in space, including satellite telephony, direct-to-home television, high-speed Internet connectivity, telemedicine, distance learning, remote sensing of the Earth, global positioning and navigation and materials processing, are a testament to that fact. Yet for private entities and investors to expand their business models and to reach for the next new application, they will need to see predictable, transparent and flexible international and domestic legal frameworks within which they may operate their businesses and protect their investments.

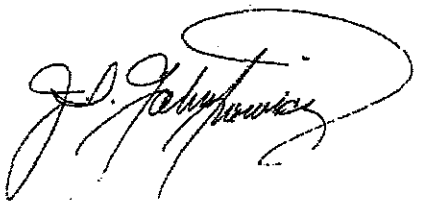
As the newly - active space nations begin their domestic space activities and space law development, their more experienced counterparts are addressing more advanced operational and legal problems. Complex, long-term international missions are raising issues of follow-on technologies; on-orbit human and robotic sustainability; and the on-going utilization, implementation and evolution of space assets. Multilateral agreements like the *Intergovernmental Space Station Agreement* and the *International Charter for Space and Major Disasters* are representative of the newer space law instruments that are emerging to reflect the multi-year, international missions that characterize the post-*Apollo* era.

Taken together, these events—and the response of the law that they invoke—demonstrate that on the civil side of space activities both the newer and more established spacefaring nations share two strong commonalities: *de facto* international cooperation and the increase of hybrid public-private activities.

The Nigerian satellite was built by a British company and launched atop a Russian rocket. Russian legacy technology provided the foundation for improvement by the Chinese. The *International Space Station* integrated, and continues to integrate, the technology and processes of 16 nations. The nascent Earth monitoring system facilitated by the *International Charter* employs the technology and personnel of six major space agencies and their supporting companies. A constant theme of all of these activities is the web of legal issues generated by the use of publicly and/or privately developed assets for commercial and/or national projects.

Many of these issues are mirrored on the military side of space activities as well. One of the best examples of this is the *Initial Joint Polar-Orbiting Operational Satellite System* and its concomitant intergovernmental agreement, in which both the U.S. military and civil weather authorities are engaged, along with their European counterparts. The intentional reliance on commercial remote sensing systems for national security purposes by Israel and the United States is another example. The outcome of the relative roles of the U.S. *Global Positioning System* and the planned European *Galileo* system provides yet one more instance of 21st Century space law issues. Other military and defense issues like missile proliferation and maintaining space for peaceful uses, are new for some spacefarers and continue for others. All of them are still in need of development under the domestic and international space law regimes.

So as both the JOURNAL OF SPACE LAW and a new generation of space activities begin the 21st Century, the editors and staff look forward to continuing Dr. Gorove's legacy and invite the space law community to join us. The JOURNAL will continue to accept papers from the community-at-large and will also encourage student submissions. Papers that address the interface between aviation and space law are also welcome. We look forward to the future.



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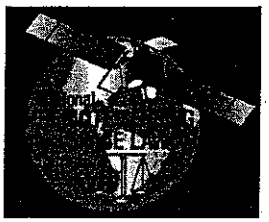

Joanne Irene Gabrynowicz, Director
Jacqueline Etil Serrao, Associate Director

The National Remote Sensing and Space Law Center
University of Mississippi School of Law
Oxford, Mississippi
USA
Confirmed Speakers and Other Information
www.spacelaw.olemiss.edu

via Memphis International Airport
Registration www.spacelaw.olemiss.edu

Contact Julie Baker
jhbaker@olemiss.edu
1.662.915.6857

THE APPLICATION OF INTELLECTUAL PROPERTY RIGHTS TO OUTER SPACE ACTIVITIES

Ruwantissa Abeyratne[*]

I. INTRODUCTION

Three years ago, an informal assessment revealed that 3-6 per cent of world trade is carried out with counterfeit and pirated goods, which in real terms amounts to approximately US $ 120-240 billion per annum[1]. The possibility is very real that this figure is now even higher. Although there is no known assessment of this kind pertaining to trade in space equipment, it is relevant and necessary to address the issue of intellectual property rights and their acquisition with regard to outer space activities, particularly pertaining to the proliferation of research activity that is now being carried out by space-faring nations.

The acquisition of intellectual property rights is accomplished intrinsically on a territorial basis. Outer space activity is essentially extra territorial in that a State engaging in outer space activities cannot claim territoriality in outer space for such activities. This dichotomy seemingly sets the stage for an inconsistency in the application of intellectual property laws to objects and activities in outer space. However, this perception is clearly *ex facie* illusionary, since outer space activity and objects used in outer space start for the most part on Earth. For instance, a lunar module or "moon buggy" invented and manufactured on Earth may clearly be drawn into the regime of intellectual property laws of a State concerned. However, the difficulty would arise if a State, in the course of its outer space activities conducted extra terrestrially, produces in space an object

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[*] Dr. Ruwantissa Abeyratne is a senior official at the International Civil Aviation Organization. He is also a member of the Space Law Committee of the International Law Association

[1] Paul Vandoran, *The Implementation of the TRIPs Agreement,* 2 J. WORLD INTELL. PROP. 25, 26 (1999).

or machine which would not have a territorial link since there is no room for acquisitioning property rights in outer space. This article will examine the principles applying to the acquisition of intellectual property rights, if any, under circumstances linking outer space activity.

A. Territoriality

Intellectual property rights can be acquired and applied in two ways: territorially and internationally. For instance, if an invention is registered in Canada, the rights accruing to the person registering that invention's patent in Canada applies only within that country. Such a right cannot be infringed by acts perpetrated in the United States. An aggrieved person whose intellectual property right is infringed can only seek redress against the injury in the country in which his right was infringed, according to the laws of that country. However, intellectual property rights are also applicable internationally and their existence will not be restricted to the jurisdiction of the State in which the activity creating such rights took place.

Thus an invention in State A can be patented in State B and a literary work created in State C may acquire copyright in State D automatically. A complex web of international treaties protect intellectual property rights of holders on a transboundary basis, primarily to obviate discrimination against foreign patent, trademark or copyright owners in a local jurisdiction. A good example is Canadian Law which has succeeded in harmonizing equitable application of intellectual property laws both nationally and internationally, as applicable to an instance of adjudication in Canada.[2]

The national or territorial concept of intellectual property rights creates a dichotomy where it clashes with the transboundary or international application of rights. This clash may occur particularly in the field of communications technology. For example, if State A were to download certain material and data

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[2] *See* Nat'l Corn Growers Ass'n v Canada (Import Tribunal) (1990) 2 S.C.R. 1324. *See also*, Milliken & Co. v. Interface Flooring Sys. (Can.) Inc., (1993) 52 C.P.R. (3d) 92, *aff'd* (1994) 58 C.P.R (3d) 157.

pertaining to an outer space project in which it is involved, and it is picked up by another State and transmitted to its space station in outer space, or more seriously, if a space station of a country other than State A were to directly access and use such material and data, exclusively in outer space, would State A have any recourse to terrestrial or territorial intellectual property laws against such usage?

Arguably, the strongest proposition supporting the application of intellectual property laws to outer space activities would lie in a contrived process of reasoning, starting with the fundamental premise that the Outer Space Treaty of 1967[3] which lays down the principle that no State can claim sovereignty over any portion of outer space.[4] Since the concept of sovereignty connotes ineluctably a territorial control by that State, the Outer Space Treaty effectively precludes a State from exercising this right in outer space. However, this does not necessarily mean that a State has no right or control over its space objects or space personnel in outer space. Article VI of the Outer Space Treaty ensures that States have the right to require authorization and continued supervision by that State on the activities in outer space by a non Governmental organization or entity of that State. Furthermore, Article VIII of the Treaty provides for a State to retain jurisdiction and control over an object launched into outer space and over any personnel, if such object were registered in that State. *A fortiori*, the Intergovernmental Agreement of 1998 Relating to the International Space Station has an explicit provision that ensures territorial application to objects registered in the State Parties[5] concerned. Thus, a module belonging to a particular State Party to the Inter Governmental Agreement or is registered in that State, and is an integral component of the space station, would be deemed "territory" of the State concerned. This principle is embodied in Article 21(2) of the Agreement which provides that any invention made on a

[3] 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.T.S. 205 (entered into force on Oct. 10. 1967).

[4] *Id.* at art. 1.

[5] State Parties are Canada, member States of the European Space Agency, Japan, Russian Federation and United States of America.

module of a space station will be deemed to have been made in the State to which that module belongs, and that any activity occurring in or on a space station flight element shall be deemed to have occurred exclusively in the territory of a State in which that element is registered.

II. THE OUTER SPACE TREATIES AND THEIR APPLICATION TO INTELLECTUAL PROPERTY RIGHTS

A. Space Law Principles

The legal and philosophical bases of space law are unique and form the antithesis of those applicable to air law in that space law is grounded on the principle that outer space is the common heritage of mankind and that no State or individual can therefore claim *rights in rem* to any portion of outer space. Air law, on the other hand, is firmly entrenched in the principle of sovereignty of States, so that a State may lay claims to rights over the airspace above its territory.[6] Thus in aviation, general principles applicable to intellectual property rights would apply. This essentially means that while the implementation of air law is heavily influenced by municipal law, space law is solely grounded on legal principles binding on the community of nations. Principles of public international law therefore play an exclusive part in the application of space law principles.

In terms of jurisprudence, space law represents the Idealist school which supports community interest over national interest, while air law represents the Realist school which advocates that national interests are pre-eminent considerations for all purposes. The Idealist school believes that individual interests should best be served by collective intercourse and is best illustrated by the view of Lauterpacht who was of the view:

> a community may be said to be the body of a number of individuals more or less bound together through such common in-

[6] *See* Ruwantissa I.R. Abeyratne, *The Philosophy of Air Law,* 37 AM. J. JURIS. 135, 135-144 (1992).

> terests as to create a manifold intercourse between single individuals.[7]

Legal principles relating to the international community necessarily emanate collectively from that community as a body of rules which require the consent of the community. An examination of the philosophy of space law therefore essentially requires an examination of the nature of public international law itself. This paper will discuss the philosophical basis of the common heritage principle of space law, through an evaluation of public international law and its relation to each other.

Space law is one of the most recent additions to international jurisprudence. That it pertains to one of the most highly technology intensive activities is an incontrovertible fact and was made evident with the successful launch of the Space Shuttle *Columbia* on 12 April 1981, where the world entered a new age of space exploitation, leaving behind the period of space exploration which seemingly started in 1957 with the launch of the Russian *Sputnik*. Understandably, the world was elated in 1981 with the phenomenon of the space shuttle to the extent that a space technologist at NASA predicted:

> I am convinced that by 1990 people will be going on the shuttle routinely - as an aircraft...[8]

Of course, it has not happened quite that way yet. One must concede, however, that the expert's prophecy was at least partially correct in that by 1990 we were actively involved with the concept of the aerospace plane, of which the space shuttle was a precursor.

The emergent philosophical problem posed by space law, in its offer to mankind of a new dimension of transportation law and property law, was succinctly subsumed by Professor Böckstiegel in 1983:

> [Space law] ... is the newest main field of international law ... and it depends more than most other fields on probable and

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[7] HERSCH LAUTERPACHT, INTERNATIONAL LAW 11 (8th ed. 1955).
[8] *See* NAT'L GEOGRAPHIC, Mar. 1981, at 317.

> fast technical progress ...[9] It is obvious that the application of space technology will lead to the growing commercialization of space activities, since such service - at least in the long run - can only be maintained and expanded, if it is self financing ...[10]

The blending of high technology with a new forensic code of conduct on hitherto unchartered territory has brought to bear the need for the community of nations to formulate a sustainable legal theory that would ensure non-exploitation of space resources by individuals or States, while at the same time incorporating the element of responsibility and liability for individual and State conduct in outer space.

As mentioned earlier, the basic principle of space law is the "common interest" (or common heritage) principle which emerged as a result of the first specific Resolution on space law of the United Nations General Assembly in 1958.[11] The "common interest" principle has since been incorporated in subsequent multilateral treaties, particularly the *Outer Space Treaty* of 1967,[12] Article 1(1) which provides:

> [T]he exploration and use of outer space, including the moon and other celestial bodies, shall be carried out for the benefit and in the interest of all countries, irrespective of their degree of economic or scientific development, and shall be the province of all mankind.

This provision, which binds signatory States, is seemingly a departure from the traditional "national interest" approach of international air law and has represented a moral obligation to some[13], while to others the provision has represented a *jus cogens* or mandatory legal principle.[14]

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[9] Karl-Heinz Böckstiegel, *Prospects of Future Development in the Law of Outer-Space*, 8 ANNALS OF AIR AND SPACE L. 305 (1983)

[10] *Id.* at 314.

[11] G.A. Res. 1348, U.N. GAOR, 13th Sess., 792d plen. mtg. (1958)

[12] Outer Space Treaty, *supra* note 3.

[13] D. Goedhuis, *Some Substantive and Procedural Issues Presently at Stake in Space Legislation*, 25 ZEITSCHRIFT FUR LUFT-UND WELTRAUMRECHT- GERMAN J. OF AIR AND SPACE L. 195, 198-99 (1976). *See also* Bin Cheng, *The 1967 Space Treaty*, 95 J. DU DROIT INT'L, 532, 578 (1968).

[14] Marko G. Markoff, *Disarmament and 'Peaceful Purposes' Provisions in the 1967 Outer Space Treaty*, 4 J. OF SPACE L. 3 (1976). *See also* Nicholas M. Matte, *Aerospace*

The International Court of Justice (ICJ), in the *North Sea Continental Shelf Case*[15], held that legal principles that are incorporated in Treaties, such as the "common interest" principle, become customary international law by virtue of Article 38 of the 1969 Vienna Convention on the Law of Treaties. Article 38 recognizes that a rule set forth in a treaty would become binding upon a third State as a customary rule of international law if it is generally recognized by the States concerned as such. Article 1(1) of the *Outer Space Treaty*, which designates that the use of space technology is achieved under the "common interest" principle for the common good of humanity, therefore becomes a principle of customary international law, or *jus cogens*. Obligations arising from *jus cogens* are considered applicable *erga omnes* which would mean that States using space technology owe a duty of care to the world at large in the provision of such technology. The ICJ in the *Barcelona Traction Case* held:

> [A]n essential distinction should be drawn between the obligations of a State towards the international community as a whole, and those arising *vis à vis* another State in the field of diplomatic protection. By their very nature, the former are the concerns of all States. In view of the importance of the rights involved, all States can be held to have a legal interest in their protection; they are obligations *erga omnes*.[16]

The International Law Commission has observed of the ICJ decision:

> [I]n the Courts view, there are in fact a number, albeit limited, of international obligations which, by reason of their importance to the international community as a whole, are- unlike others - obligations in respect of which all States have legal interest.[17]

Law: Telecommunications Satellites, 166 RECUEIL DES COURS 119, 147 (1980); RAM S. JAKHU, DEVELOPING COUNTRIES AND THE FUNDAMENTAL PRINCIPLES OF INTERNATIONAL SPACE LAW, 351 (Giradot et. al. ed.) (1981); Carl Q. Christol, *The Jus Cogens Principle and International Space Law,* 26 COLLOQUIUM 1 (1983).

[15] North Sea Continental Shelf (F.R.G./Den.; F.R.G. Neth), 1969 I.C.J. 3 (Feb. 20).

[16] Barcelona Traction, Light and Power Company, Limited (Belg. v. Spain), 1970 I.C.J. 3 (Feb. 5).

[17] 2 Y.B. of Int'l L. Comm'n, part one at 29 (1976).

The views of the ICJ and the International Law Commission, which has supported the approach taken by the ICJ, give rise to two possible conclusions relating to *jus cogens* and its resultant obligations *erga omnes*:

> a) obligations *erga omnes* affect all States and thus cannot be made inapplicable to a State or group of States by an exclusive clause in a treaty or other document reflecting legal obligations without the consent of the international community as a whole; and
>
> b) obligations *erga omnes* preempt other obligations which may be incompatible with them.

Some examples of obligations *erga omnes* cited by the ICJ are prohibition of acts of aggression, genocide, slavery and discrimination.[18] It is indeed worthy of note that all these obligations are derivatives of norms which are *jus cogens* at international law.

If it can be accepted that a principle of *jus cogens* creates obligations *erga omnes*, it becomes an undeniable fact that Article 1(1) of the *Outer Space Treaty* could be considered a peremptory norm or *jus cogens,* since it generates obligations towards the international community as a whole. Christol observes:

> Article 1 Paragraph 1 of the Space Treaty, with its adoption of the common benefits and interests guarantee, can be supported (as an example of peremptory norms) because the provisions conform to moral law in the sense that all humankind is to benefit unconditionally, and because the terms are consistent with the spirit and the purposes identified in Article 1 Pars. 1 through 3 and Article 2 pars 1 through 4 of the UN Charter, as well as with complimentary international agreements of lesser authority. To the extent that the terms are beneficial to individuals, the larger community, and States, and when the provisions are found on the fundamental moral principles contained in the foregoing paragraphs of Article 1

[18] Barcelona Traction, supra note 16, at 32.

> and 2 of the UN Charter, such basic principles qualify for the status of peremptory norms of general international law.[19]

The effect of this observation is that the content and nature of Article 1 (1) confirms that it is a *jus cogens*. There is seemingly no reason why the international community should not give such recognition to the "common interest" principle as enshrined in Article 1(1) which is aimed at the protection of the interests of the international community as a whole. *A fortiori*, on the same basis, Article IX of the *Outer Space Treaty* which requires that States should avoid harmful contamination and adverse change in the environment of the Earth which may result from the exploration of outer space would incontrovertibly be considered *jus cogens*.

Article VI of the *Outer Space Treaty* provides in part that State Parties to the Treaty shall bear international responsibility for national activities in outer space, whether such activities are carried out by governmental agencies or non-governmental agencies. This provision clearly introduces the notion of strict liability *erga omnes* to the application of the *jus cogens* principle relating to outer space activities of States and could be considered applicable in instances where States hold out to the international community as providers of technology achieved and used by them in outer space, which is used for purposes of air navigation. Article VI further requires that the activities of non-governmental entities in outer space shall require authorization and continuing supervision by the appropriate State Party to the Treaty, thus ensuring that the State whose nationality the entity bears would be vicariously answerable for the activities of that organization, thereby imputing liability to the State concerned.

Article VII makes a State Party internationally liable to another State Party for damage caused by a space object launched by that State.

The *Registration Convention* of 1974[20] in Article II(1) requires a launching State of a space object that is launched into

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[19] C. Q. Christol, *supra note* 14 at 6.

earth orbit or beyond, to register such space object by means of an entry in an appropriate registry which it shall maintains and inform the Secretary General of the United Nations of the establishment of such a registry. This provision ensures that the international community is kept aware of which State is responsible for which space object and enables the United Nations to observe outer space activities of States. Article VI of the Convention makes it an obligation of all State Parties, including those that possess space monitoring and tracking facilities, to render assistance in identifying a space object which causes damage to other space objects or persons. Justice Manfred Lachs analyses these provisions of the *Registration Convention* to mean that the State of registry and the location of the space object would govern jurisdictional issues arising out of the legal status of space objects.[21] On the issue of joint launching of space objects, Justice Lachs observes:

> No difficulties arise whenever a State launches its own object from its own territory; the same applies to objects owned or launched by non-governmental agencies registered in that State. However, in cases of joint launching, agreement between the parties is required as to which of them is to be deemed the "State of Registry". A similar agreement is also necessary when a launching is carried out by an international organization.[22]

The above provision ensures the identification of parties responsible for specific activities in outer space and thereby makes it easier to impose liability for environmental damage caused.

The *Outer Space Treaty*,[23] while expostulating the fundamental principle in its Article 1 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, explicitly imposes in Article VII international liability and

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[20] Convention on Registration of Objects Launched into Outer Space, *adopted on* Nov. 12, 1974, GAOR, 1023 U.N.T.S. 15.

[21] MANFRED LACHS & SIJTHOFF LEIDEN, THE LAW OF OUTER SPACE, AN EXPERIENCE IN CONTEMPORARY LAW MAKING, 70 (1972).

[22] *Id.*

[23] Outer Space Treaty, *supra* note 3.

responsibility on each State Party to the Treaty, for damage caused to another State Party or to its populace (whether national or juridical) by the launch or procurement of launch of an object into outer space. In its preceding provisions the Treaty imposes international responsibility on States Parties for national activities conducted in outer space. The Treaty also requires its States Parties to be guided by the principle of cooperation and mutual assistance in the conduct of all their activities in outer space.[24] This overall principle is further elucidated in the same provision:

> States Parties to the Treaty shall pursue studies of outer space, including the moon and other celestial bodies, and conduct exploration of them so as to avoid harmful contamination and also adverse changes in the environment of the Earth resulting from the introduction of extra terrestrial matter.[25]

The *Moon Agreement*[26] of 1979 provides that in the exploration and use of the moon, States Parties shall take measures *inter alia* to avoid harmfully affecting the environment of the earth through the introduction of extra terrestrial matter or otherwise.[27]

The *Liability Convention* [28] contains a provision which lays down the legal remedy in instances of damage caused by Space objects. Article II provides:

> A launching State shall be absolutely liable to pay compensation for damage caused by its space objects on the surface of the Earth or to aircraft in flight.,[29]

thereby imposing a regime of absolute liability on the State that launches space objects such as satellites, which provide technol-

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[24] *Id.* at art. IX.

[25] *Id.*

[26] Agreement Governing the Activities of States on the Moon and Other Celestial Bodies, Dec. 5, 1979, U.N. GAOR, Doc. A/RES/34/68.

[27] *Id.* at art. 7.

[28] Convention on International Liability for Damage Caused by Space Objects, Mar. 29, 1972, 24 U.S.T 2389, T.I.A.S No. 7762.

[29] Article II(a) defines damage as including loss of life, personal injury or other impairment of health; or loss or damage to property of States or of persons natural or juridical, or property of international governmental organizations. *Id.*

ogy and communication that is used for air navigational purposes. Although admittedly, both the *Outer Space Treaty* and the *Liability Convention* do not explicitly provide for damage caused by technology and communication provided by space objects, culpability arising from the "common interest" principle and liability provisions of the two conventions can be imputed to States under these Conventions.

Gorove states that in the field of international space law, two clearly connected terms have been used: liability and responsibility.[30] Although "responsibility" has not been cohesively interpreted in any legal treaty relating to outer space, "liability" occurs in the *Liability Convention* and is sufficiently clear therein. This, however, does not mean that State responsibility is not relevant to the obligations of States law as, in international relations, the invasion of a right or other legal interest of one subject of the law by another inevitably creates legal responsibility. Professor Brownlie observes:

> [T]oday, one can regard responsibility as a general principle of international law, a concomitant of substantive rules and of the supposition that acts and omissions may be categorized as illegal by reference to the rules establishing rights and duties. Shortly, the law of responsibility is concerned with the incidence and consequence of illegal acts, and particularly the payment of compensation for loss caused.[31]

International responsibility relates both to breaches of treaty provisions and other breaches of legal duty. In the *Spanish Zone of Morocco Claims* case, Justice Huber observed:

> [R]esponsibility is the necessary corollary of a right. All rights of an international character involve international responsibility. If the obligation in question is not met, responsibility entails the duty to make reparation.[32]

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[30] Stephen Gorove, *Liability in Space Law: An Overview*, 8 ANNALS OF AIR AND SPACE L. 433 (1983)

[31] IAN BROWNLIE, PRINCIPLES OF PUBLIC INTERNATIONAL LAW 433 (4th ed. 1990).

[32] *1925 RIAA ii* 615 at 641.

There is also explicit recognition that principles of international law apply to space law. The General Assembly of the United Nations in 1961 adopted the view that international law, including the Charter of the United Nations, applies to outer space and celestial bodies.[33] It is also now recognized as a principle of international law that the breach of a duty involves an obligation to make reparation appropriately and adequately. This reparation is regarded as the indispensable complement of a failure to apply a convention and is applied as an inarticulate premise that need not be stated in the breached convention itself.[34] The ICJ affirmed this principle in 1949 in the *Corfu Channel* Case[35] by holding that Albania was responsible under international law to pay compensation to the United Kingdom for not warning that Albania had laid mines in Albanian waters which caused explosions, damaging ships belonging to the United Kingdom. Since the treaty law provisions of liability and the general principles of international law as discussed complement each other in endorsing the liability of States to compensate for damage caused by space objects, there is no contention as to whether in the use of nuclear power sources in outer space, damage caused by the uses of space objects or use thereof would not go uncompensated. The rationale for the award of compensation is explicitly included in Article XII of the *Liability Convention* which requires that the person aggrieved or injured should be restored (by the award of compensation to him) to the condition in which he would have been if the damage had not occurred. Furthermore, under the principles of international law, moral damages based on pain, suffering and humiliation, as well as on other considerations, are considered recoverable.[36]

As discussed, both treaty law and general principles of international law on the subject of space law make the two elements of liability and responsibility a means to an end - that of awarding compensation to an aggrieved State or other subject

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[33] G.A. Res. 1721, U.N. GAOR, 16th Sess. (1961). *See also* Article 3 of the Outer Space Treaty, *supra* note 3.

[34] In Re. Chorzow Factory (Jurisdiction), 1927 P.C.I.J. (ser. A) No. 9, at 21.

[35] Corfu Channel, 1949 I.C.J. 4, at 23 (Apr. 9).

[36] CARL Q. CHRISTOL, SPACE LAW PAST, PRESENT AND FUTURE 231 (Kluwer Law and Taxation Publishers 1991).

under the law. Therefore, in view of the many legal issues that may arise, the primary purpose of a regulatory body which sets standards on State liability in issues concerning the use of space technology would be to carefully consider the subtleties of responsibility and liability and explore their consequences on States and others involved as they apply to the overall concept of the status of a State as a user of space technology which may cause harm or injury to the latter.

III. THE TRIPS [TRADE RELATED ASPECTS OF INTELLECTUAL PROPERTY RIGHTS] AGREEMENT

The transfer of technology and its symbiotic application, particularly in the sharing of technology among outer space faring nations of the world is critical to the progress of outer space activity. Therefore, as any other activity involving intellectual property rights, space law can attenuate for its basic principles the establishment of the World Intellectual Property Organization (WIPO) which was set up as a specialized agency of the United Nations in 1974.[37] The nature of the WIPO structure and the numerous conventions the Organization had to administer rendered its effects on intellectual property rights administration on a global scale somewhat ineffective. The inadequacy of the WIPO mechanism prompted industrialized nations to seek an alternative, which they found under the umbrella of the General Agreement on Tariffs and Trade (GATT). Under the Uruguay Round of multilateral trade negotiations, the aspirations of nations seeking an efficient regulatory structure for the application of intellectual property rights was realized, within the establishment of the World Trade Organization (WTO). The Uruguay Round reflected a synergy between States in the establishment of a uniform regime that would harmonize intellectual property rights within member States of WTO. The resulting TRIPs agreement focuses on linking the protection of intellectual property rights to the promotion of innovation in technology and the sharing of that technology in a manner facilitative

[37] WIPO coordinates and administers 22 multilateral unions and conventions on intellectual property protection and sets standards for domestic laws of its members.

of social and economic progress. Although it is arguable from a perspective of applied economics that there is an identifiable link between outer space activities and human welfare, nonetheless the basic principle embodied in the TRIPs agreement pertaining to technological innovation would indeed be relevant to activities being carried out in outer space.

TRIPs came to light as a result of an effort by the global community to provide holders of intellectual property rights with an effective mechanism to combat piracy and ensure progressive and equitable trade practices throughout the world.[38] The justification for TRIPs is reported to lie in the existing need to encourage the people of the world to hone their creative and inventive skills toward the betterment of the world, and to this extent the relevance of IRPs to outer space activities cannot be denied. Another important issue for outer space activity in this regard is that the TRIPs agreement, although retaining primacy of objective in the protection of intellectual property rights, is also calculated toward promoting technological innovation and the transfer and dissemination of technology.[39]

In terms of the territoriality of an outer space object or space station, Article 1(1) of TRIPs gives legal legitimacy to a State deciding to ascribe its sovereignty to modules or objects belonging to that State by providing:

> ... Members shall be free to determine the appropriate method of implementing the provisions of this agreement within their own legal system and practice.

This provision not only grants member States a certain discretion in interpreting and applying the TRIPs principles from a local perspective, but it also may provide, as one commentator argues, *sui generis* protection to inventions that may not merit patent protection. This provision also accomplishes, *in limine* the establishment of a link between extra territorial and territorial application of intellectual property rights by a member State by granting the flexibility of extending its local legislation

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[38] *See* Final Draft Position Paper on TRIPs, WIPO and WTO, EU Committee of the American Chamber of Commerce in Belgium, May 21, 1999 Brussels.

[39] *Id.* at §.3.

to patents in outer space. This provision also ties in logically with Article VIII of the Outer Space Treaty (already mentioned) and "exports" with some justification TRIPs to outer space activities should a State wish to do so.[40]

A. *Sharing Information and Technology*[41]

One of the basic principles enunciated in Space Law and enshrined in the Outer Space Treaty is that space exploration will be for the benefit of all humanity. Article 67 of the TRIPs Agreement has a similar provision which stipulates that:

> In order to facilitate the implementation of this Agreement, developed country members shall provide, on request, and on mutually agreed terms and conditions, technical and financial cooperation in favour of developing and least developed country members.

Although the tasks within the common objective differ, in that the intent of the TRIPs Agreement is to impose obligations on developed States to assist other States in the preparation of intellectual property laws and related issues thereto, the objective and principle enunciated in the Outer Space Treaty, of sharing information and technology would be rendered nugatory and destitute of effect if some States were to be "uninitiated" to the process of protection of such information and technology. Furthermore, Article 66(2) of the TRIPs agreement stipulates:

> Developed country members shall provide incentives to enterprises and institutions in their territories for the purpose of promoting and encouraging technology transfer to least-developed country members in order to enable them to create a sound and viable technological base.

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[40] 35 U.S.C § 105 (2003) (extending U.S. patent laws to outer space).

[41] OECD has defined "technology" as "the systematic knowledge for the manufacture of a product for the application of a process or for the rendering of a service, including any integrally associated managerial and marketing techniques". *See* OECD, NORTH-SOUTH TECHNOLOGY TRANSFER; THE ADJUSTMENTS AHEAD 18 (1981).

This provision gives further thrust to the principles of cooperation in outer space activities which are encouraged between outer space faring States and other States.

One commentator[42] argues that the TRIPs Agreement militates against the economic interests of developing nations since developing nations are precluded from obtaining the 'soft' protection earlier afforded to them by WIPO.[43] He argues that technological development reflects the aims and aspirations of developed nations and western needs and standards which developing nations are forced to follow irrespective of the deleterious effects these developments and their demands may have on their economies.[44]

IV. INTELLECTUAL PROPERTY RIGHTS REGARDING OUTER SPACE ACTIVITIES

For the first time, mention of intellectual property rights pertaining to outer space activity was made and acknowledgment of the validity of such rights was confirmed at the 51st session of the United Nations General Assembly. The Report of the United Nations Committee on the Peaceful Uses of Outer Space (UNCOPUOS) reflecting work of the 35th Session of the Legal Subcommittee of UNCOPUOS, in Annex IV recommended the States be free to determine all aspects of their participation in international cooperation in the exploration and use of outer space on an equitable and mutually acceptable basis. The Report went on further to suggest that contractual terms in such cooperative ventures should be fair and reasonable. One of the ways in which UNCOPUOS identified "fair and reasonable" cooperation is through compliance with the legitimate rights and interests of the parties concerned such as in the field of intellectual property rights.[45] This principle also goes to support the proposition that although proprietary rights in outer space cannot be enforced by States, there could be a valid recognition of

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[42] M. RAFIQUL ISLAM, INTERNATIONAL TRADE LAW 190 (Law Book Company 1999).
[43] *Id.* at 191.
[44] *Id.*
[45] *See* http://www.space-generation.org.

territoriality in activities carried out in outer space if such activities were to take place in modules or equipment that have been registered in a particular State.

In the United States, there are numerous statutory provisions[46] pertaining to or at least embodying in certain instances intellectual property laws that may apply to outer space activity: Executive Order 10096 which provides *inter alia* for protection of intellectual property rights of the US Government concerning inventions of government employees stipulates that the Government obtains rights *in toto*, title and interests in any and all inventions of a government employee when such inventions are designed or produced during the scope of employment of the employee concerned.

A memorandum addressed to the Heads of Executive Departments and Agencies by the United States Government on 18 February 1983 lays down governmental patent policy pertaining particularly to rights concerning inventions brought about during the course of government research activity and implementation of development contracts. This memorandum is particularly relevant to the activities of the National Aeronautics and Space Administration (NASA) which, although strictly not binding on the Administration exhorts NASA to comply with the memorandum in accordance with the spirit of the document. It expresses the expectation that NASA (and other similar entities) will make optimum use of the flexibility made available to them to comply with the memorandum.[47]

Unlike the United States, Canada does not have statutory instruments pertaining to inventions made in outer space or resulting from activities in outer space. However, Canada has adopted the Canadian Space Agency Act of 1990 which estab-

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[46] *See* 42 U.S.C § 2457 (2003) (pertaining to property rights in inventions); 37 C.F.R. § 501 (2003) (on uniform patent policy for rights in inventions of government employees): Exec. Order No. 10,096 15 Fed. Reg. 389 (Jan. 23, 1950) (providing for a Uniform Patent Policy for the U.S. Government); 37 C.F.R. § 401 (2003) (on rights to inventions made by non-profit organizations and small business firms under government grants, contracts and cooperative agreements); 37 C.F.R. § 404 (2003) (on licensing of government-owned incentives); 35 U.S.C. § 105 (2003) (on inventions in outer space).

[47] It must be noted that NASA, which is an instrumentality of the United States Government, has its own guidelines pertaining to the acquisition and control of intellectual property rights. *See* NASA Act § 305 (1958), *amended by* 42 U.S.C. § 2457 (2003).

lished the Canadian Space Agency responsible for outer space activities carried out by Canada. Since the Canadian Space Agency is an instrumentality of State having the status of a department of the Federal Government under the Ministry of Industry, employees of the space agency are governed by the Public Servants Invention Act, Section 3 which provides a list of inventions covered by the Act and provides further that all rights pertaining to an invention made by a public servant while acting within the scope of his duties or employment or made by a public servant with facilities, equipment or financial aid provided by or on behalf of Her Majesty the Queen are vested in Her Majesty in right of Canada.

Intellectual property rights are usually acquired on a territorial basis either directly by the inventor or his legal representatives or assignors or by way of transfer, by way of purchase or grant of licence. From an international perspective, the *Patent Cooperation Treaty of 1970*, which has been ratified by most industrialized nations, makes provision enabling applicants wishing to register their patent in several States at the same time. Section 53(1) of the Act requires that a petition for a patent must be truthful and a false statement, even innocently made, could render such application nugatory and invalid.[48] As long as the application for a patent is made for a right invention for the right owner, misstatements pertaining to various immaterial facts, such as the correct name of the applicant's employer or a different name given to an invention (provided the application is granted regarding the correct invention) are irrelevant and immaterial.

The *Patent Cooperation Treaty* does not require that patents need to be for inventions made for public benefit. However, natural phenomena, such as new species of animals discovered or life forms observed, are not patentable. These are categorized as natural phenomena whether occurring in outer space or on Earth. Schemes, plans, business methods, and even computer programmes in general – the latter being precluded from being

[48] *See,* Beloit Canada Ltd. V. Valmet Oy (1984), 78 C.P.R. (2d) 1, 28-29.

registered as a patent in order to preclude the rapid technological progress in the industry – are also not patentable.

V. CONCLUSION

In the realm of outer space activity, an intellectual property law that would enforce rights in intellectual property should be primarily calculated to encouraging invention and competition. Although the public interest element in this particular area would be even less than that existing in other areas of intellectual property rights enforcement, States' interest in recognizing the existence of such rights should be essential only if purely for the economic and competitive element involved. Space technology is one of the most sophisticated of technologies and a patent system that would encourage invention, rather than one which acts merely as a rubber stamp, would also be a relevant consideration. The lack of concern of the system for the need for any particular invention is particularly inimical to space science and technology as entities controlling new inventions may, if it were to be to their advantage, not disclose their inventions until they choose to do so. Firms can hide their technology and protect their inventions through principles of law applicable to trade secrets.

The protection of intellectual property rights at space law should contain or identify clear principles of infringement. These should be established on a balance between economic theory and social justice, making sure the protection of intellectual property rights would not only benefit the inventors but also those who later improve, enlarge and challenge inventions already made. For this, an optimum balance is needed between the interests of the inventor, the State concerned, and those who improve space technology.[49]

Of critical importance is the need to introduce some stimulus toward encouraging invention and, at the same time protecting attendant rights.

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[49] Hilton-Davis Chem. Co. v. Warner-Jenkinson Co. Inc., 62 F.3d 1512, 1531-32 (Fed. Cir. 1995).

SATELLITE SERVICING ON-ORBIT BY AUTOMATION AND ROBOTICS: LEGAL AND REGULATORY CONSIDERATIONS

Tare C. Brisibe[*]

I. INTRODUCTION

It has been contended that, "Historically, satellites are lasting longer than projected. If a fuel replenishing capability existed, satellites could remain in orbit even longer. On the other hand, satellites become 'outdated' soon after they have been placed into orbit because of rapid technological advances".[1] This underscores related activity where for instance, previous manned missions of the United States space shuttle dating back to 1984, demonstrated the possibility of retrieving the Westar 6 and Palapa B-2 satellites, or salvaging the Intelsat 603 in 1992. Activity of this kind re-invent a number of legal and regulatory issues in the debate borne from the revolutionary development and simultaneously increasing involvement of private entities in space activities, within the framework of international law, principles and regulations, as well as national laws, all applicable to space activity. This debate poses the fundamental question[2] whether the family of aforementioned international instruments adequately balance the various interests in outer space and space activities. The purpose of this paper is not to engage in this debate, or attempt to provide solutions to the current state of affairs. This paper will highlight the potential legal

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[*] Regulatory Information Officer, General Counsels Division, Inmarsat Limited, United Kingdom. The views expressed herein are those of the author and do not, nor intend to, reflect the views of Inmarsat Limited. This paper draws extensively on a presentation prepared by the author for the 1st Bilateral DLR-CSA Workshop on On-Orbit Servicing of Space Infrastructure Elements via Automation & Robotics Technologies, 25-26 November 2002, Cologne Germany.

[1] Yoshito Y. Smith, *2025 Aerospace Replenishment: The Insidious Force Multiplier*, 2 AIR FORCE 2025 (USAF ed., 1996), at 25.

[2] Frans G. Von der Dunk, *Public Space and Private Enterprise – The Fitness of International Space Law Instruments for Private Space Activities*, 1999 PROCEEDINGS OF THE PROJECT 2001 – WORKSHOP ON LEGAL ISSUES OF PRIVATISING SPACE ACTIVITIES 12.

and regulatory considerations, which may arise from automated or robotic on-orbit servicing[3] (OOS) by private entities, of civilian and commercially oriented satellites, within the said framework.

II. THE HYPOTHESIS

TABLE 1[4]

STATUS OF SATELLITE	ON-ORBIT SERVICE PROVIDED
End of Satellite mission lifetime due to fuel/propellant depletion. All systems operational.	Re-fuelling *in situ* to extend satellite mission lifetime.
Total or partial failure of satellite mission due to defective deployment of hardware.	Repair or replacement of failed/malfunctioning part.
Erroneous injection of satellite due to launch vehicle malfunction. Satellite in nominal condition.	Re-boost satellite to transfer/operational orbit.
Extension of satellite lifetime not worthwhile. Threat to other space assets and/or earth.	De-orbit satellite.

[3] It has been contended that 3 (three) distinctive classes of on-orbit services can be performed, *viz*: Motion; Manipulation; and Observation. These 3 (three) classes may further involve various specific services including: re-orbiting; de-orbiting; salvage; maintenance; repair; retrofit; docked inspection; and remote inspection. *See* J. Joerg Kreisel, *On-Orbit Servicing of Satellites (OOS): Its Potential Market Impact*, 1st BILATERAL DLR-CSA WORKSHOP ON ON-ORBIT SERVICING OF SPACE INFRASTRUCTURE ELEMENTS VIA AUTOMATION & ROBOTICS TECHNOLOGIES (2002).

[4] International Space University, *Open for Business: A New Approach to Commercialisation of the ISS*, 1999 Master of Space Studies, Design Project, 133.

III. LEGAL AND REGULATORY CONSIDERATIONS

A. *Prior Authorization and Licensing*

The Outer Space Treaty of 1967[5] makes provision, in its Articles VI[6] and VII[7] respectively, for the responsibility and liability of States involved in space activities. Specifically, Article VI imposes responsibility on States Parties to the Treaty to ensure that any space activity carried out by government agencies or non-governmental entities is performed safely and in conformity with the Outer Space Treaty and existing regulations of that State. Space activities performed by non-governmental entities are also subject to continual supervision by that State Party. Consequently, in case OOS activities are conducted by private commercial entities, it would be the responsibility of a State(s) Party to the Treaty to ensure that any such activity is performed in compliance with the provisions of the Outer Space Treaty and, hence according to Article III[8], with international law. Therefore before any OOS activity can take place, the

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[5] Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies, *opened for signature* Jan. 27, 1967, 18 U.S.T. 2410 (entered into force Oct. 10, 1967).

[6] "States Parties to the Treaty shall bear international responsibility for national activities in outer space, including the moon and other celestial bodies, whether such activities are carried on by governmental agencies or by non-governmental entities, and for assuring that national activities are carried out in conformity with the provisions set forth in the present Treaty. The activities of non-governmental entities in outer space, including the moon and other celestial bodies, shall require authorization and continuing supervision by the appropriate State Party to the Treaty. When activities are carried on in outer space, including the moon and other celestial bodies, by an international organization, responsibility for compliance with this Treaty shall be borne both by the international organization and by the States Parties to the Treaty participating in such organization." *Id.* at art. VI.

[7] "Each State Party to the Treaty 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, is internationally liable for damage to another State Party to the Treaty or to its natural or juridical persons by such object or its component parts on the Earth, in air or in outer space, including the moon and other celestial bodies." *Id.* at art. VII.

[8] "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." *Id.* at art. III.

commercial entity wishing to perform such operations would have to fulfil any Outer Space Treaty requirements as well as other requirements established by the State Party to the Outer Space Treaty responsible for the activities of that commercial entity. One writer[9] recommends that amongst the most important would be the receipt of prior authorization (also referred to as a license or permit[10]).

B. Liability and Risk Mitigation

The hypothetical scenarios listed in Table 1 above presuppose that OOS, when construed in its simplest form, would give rise to a contractual relationship involving the provision (OOS service provider) of a service to an operator (customer) of a satellite in need of servicing. In other words, the relationship agreed upon would be governed by a service contract. As with any other commercial arrangement, the parties thereto should necessarily be able to, with a degree of certainty, predict, limit and insure against the burden of civil liability, which can result from the failure of the product or "negligence" in the services provided. This assertion can be further justified as contemporary business practice dictates that, persons or entities providing negligent services or participating in the placement of "defective products" in the stream of commerce become exposed to civil liability for damages which result from the services negligently performed, or from the product defect[11]. This form of liability is synonymous with "first party liability" which may be assumed by the OOS service provider with respect to damages suffered by the customer. Likewise, in the course of conducting servicing operations on-orbit, damages caused by the OOS service provider may result in "third party liability" for injuries suffered by owners of other spacecraft.

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[9] *See* Nandasiri Jasentuliyana, *Regulation of Space Salvage Operations: Possibilities for the Future*, 22 J. SPACE L. 5, 5-21 (1994).

[10] *See* PAMELA L. MEREDITH & GEORGE S. ROBINSON, SPACE LAW: A CASE STUDY FOR THE PRACTITIONER – IMPLEMENTING A TELECOMMUNICATIONS SATELLITE BUSINESS CONCEPT, 42 (Martinus Nijhoff Pub., 1992).

[11] Mariagrazia Spada, *Quality Control in Production of Space Objects and Liability in Outer Space Law, in* OUTLOOK ON SPACE LAW OVER THE NEXT 30 YEARS 191, 191-99 (Gabriel Lafferranderie, & Daphne Crowther, eds., 1997).

The risks of damage and liability are traditionally allocated contractually, or otherwise to all the parties involved in the transaction. To date, the commercial space industry has developed innovative practices in managing these risks[12] (usually in the form of tightly worded contracts and insurance cover) albeit within the framework of the Liability Convention of 1972[13]. The provisions of that Convention impose international liability on States involved in the launching of an object into outer space which causes damage on earth, in air, or in outer space, caused by an object launched into outer space from the territory of that State[14]. Liability in this form will also embrace third party damage caused by space objects launched on behalf of commercial entities that have been authorized or licensed by States Parties to the Treaty. Amongst other things, innovation will be a key element in the contractual terms and conditions to be agreed upon in contracts for the provision of OOS services, alongside the possible inclusion of potential OOS's within existing on-orbit insurance policies[15].

C. Dispute Settlement

It has been contended[16] that although the Outer Space Treaty in its Article IX does not provide much guidance on the question of how States should settle disputes concerning the application of the Treaty, the Liability Convention does indeed contain some provisions on dispute settlement. Consequently, if no settlement of a claim is arrived at through diplomatic negotiations as provided for in Article XI of the Liability Convention

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[12] MEREDITH & ROBINSON, *supra* note 10 at 249-302, 335-36.

[13] Convention on International Liability for Damage Caused by Space Objects, *opened for signature* Mar. 29 1972, 24 U.S.T. 2389.

[14] *Id.* at arts. II and III.

[15] In-Orbit Insurance commences after a satellite reaches orbit, completes the initial functionality testing, and actual operation begins. The life expectancy of a satellite is approximately 10 years and ends when the satellite's fuel cell depletes. In-Orbit Coverage protects against the risk of a complete or partial failure of the satellite while operating in space. The owner or operator of the satellite is the insured, and the cover is usually a 1-year renewable policy.

[16] Karl-Heinz Bockstiegel, *The Settlement of Disputes Regarding Space Activities After 30 years of the Outer Space Treaty, in* OUTLOOK ON SPACE LAW OVER THE NEXT 30 YEARS 237, 237-49 (Gabriel Lafferranderie, &Daphne Crowther, eds., 1997).

at the request of either party, a Claims Commission (CC) has to be established. Articles XV to XVII deal with the details of the appointment and the procedure of this CC in a similar way, as it is known from international arbitration. Article XVIII provides that the CC shall decide the merits of the claims for compensation and determine the amount of compensation payable, if any. The decision remains binding only if both parties agree. Bearing the above in mind, it has further been argued[17] that in a relative perspective, dispute settlement plays a greater role for private enterprises than for State institutions, because private enterprises do not have available diplomatic and political means and because private enterprises rely much on calculating the exposure to costs and risks on the fulfilment of contractual obligations and, if necessary, on the enforcement for the other party to fulfil the contract or pay damages. Thus the basic option available to private enterprises (and impliedly, entities wishing to conducted OOS activity) is that between adjudication by State courts and arbitration. While adjudication by courts is available without any specific agreement between the parties, arbitration is only mandatory if chosen by the parties in an arbitration agreement or in an arbitration clause in the contract.

D. Protection of Intellectual Property Rights[18]

Intellectual Property Rights (IPR), defined within the provisions of Article 2 of the Convention establishing the World Intellectual Property Organisation[19], include,

> the rights relating to: literary, artistic and scientific works; performances of performing artists, phonograms, and broadcasts; inventions in all fields of human endeavour; scientific discoveries; industrial designs; trademarks, service marks, and commercial names and designations; protection against unfair

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[17] *Id.*

[18] *See* Albert Tramposch, *International Aspects of Protection of Inventions Made or Used in Outer Space*, *in* PROCEEDINGS OF THE WORKSHOP – INTELLECTUAL PROPERTY RIGHTS AND SPACE ACTIVITIES A WORLDWIDE PERSPECTIVE 187, 187-97 [hereinafter Tramposch].

[19] Convention Establishing the World Intellectual Property Organisation, July 14, 1967, 828 U.N.T.S. 3 (amended on September 28, 1979).

> competition; and all other rights resulting from intellectual activity in the industrial, scientific, literary or artistic fields.

An IPR is the right to forbid third party exploitation, or to allow the exploitation by license on terms dictated by the registered IPR owner or his/her designated successor. The filed instruments, such as the claims of a patent, define the scope of IPR protection. The geographical scope of the protection is that of the territory of the State, which has registered the IPR. IPR's have limited lifetimes (e.g. twenty years after the filing date for patents) and posses the dual nature of being both national and international.

In the international context, a patent may not be granted on an invention which had been previously disclosed (perhaps by publication) anywhere in the world. Moreover, a single patent application filed in one country may obtain patents in many countries under certain international treaties and conventions. This dual nature of patent protection, is nowhere more apparent than in the area of protecting inventions made or used in outer space, bearing in mind the fact that an act of invention is made up of two parts *viz*: (1) the complete idea of how to solve the problem; and (2) the building of a working model that actually carries out the solution. Particular problems and questions would arise for inventions made or used in outer space especially because they must be posed within the scope of the two major systems for the protection of IPR's worldwide, traditionally referred to as the "first to file"[20] and "first to invent"[21] systems[22]. For instance there may not be the presumption that a space experiment, designed and tested successfully on the ground will work exactly as expected in space. Thus under the "first to invent" system, in the context of OOS related activity, in the event that specific OOS hardware and procedures work or perform as expected in space, would such hardware and procedures be considered as inventions made in space, or were they

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[20] Under this system, the invention belongs to the first inventor who files a patent application, irrespective of the time or place of invention.

[21] Under this system, the time and place of invention are critical.

[22] *See generally* Tramposch, *supra* note 18, at 187-97 (giving a detailed comparison of the "first to file" and "first to invent" systems).

completed inventions when they were successfully tested on the ground.

E. Compliance with Debris mitigation Standards and Regulations[23]

On the issue of compliance with debris mitigation standards and regulations, the hypothesis stated in Table 1, confronts one with an international debate currently taking place within an embryonic international legal and regulatory framework. On the one hand, OOS activity desirous of extending the lifetime of satellites would probably serve to reduce the number of derelict or abandoned spacecraft in orbit. Conversely, in the event that such activity is geared at de-orbiting a satellite, with the attendant possibility of creating debris, capable of causing damage to third parties in outer space or on the surface of the earth, a private entity wishing to engage in commercial OOS related activity would necessarily need to consider, and perhaps comply (as applicable) with the international legal and regulatory obligations[24] placed upon the State that authorizes, licenses or permits it to conduct such activity.

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[23] *See* Tare Brisibe & I. Pessoa-Lopes, *The Impact of Orbital Debris on Commercial Space Systems*, PROCEEDINGS OF THE 44TH COLLOQUIUM OF THE INTERNATIONAL INSTITUTE FOR SPACE LAW, 52ND IAF Congress (2001).

[24] In practice, applicable regulations, policies and standards have evolved in a heterogeneous fashion, giving rise to a patchwork of national and intergovernmental rules. Of note are the national regulations, policies and standards of: (i) the United States ("U.S."). U.S. Government Orbital Debris Mitigation Standard practices (1997), aimed at limiting orbital debris generation by launch vehicle upper stages. The standards are applicable to U.S. Orbital stages (Athena, BA-2, Centaur, Delta, Boeing Inertial, Minotaur, Pegasus, Taurus and Titan). They were also applied to the re-entry of the Compton Gamma Ray Observatory on 4th June 2000; (ii) The Federal Republic of Russia (Russia). *See* the Russian Federation Law on Space Activity (1993) (RF); (iii) The member States of the European Space Agency (ESA). *See* the Resolution for a European Policy on the Protection of the space environment from Debris. Adopted by the Council of the ESA on 20 December 2000 (ESA Resolution); and the Draft European Space Debris Safety and Mitigation Standard; (iv) see the non-binding Draft International Instrument on the Protection of the Environment from Damage Caused by Space Debris *at* http://www.uni-koeln.de/jur-fak/instluft/draft3.html.

F. Efficient use of the geostationary orbit and frequency spectrum

OOS envisages the lengthening of the operational lifetime of satellites in orbit. Though there are several orbits from where a satellite system can operate, the geostationary satellite orbit (GSO) is the most used orbit. Furthermore, satellites rely on radio frequencies (radio waves), the use of which is regulated by the International Telecommunications Union (ITU). It must be noted that the GSO and radio frequency spectrum have always been regarded as a limited natural resource. Therefore the conduct of OOS activity will necessarily require adherence, by any licensed or authorized private entity, with the general legal principles applicable to international management of radio frequencies and the GSO positions as set forth in the provisions of Article 44, paragraph 2 (formerly Article 33 paragraph 2) of the 1994 ITU Constitution as amended by the 1998 ITU Plenipotentiary Conference.

That Article specifies,

> In using frequency bands for radio services, Member States shall bear in mind that radio frequencies and any associated orbits, including the geostationary-satellite orbit, are limited natural resources and that they must be used rationally, efficiently and economically, in conformity with the provisions of the Radio Regulations, so that countries or groups of countries may have equitable access to those orbits and frequencies taking into account the special needs of the developing countries and the geographical situation of particular countries.

It has been stated[25] that though Article 44(2) emphasizes the obligation to use the spectrum/orbit resource "efficiently" and "economically", it does not define the said terms. Consequently, it is left to the discretion of each ITU Member State to interpret what is efficient and economic. This discretion will most certainly apply and would require careful consideration

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[25] Ram Jakhu, & Virginia Serrano, *International Regulation of Radio Frequencies for Space Services*, PROCEEDINGS OF THE PROJECT 2001 WORKSHOP ON TELECOMMUNICATION 72 (2000).

when taking steps to embark on commercially oriented OOS related activity.

IV. CONCLUSION

The successful deployment of any commercial space project does not depend solely on the technical capability of the system and the attractiveness of the commercial proposal. Therefore, servicing satellites on-orbit by robotic and/or automated means would also need to address a number of complex but not necessarily insurmountable legal and regulatory considerations. The provision of legal opinions, performance of legal and regulatory audits, appropriate insurance cover, cumulated with an aggressive public policy involvement strategy, may bring solutions.

COOPERATION AFTER THE STORM: A RIGHT STEP IN SATELLITE TRADE REGULATION

*Patrick J. Donovan**

INTRODUCTION

United States government regulation of international trade in commercial communication satellites, their parts and components and associated technical data has been a political hot button for the better part of the last decade.[1] The export controls surrounding the trade in commercial communications satellites saw a slight easing in the earlier part of the 1990s.[2] This was followed by greater liberalization in 1996.[3] By the end of the decade a myriad of events highlighted in the hearings conducted

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* Patrick J. Donovan is the Director, Import/Export Controls at Intelsat Global Service Corporation, Washington, D.C. Prior to joining Intelsat, Mr. Donovan served in a variety of international trade related positions at Lockheed Martin, Honeywell, and NASA. In 1994, he was appointed by the Assistant Secretary of State for Political-Military Affairs to serve on the Defense Trade Advisory Group (DTAG), a statutory advisory body to the Department of State, which advises on matters of international trade with an emphasis on national security. His service on the DTAG includes the position of Vice-Chair of the Commercial Communications Satellite Task Force in 2000-2001 which assisted the Directorate of Defense Trade Controls in the construction of the resultant regulation 22 CFR 123.27. Mr. Donovan received his Juris Doctor from the Washington College of Law at The American University. The opinions expressed in this article are solely those of the author and do not represent the views of the DTAG or Intelsat Global Service Corporation. In addition, this article contains no content from DTAG meetings; only descriptions of process are utilized to recount the construction of 22 C.F.R. 123.27.

[1] *See* discussion *infra* Parts II.A, III.A, III.B (discussing the history of satellite export control and the multiple changes in regulatory jurisdiction and examining the political fallout of the Cox Committee investigations of alleged export violation concerning the United States satellite industry and China).

[2] *See Satellite Chiefs Complain Before the Senate*, THE EXPORT PRAC., Aug. 15, 1998, at 4 (laying out the efforts of the satellite industry to change the regulations regarding the export of satellites); discussion *infra* pp. 40-41 (noting the early shifts in satellite jurisdiction).

[3] *See* Michael S. Lelyveld, *Clinton Ripped on Satellites to China*, J. OF COMM., Dec. 14, 1998, at 1A (discussing the jurisdictional shift of the control of commercial communications satellites to the Department of Commerce in 1996 and the history behind that shift).

by the Cox Commission resulted in a tightening of controls that placed added administrative and compliance burdens on the United States satellite industry.[4]

Out of this turmoil came a small ray of sunshine on what was thought to be an otherwise cloudy day. On May 26, 2000, the State Department published an interim final rule in a public notice in the Federal Register creating a new licensing vehicle for the export of satellite parts and components and associated technical data.[5] The new licensing vehicle, the bulk license was designed in part through the cooperative efforts of the regulators and the satellite industry.[6] In essence, the new regulation provides the exporter with a greater amount of flexibility in the conduct of international business that should mitigate some of the burden felt after the re-tightening of satellite export controls.[7]

This article examines the construction of that regulation, the climate in which it came about and the relief it offers the United States satellite industry. Part I explores the regulatory framework that administers the export licensing process of commercial communications satellites, their parts and components and associated technical data and the importance of regulatory compliance. Part II provides an historical overview of the International Traffic in Arms Regulations and the control of the export of satellites. Part III contemplates the political fallout of the Cox Committee findings and its resultant effect of the change in satellite export jurisdiction from Commerce to State examining its pros and cons from national security and economic rationales. Part IV outlines the cooperative process be-

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[4] *See* discussion *infra* Part III.A (discussing the events that lead to the formation of the Cox Committee and industry's reaction to the effects of those hearings).

[5] *See* Exports of Commercial Communications Satellite Components, Systems, Parts, Accessories and Associated Technical Data, 65 Fed. Reg. 34,089 (May 26, 2000) (codified at 22 C.F.R. § 123) (announcing the new regulatory regime in the form of an interim final rule); *State Dept. Eases Restrictions on Satellite Exports*, SATELLITE WK, May 29, 2000.

[6] *See* 65 Fed. Reg. 34,089, 34,090-91 (codified at 22 C.F.R. § 123) (explaining the substance and the mechanics of the new bulk licensing regime).

[7] *See* Interview with William Lowell, then Director of the Office of Defense Trade Controls, United States Department of State (Nov. 13, 2000) [hereinafter Interview with William Lowell] (outlining the advantages the new regulations will provide the satellite parts and component exporter).

tween government and industry of creating a new export-licensing vehicle and examines its effect on the United States and the international satellite industries. Finally, Part V provides recommendations on how the new regulation can be better utilized by industry and better administered by the State Department.

I. HISTORICAL OVERVIEW OF THE CONTROL OF SATELLITE EXPORTS

A. Historical Portrait of the International Traffic in Arms Regulations

The Arms Export Control Act[8] (AECA) provides the President of the United States with the statutory authority to control the import and export of defense articles[9], services[10] and technologies.[11] Under that authority, the President delegated to the Secretary of State the mandate to promulgate regulations to control the export and temporary import of defense goods, services, and technologies.[12] Those regulations, which implement that authority, are the International Traffic in Arms Regulations (ITAR).[13] Through the Directorate of Defense Trade Controls (DDTC), Bureau of Politico-Military Affairs, the Department of State administers the ITAR.[14]

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[8] *See* 22 U.S.C. §§ 2751 – 2799 (2000); *see also* Kernan Chaisson, *U.S. Military Export Controls: The Rules are Changing*, J. ELECTRONIC DEF., May 1, 2000 (identifying the Arms Export Control Act of 1976 as the primary law governing the export and transfer of military equipment, technology and services).

[9] *See* International Traffic in Arms Regulations, 22 C.F.R. § 120.6 (2000) (defining a "defense article" as any item contained on the United States Munitions List).

[10] *See* 22 C.F.R. § 120.9 (circumscribing a "defense service" as the furnishing of assistance, technical data, or training in the design, development, manufacture, testing, repair, maintenance, etc. of defense articles).

[11] *See generally* 22 U.S.C. §§ 2751 – 2799 (2000) (showing the statutory authority to control the exports, under criminal penalty, of defense articles and data).

[12] Exec. Order No. 11,958, 42 Fed. Reg. 4311 (1977) (providing the delegation of authority to the Secretary of State to promulgate and administer the regulations for arms export controls).

[13] *See* 22 C.F.R. §§ 120-130 (citing the International Traffic in Arms Regulations provides the administrative and regulatory means of controlling arms and space exports).

[14] *See* 22 C.F.R. § 120.1 (a) (providing the general authorities for the International Traffic in Arms Regulations).

The jurisdiction of the ITAR covers United States persons,[15] foreign persons,[16] and foreign governmental entities engaged in the export, retransfer,[17] and temporary import[18] of defense articles and defense services as defined in the United States Munitions List (USML).[19] In order to export or temporarily import defense goods and services, one is required to be registered[20] with DDTC and must obtain a validated license[21] or other written approval or utilize certain license exemptions outlined in the ITAR.[22] In addition, the ITAR imposes extraterritorial control on the re-export or retransfer of any previously exported defense article or service to a third party.[23]

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[15] *See* 22 C.F.R. § 120.15 (defining a "U.S. person" as any individual who is either a citizen or permanent resident, any entity incorporated in the United States, and any local, state or federal government entity).

[16] *See* 22 C.F.R. § 120.16 (defining a foreign person as any person who is not a citizen of the United States or a lawful permanent resident in the United States as defined by 8 U.S.C. § 1101(a)(20)).

[17] *See* 22 C.F.R. § 120.19 (defining retransfer as the reexport of a defense article to an end-use or end-user not originally authorized by the export license the product was exported under).

[18] *See* 22 C.F.R. § 120.18 (defining a temporary import as the importation of any article on the U.S.M.L. that will be returned to the destination from which it was shipped, or the importation of an article on the U.S.M.L. which is in transit to a third country destination).

[19] *See* 22 C.F.R. § 121 (listing all articles, services and technical data, in categories, designated as defense services and defense articles under the regulatory authority of the International Traffic in Arms Regulations).

[20] *See* 22 C.F.R. § 122 (stating the mode, method, and requirements for manufacturers and exporters to register with the Directorate of Defense Trade Controls to engage in the export and temporary import of defense articles and defense services).

[21] *See* 22 C.F.R. § 120.20 (defining license as a document issued by the Director of the Directorate of Defense Trade Controls allowing the export of temporary import of a specific good or service controlled under the ITAR); *see also* Philip S. Rhoads, *The International Traffic in Arms Regulations: Compliance and Enforcement at the Office of Defense Trade Controls, U.S. Department of State*, 798 PLI/COMM. 717, 719 (1999) (explaining the jurisdictional authority of the Arms Export Control Act and the International Traffic in Arms Regulations).

[22] *See* 22 C.F.R. § 123.16 (detailing certain exemptions of general applicability from the normal licensing regime of the International Traffic in Arms Regulations).

[23] *See* 22 C.F.R. § 123.9(c) (detailing the approval and regulatory procedure for the reexport or retransfer of previously exported defense article and defense services); *see also* Peter D. Trooboff, *A Brief Primer on the International Traffic in Arms Regulations (ITAR)*, 798 PLI/COMM. 303, 305 (1999) (delineating the significant difference between the retransfer regulatory export scheme of the Departments of Commerce and State).

The USML controls those items that are primarily designed or modified for military or intelligence applications.[24] Those goods and services that are dual-use[25] or strictly commercial in nature are controlled under the Export Administration Regulations (EAR),[26] administered by the Bureau of Industry and Security (BIS), United States Department of Commerce.[27] The control and licensing regimes of the Departments of State and Commerce are fundamentally different in both their licensing process and the nature of their controls.[28]

The ITAR normally does not control products whose applications are commercial in nature, or were originally designed for military use, but now have a predominant commercial use.[29] However, when the product or technology retains an important military or intelligence characteristic and is deemed of import to national security or foreign policy then the product will remain captured and controlled under the ITAR.[30] A couple of examples of dual-use items controlled under the ITAR are the explosive

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[24] *See* Cecil Hunt, *Department of Commerce Export Controls*, 798 PLI/COMM. 29, 39 (1999) (articulating the structure of the U.S. export control system and noting the differences between Department of Commerce and Department of State Controls).

[25] *See* United States General Accounting Office, Report to Congressional Requesters GAO/NSIAD-97-24, *Export Controls: Change in Export Licensing Jurisdiction for Two Sensitive Dual-Use Items*, at 1 (1997) [hereinafter GAO/NSIAD-97-24] (defining a dual-use item as one that has both commercial and military characteristics and applications).

[26] *See* Export Administration Regulations, 15 C.F.R. § 700 (2000) (detailing the commodities and technologies controlled under the Commerce Control List).

[27] *See* Hunt, *supra* note 24, at 38 (outlining the export control system administered by the Department of Commerce).

[28] *See* United States General Accounting Office, Testimony Before the Committees on International Relations and on National Security, House of Representatives GAO/NSIAD-98-211, *Export Controls: Issues Related to the Export of Commercial Communications Satellites*, at 12 (1998) (statement for the record by Katherine V. Schinasi, Associate Director, Defense Acquisition Issues, National Security and International Affairs Division, United States General Accounting Office) [hereinafter GAO/NSIAD-98-211] (detailing the key elements and differences inherent in both systems, the most notable being State's primacy in national security while Commerce weighs the interests of trade and economy against foreign policy and national security).

[29] *See* Hunt, *supra*, note 24, at 39 (explaining the structure of the United States export control system and how products and technologies get captured under the jurisdiction of the ITAR).

[30] *See id.* (noting that most dual-use items will not be controlled by the ITAR unless they have significant military or intelligence applicability); *see also* GAO/NSIAD-97-24, *supra*, note 25, at 1 (1997) (noting that certain dual-use technologies are controlled under the authority of the ITAR).

cartridges used to inflate automobile air bags[31] and commercial communications satellites.[32]

B. Jurisdictional Issues Involved in the Regulatory Control of Satellite Technology

Jurisdictional questions for the control of certain technologies is by no means a docile matter.[33] The jurisdictional saga of commercial communication satellites is not unique in that respect.[34] The strategic military and intelligence communities within the United States Government desire to protect the national security while stemming the tide of proliferation of weapons of mass destruction.[35] On the other hand, the United States satellite industry and its associated suppliers seek to make legitimate international sales with as little government interfer-

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[31] *See* International Traffic in Arms Regulations, 22 C.F.R. § 121.1 (2000) (delineating the control of explosives, propellants, incendiary agents, and their constituents under which air bag ignition devices are controlled, in Category V of the United States Munitions List).

[32] *See* 22 C.F.R. § 121.1 (indicating that commercial communications satellites in conjunction with other spacecraft and associated equipment are controlled under Category XV of the United States Munitions List).

[33] *See* Robert B. Kaimowitz, *Politics at its Worst; Prohibition in the Launching of US Satellite in Chinese Vehicles*, SATELLITE BROADBAND, July 1998, at 45 (noting some people believe a recent House of Representatives vote to prohibit allowing a U.S. satellite to launched on a Chinese launch vehicle is a political move borne of Republican party political motivations). Republican members of the House were seemingly motivated to vote against allowing U.S. spacecraft to be launched on Chinese vehicles due to a belief that President Clinton transferred satellite export control from the strict regime of the State Department to the more lax regime of the Commerce Department because of campaign contributions received from satellite industry officials. *See id.* However, the change in jurisdiction came about through a public process, spurred by vigorous debate and detailed in numerous industry and news publications. *See id.*

[34] *See* GAO/NSIAD-97-24, *supra*, note 25, at 2 (1997) (discussing the history of the jurisdictional transfer of commercial communication satellites from the State Department to the Commerce Department).

[35] *See generally, Hearing on Satellite Export Controls Before the Senate Foreign Relations Committee, Subcommittee on International Economic Policy, Export, and Trade Promotion*, 106th Cong. (2000) (statement of James M. Bodner, Principal Deputy Undersecretary of Defense for Policy) [hereinafter Statement of James M. Bodner] (intimating the defense community's concern over national security as one of the reasons for its restrictive stance on the transfer of certain space technologies and products).

ence as possible to stimulate sales and effectively compete against European manufacturers.[36]

Under the jurisdictional purview of the ITAR, the initial change in the export licensing of commercial communication satellites and associated parts, components, and technical data took place in October 1992.[37] At that time, satellites subject to the ITAR were distinguished by nine militarily sensitive characteristics that could be incorporated in a commercial communication satellite.[38] The technologies identified as critical included antijam capability, crosslinks, encryption devices, radiation-hardened devices, propulsion systems, and other highly sensitive space borne technologies.[39]

The formal transformation in licensing jurisdiction from the Department of State to the Commerce Department's EAR took place in late 1996.[40] On November 5, of that year, the Department of State published a public notice in the Federal Register amending the ITAR to reflect the jurisdictional shift in the regulation of the export of commercial communication satellites from the State Department to Commerce's Bureau of Export Administration.[41] The shift in jurisdiction, while not an end to control,

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[36] *See generally, Hearing on Satellite Export Controls Before the Senate Foreign Relations Committee, Subcommittee on International Economic Policy, Export, and Trade Promotion*, 106th Cong. (2000) (testimony of Clayton Mowry, Executive Director, Satellite Industry Association) [hereinafter Testimony of Clayton Mowry] (outlining the view of his association's membership with respect to export control regulation).

[37] *See* GAO/NSIAD-97-24, *supra*, note 25, at 2 (1997) (describing the process that created the initial transfer of the control, to a certain predefined technological level, of certain commercial communication satellites from the ITAR to the EAR); *see also* Pamela L. Meredith & Sean P. Flemming, *U.S. Space Technology Exports – The Current Political Climate*, 27 J. OF SPACE L. 35, 38 (providing an overview of the jurisdiction of satellite export controls as they've shifted from DDTC to BIS and back again).

[38] *See* GAO/NSIAD-98-211, *supra*, note 28, at 5 (noting that if any of the nine characteristics were included in the satellite it would remain under the control of the ITAR while a satellite having none of the nine would be under the jurisdiction of the EAR).

[39] *See id.* at 12 (1998) (identifying those critical military sensitive characteristics, which when any were integrated into a commercial communications satellite would cause the satellite to be controlled under the jurisdiction of the ITAR).

[40] *See* GAO/NSIAD-97-24, *supra*, note 25, at 1 (1997) (noting that the Clinton Administration announced the shift in licensing jurisdiction in March of 1996 with the resultant regulation changes following in the October – November time frame).

[41] *See* 61 Fed. Reg. 56,895 (Nov. 5, 1996) (removing commercial communications satellites and other technologies from the control of the ITAR and placing them under the jurisdiction of the EAR).

was thought to favor the commercial considerations of industry over national security concerns.[42] This is due in part to the fact that the underlying basis for control differs from the State to the Commerce Department.[43]

The satellite industry favored the jurisdictional shift.[44] On the other hand, the defense and intelligence establishments within the Clinton Administration strongly opposed the administrative transfer.[45] The decision making process to effect the change took five months and was described as a case study in internal governmental strains between the national security establishment and the proponents of commercial and economic viability in defining United States security strategy in the af-

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[42] *See* Eric Schmitt & Jeff Gerth, *White House Memos to President Reveal Strategy to Shift Purview over Satellite Sales*, N.Y. TIMES, July 18, 1998, at A9 (revealing then deputy national security adviser Samuel Berger arranged the deal transferred commercial communication satellite licensing from the Department of State to the Department of Commerce where it would receive more benevolent treatment). A rationale memorandum penned by then national security advisor Anthony Lake, and the head of the National Economic Council Laura D'Andrea Tyson, noted the U.S. satellite industry should be enamored with the change since it would enable them to deal with the friendlier confines of the Commerce Department when exporting their wares. *See id.*

[43] *See* GAO/NSIAD-97-24, *supra*, note 25, at 4 (1997) (emphasizing the AECA mandates DDTC control exports to further national security without considering the impact such controls may have on U.S. economic or trade interests). On the other hand, BIS considers the effect a particular export will have on the economic security of the U.S. as well as national security and what foreign policy concerns may be in place at that time. *See id.*; *see also Hearing on Satellite Export Controls Before the Senate Foreign Relations Committee, Subcommittee on International Economic Policy, Export, and Trade Promotion*, 106th Cong. (2000) (testimony of William A. Reinsch, Under Secretary of Commerce) (distinguishing the differences between export controls under the EAR and the ITAR and arguing that since commercial communication satellites are commercial in nature they should be controlled under the EAR). *But see Hearings on Munitions Export Licensing Before the House International Relations Committee*, 106th Cong. (2000) (statement of John D. Holum, Senior Adviser, United States Department of State) (testifying the ITAR export licensing process and the underlying responsibilities are directed to further U.S. "foreign policy objectives and national security interests").

[44] *See* Lelyveld, *supra* note 3 (explaining that jurisdiction was transferred from the ITAR to the EAR after years of complaints from industry that DDTC was non-responsive resulting in lost sales).

[45] *See* Schmitt & Gerth, *supra*, note 42 (iterating that the then Secretary of State Warren Christopher agreed with the Pentagon and intelligence community reasoning that if sensitive satellite technology were exported it would reveal aspects of U.S. military and intelligence gathering capabilities which in-turn could jeopardize U.S. military interests).

termath of the Cold War.[46] In this and subsequent debates, the real issue of regulatory process, business process, and export control became lost in the mire of policy and political debate.[47] This, in part, led to the retransfer of the control of commercial communication satellites and their related parts, components, and technical data to the jurisdiction of the Department of State some two years after it resided in the Department of Commerce.[48]

II. CURRENT REGULATORY FRAMEWORK FOR SATELLITES, PARTS AND COMPONENTS, AND ASSOCIATED TECHNICAL DATA

A. ITAR Regulatory Framework and Satellite Control

The Department of State, tasked with the primary authority of regulating United States exports of defense articles and defense services, derives its regulatory justification from the AECA.[49] All exports involve some semblance of risk and the regulatory control of those exports is a means of managing or mitigating that risk.[50] The level and stringency of ITAR controls, due to its security bias, tend to be more exacting when

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[46] *See id.* (describing the tenor and substance of the debates within the Clinton Administration of the proper jurisdiction of satellite export controls in light of the changing national security landscape).

[47] *See* Clayton Mowry, *Haste Makes Waste*, SATELLITE BROADBAND, Aug. 1998 (illustrating the obfuscation of the real issues surrounding the control of sensitive satellite technology fostered in part by press sensationalizing while ignoring industry and regulatory standards and practices that had adequate controls in place).

[48] *See* 64 Fed. Reg. 13,679 (March 22, 1999) (codified at 22 C.F.R. pts. 121 & 124) (re-designating commercial communications satellites, their parts, components, and associated technical data to the ITAR), *See* H.R. REP. NO. 105-851, Vol. III, at 55-64 (1999) (providing the history of satellite export control regulation and the jurisdictional shifts between DDTC and BIS from the first change in 1992 through the 1999 shift back to State of all major aspects of satellites and satellite technology).

[49] *See* International Traffic in Arms Regulations, 22 C.F.R. § 120.1 (2000) (providing the general authorities for the control and regulation of the export and temporary import of defense goods and services to include satellites and commercial space technologies).

[50] *See* GAO/NSIAD-98-211, *supra*, note 28, at 1 (asserting the control of exports is about the management of risk between greater security and concerns of economy and commerce).

compared to the EAR.[51] Under the ITAR, there are such requirements as Congressional notification[52] for certain large-ticket sales, and stricter controls on the flow of information and technical exchanges between parties.[53] The ITAR requires separate approvals either under a DSP-5[54] or a Technical Assistance Agreement[55] (TAA) for technical data that exceeds the normal operations, maintenance, and training information needed to operate a defense article properly.[56]

The USML provides the definitive list of those items, technologies, and types of technical data controlled under the ITAR.[57] The effective control of satellites, their parts, components, and related technology was placed back in DDTC under USML Category XV where it previously resided before the initial jurisdictional shift to BIS.[58] Category XV of the USML lays out the controls for spacecraft and associated equipment. It begins with the satellites[59] themselves then identifies critical sub-

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[51] *See id.* at 10 (noting Commerce export procedures are less stringent than the State Department's).

[52] *See* 22 C.F.R. § 123.15 (describing the process under the ITAR for export applications which require an added step of Congressional notification and review when the value of the proposed sale reaches certain dollar value thresholds and providing a more favorable time period for Congressional review for NATO allies and Australia, New Zealand and Japan as opposed to other nations).

[53] *See* GAO/NSIAD-98-211, *supra*, note 28, at 10 (saying the ITAR provides a more clearly defined control system for the export of technical data in that there is a separate licensing requirement for data that is non-existent in the EAR).

[54] *See* 22 C.F.R. § 123.1(a)(1) (identifying the DSP-5 as the application form for the licensing of permanent exports).

[55] *See* 22 C.F.R. § 120.22 (defining a Technical Assistance Agreement as "an agreement (e.g., contract) for the performance of a defense service(s) or the disclosure of technical data, as opposed to an agreement granting a right or license to manufacture defense articles").

[56] *See* 22 C.F.R. §§ 125.2 (a) & 125.4 (b)(5) (instructing a DSP-5 is required for the export of unclassified technical data unless that export is exempt under the procedures outlined in the ITAR, which would include basic operations, maintenance and training information related to hardware lawfully exported under the provisions of the ITAR).

[57] *See* 22 C.F.R. § 121 (providing the USML is comprised of those articles, services and related technical data therein listed are designated defense articles pursuant to the relevant sections of the AECA).

[58] *See* 64 Fed. Reg. 13,679 (March 15, 1999) (returning export control jurisdiction, effective Mar. 15, 1999, to DDTC for "spacecraft, including satellites, and all spacecraft technical data, as well as all components, accessories, attachments, and related technical assistance, including, without exception, all launch support activities").

[59] *See* 22 C.F.R. § 121.1 Category XV (a) (enumerating the spacecraft and types of satellites are captured under the control of Category XV as "communications satellites,

systems and components.[60] In addition, parts and components not specifically enumerated therein yet still utilized in the manufacture of satellites are controlled.[61] Finally, the USML regulates all technical data, as defined in 22 C.F.R. § 120.10, and defense services related to those items captured in the category.[62]

In addition to the USML defined controls for spacecraft, the ITAR has a section circumscribing a special set of export requirements for defense articles and services that are controlled under Category XV.[63] These regulations heighten the level of compliance stipulations placed on the exporter including the use of technology transfer control plans, encryption technology control plans, Department of Defense (DOD) monitoring of technical discussions and launch activities.[64] Consequently, launch failure investigations and the ensuing reports, like those described in the Cox Committee findings, must be licensed prior to providing any copies to foreign persons.[65]

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remote sensing satellites, scientific satellites, research satellites, navigation satellites, experimental and multi-mission satellites").

[60] *See* 22 C.F.R. § 121.1 Category XV (b)(c)(d) (listing those critical subsystems and components that are controlled such as global positioning systems, ground stations for the telemetry, tracking and control of spacecraft, and radiation hardened devices and microelectronics).

[61] *See* 22 C.F.R. § 121.1 Category XV (e) (capturing all parts and components and other equipment specifically or modified for those articles itemized in Category XV).

[62] *See* 22 C.F.R. § 121.1 Category XV (f) (defining all technical data and defense services controlled under Category XV of the USML).

[63] *See* 22 C.F.R. § 124.15 (placing specific and exceptional controls on the export of Category XV hardware and associated data for end-use in countries outside of NATO and major non-NATO allied countries). However, while the regulations require these special provisions for countries outside of NATO and other listed allies, the stricter controls still may be applied to NATO and major non-NATO allies at the discretion of the Director of the Directorte of Defense Trade Controls. *See id.; see also Treat Allies as Allies on Satellite Exports, Arianespace Says*, SATELLITE WK., June 28, 1999 (complaining that major United States allies are being treated the same as countries of proliferation concern thereby harming the satellite trade).

[64] *See* 22 C.F.R. § 124.15 (mandating the use of DOD monitors for certain export activities related to spacecraft and spacecraft launch the cost of which will be fully reimbursable by the exporter).

[65] *See id.* (proscribing the process of licensing, control and monitoring for launch failure investigations when there is a failure on a foreign launch).

B. Importance of Trade Compliance

A lack of compliance with the ITAR could result in the imposition of fines and penalties of both a civil and criminal nature as well as the possible suspension of an entity or individual's ability to export.[66] What makes trade compliance so important is the ability of the Office of Defense Trade Controls to impose an interim suspension which effectively shuts down an entity's ability to engage in international trade governed under the ITAR.[67] In addition, the Department of State may statutorily debar any person or entity from engaging in ITAR regulated trade either directly or indirectly when they are convicted of violating United States criminal statutes referenced in the ITAR.[68] The effect of either an interim suspension or a debarment[69] could be catastrophic on companies that regularly rely on foreign sales for a good portion of their profit base.[70]

The United States satellite industry generates sales of approximately $30 billion annually, of which $11.5 billion comes from export sales.[71] Much of those sales are spurred by the revolution in information technology which requires high speed cost efficient modes of transmitting voice, data, internet, and broadcast traffic.[72] Export control violations and the possible loss of the ability to compete in this fast paced market could be extremely deleterious to United States manufacturers.[73] Even an

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[66] *See* 22 C.F.R. § 127 (enumerating the fines and penalties provisions of the ITAR and the consequences that may be suffered in conjunction with violations).

[67] *See* 22 C.F.R. § 127.8 (defining interim suspension as a loss of export privileges for possible ITAR violations for a period of up to 60 days unless certain other circumstances are in place).

[68] *See* 22 C.F.R. § 127.7 (defining debarment as a loss of export privileges for a period of generally three years).

[69] *See* 22 C.F.R. § 127 (noting the portion of the ITAR that identifies the penalties accompanying an interim suspension or a debarment).

[70] *See* James Hackett, *Satellite Industry Ensnared*, WASH. TIMES (D.C.), Aug. 5, 1999, at A17 (noting more than one third of U.S. satellite industry sales are derived from overseas markets).

[71] *See id.* (warning sales could be lost to European and Asian competitors who are aggressively challenging the U.S. industry dominance).

[72] *See id.* (opining time is money and speed to market greatly affects the ability to make sales).

[73] *See* Matthew J. McGrath & Arleigh V. Closser, *Pitfalls for High Technology Companies Involved in International Commerce*, METRO. CORP. COUNS., May 1999, at 14

interim suspension, which statutorily can last no more than sixty days, can delay a program significantly enough to reduce follow-on opportunities if a company is perceived to be a non-reliable supplier.[74]

In July, 2000, the Department of State and Lockheed Martin came to an agreement over a settlement for alleged violations of the ITAR.[75] Apparently, Lockheed Martin was passing technical reports to a company partially owned by the Chinese government detailing certain workings of rockets.[76] The terms of the settlement required Lockheed Martin to invest $5 million in revamping and upgrading its internal control and compliance program with respect to exports.[77] Moreover, Lockheed Martin was assessed an $8 million fine to be paid over a four year period.[78] In an unrelated incident, Boeing Co. found its ability to export temporarily suspended while under a federal grand jury investigation for alleged violations of the ITAR in conjunction with its Sea Launch joint venture.[79] The temporary suspension

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(noting instances of export control violations and the resultant penalties' effects on businesses in noncompliance with the regulations). *See generally* Sam Nunn & Paul Wolfowitz, *Nunn-Wolfowitz Task Force Report: Industry "Best Practices" Regarding Export Compliance Programs*, July 25, 2000 (outlining solid industry practice in export and international trade compliance in a study commissioned by the Board of Directors of the Hughes Electronics Corporation). *Cf.* Donald W. Smith, *Defense of Export Control Enforcement Actions*, 798 PLI/COMM. 743 (1999) (providing strategies for good export compliance and how to internally handle violations on corporate level and manage their disclosure to the cognizant United States Government authorities).

[74] *See* McGrath & Closser, *supra*, note 73 (assessing the consequences of failing to adequately adhere to the requirement of international trade regulation).

[75] *See State and Lockheed Settle Export Control Dispute*, ARMS CONT. TODAY, July 1, 2000, at 35 (reporting the settlement of export violations by Lockheed Martin Corporation for the supply of certain unlicensed technical data in relation to China and the penalties incurred for those violations).

[76] *See id.* (contending Lockheed Martin violated the ITAR by supply the Chinese Asia Telecommunications Corporation with a technical report detailing problems with kick motors used on satellites launched from Chinese launch vehicles thus allegedly aiding the Chinese in their ballistic missile program).

[77] *See id.* (outlining such required measures as the institution of a computer control system that would cover all technical data and assistance to be provided foreign persons in an approved contract).

[78] *See id.* (observing the overall penalty of $13 million was the largest civil fine imposed for a violation of the ITAR up to that point in time); *see also, Lockheed Accused of Giving Rocket Information to Chinese*, APWIRES, Apr. 6, 2000, 04:58:00 (noting Lockheed Martin could be fined up to $15 million for the alleged violations).

[79] *See* McGrath & Closser, *supra*, note 73 (discussing problems associated with export control violations and their resultant effects on companies found in violation of

was lifted after the Department State and Boeing came to an agreement on a $10 million civil penalty to be paid by the company for passing military and space technology in violation of the export authorization for the Sea Launch joint venture.[80]

III. THE POLITICS OF TRADE REGULATION: TENSIONS BETWEEN NATIONAL SECURITY AND ECONOMIC VIABILITY

A. The Cox Committee

On June 18, 1998, the United States House of Representatives adopted House Resolution 463.[81] Pursuant to H.R. 463, the House established the Select Committee on US National Security and Military/Commercial Concerns with the People's Republic of China. Commonly known as the Cox Committee, its mandate was to investigate the acquisition of sensitive technology by the People's Republic of China in violation of United States export control laws and regulations.[82] The Cox Commit-

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the regulations); see also, Sea Launch Completes Integrated System Testing, AEROSPACE DAILY, Mar. 9, 1999, at 354 (iterating the fines, penalties, and remedies Boeing received for the ITAR violations in conjunction with the Sea Launch program including the requirement for spending $2.5 million to improve document and technical data handling procedures), Mike Maharry, *Date Set for Sea Launch Debut/But Boeing not so Sure of Russians' March 25 Target for Satellite Launch Venture*, THE NEWS TRIBUNE, Mar. 6, 1999 (elaborating on the myriad of doubts surrounding the first launch for Sea launch including the State Department's uncovering of 207 export violations).

[80] *See* McGrath & Closser, *supra*, note 73 (noting the reasons behind DDTC's suspension of the Sea Launch joint venture license that included foreign partners from Russia and Ukraine). *See generally Orbit/FR's Munitions List Application Subject to Denial*, DOW JONES NEWS SERV., Nov. 2, 1999, 16:50:00, (revealing that Orbit/FR plead guilty to ITAR violations when passing sensitive missile technology to the Chinese resulting in a $600,000 fine while facing a possible 10 year export ban).

[81] *See* H.R. Rep. No. 105-851, Vol. III, at 206 (1999) (outlining the scope of the Cox Committee's investigation as discerning the affect on national security that certain unauthorized technology exports to the People's Republic of China had) *see also* Stephen W. Stathis, *Transfer of Missile and Satellite Technology to China: A Summary of H. Res. 463 Authorizing a House Select Committee*, CRS Rep. 98-549, at CRS-1 (June 24, 1998) (providing a summary of the resolution creating the Cox Committee and its jurisdiction, committee structure and rules, funding and staffing, gathering of information, the treatment of classified and sensitive information).

[82] *See* H.R. Rep. No. 105-851, Vol. III, at 206-07 (1999) (noting the responsibilities provided to the committee under the resolution and the process in which it conducted the ensuing Congressional investigation); *see also* CRS Rep. 98-549, at CRS-1 (noting one of the Committee's investigative mandates was to examine the operations of certain

tee, among other things, investigated certain alleged violations of the ITAR by major United States satellite manufacturers.[83] In reaction to the Cox Committee's ultimate findings, Congress enacted legislation that reverted the jurisdiction of satellite export controls from the EAR back to the ITAR.[84]

The events that prompted the investigation were two failures of the Chinese Long March launch vehicle carrying United States manufactured satellites.[85] The failures, however, did not raise US Government concerns; rather, the passing of technical data[86] between the United States and China during the launch failure investigations raised legitimate concerns of possible export control violations.[87] During the course of the launch failure investigation prompted by the 1996 loss of a United States manufactured satellite, an employee of the US manufacturer inadvertently sent technical data concerning the failure to the Chinese without the proper export authorization.[88] In addition to this incident, the Cox Committee determined that a previous

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satellite manufacturers to determine whether their actions aided in the enhancement of Chinese missile capabilities).

[83] *See* H.R. Rep. No. 105-851, Vol. I, at xii (1999) (finding, among other things, the People's Republic of China either stole or illegally obtained U.S. missile and space technology thereby bettering their own military and intelligence capabilities).

[84] *See* The Strom Thurmond National Defense Authorization Act for Fiscal Year 1999, Pub. L. No. 105-261, 112 Stat. 1920 (1998) (requiring the commercial communications satellites, parts and components and associated technical data be returned to the control of the USML).

[85] *See* Scott Blake Harris, *Witch Hunt*, SATELLITE BROADBAND, Sept. 1, 1999 (noting the loss of the Space Systems/Loral satellite, through launch failure, led to an investigation by both the launch vehicle manufacturer and the satellite manufacturer); *see also Don't Label Satcoms as Lethal Weapons*, AVIATION WK. & SPACE TECH., Feb. 1, 1999 at 94 (identifying the launch vehicle as the Chinese Long March).

[86] *See* International Traffic in Arms Regulation, 22 C.F.R. § 120.10 (2000) (defining technical data as information required in the "design, development, production, manufacture, assembly, operation, repair, testing, maintenance or modification of defense articles . . .").

[87] *Compare* Lelyveld, *supra*, note 3 (emphasizing a Pentagon report noted the Chinese gained invaluable data on rockets and missiles from the launch failure investigation reports from Hughes Space and Communications in 1995), *with Don't Label Satcoms as Lethal Weapons, supra*, note 85 (reasoning that Congress overreacted concerning the allegations that both Hughes and Space Systems/Loral passed crucial technical data to the Chinese in their launch failure investigations).

[88] *See* Harris, *supra*, note 85 (asserting once Space Systems/Loral discovered the unauthorized transfer of technical data to the People's Republic of China it notified the Department of State of the mistake).

Chinese launch failure involving a Hughes manufactured satellite was rife with alleged export violations.[89]

The Committee's findings were a harsh indictment of Chinese espionage activities in the United States.[90] While the report outlined serious allegations of export control violations, some contend the Committee exaggerated its findings and embroidered its report with a presumption of culpability.[91] Fur-

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[89] *See id.* (contending the Department of Commerce under its export regime without the benefit of State Department consultation officially sanctioned Hughes actions). In the 1996 transfer of jurisdiction, the Department of Commerce was required to adopt more stringent licensing measures to heighten control including the requirement to refer all commercial communications license applications to the Departments of State, Defense, and Energy, and the Arms Control and Disarmament Agency for review and comment prior to the issuance of a license. *See* GAO/NSIAD-98-211, *supra*, note 28, at 7. *But see* H.R. Rep. No. 105-851 at xxi (1999) (reporting that neither the Hughes nor the Space Systems/Loral disclosures were voluntary, rather they were made after the US Government demanded they account for their actions).

[90] *See* H.R. Rep. No. 105-851, Vol. III, at 166 (1999) (recommending the President provide a semi-annual report to Congress assessing Chinese espionage activities over the last six months in addition to other measures to thwart future Chinese spying activities).

[91] *See* Lewis L. Franklin, *A Critique of the Cox Report Allegations of PRC Acquisition of Sensitive U.S. Missile and Space Technology, in* THE COX COMMITTEE REPORT: AN ASSESSMENT 81, 86 (M.M. May ed., 1999) (noting the style of writing is inflammatory, laden with a presumption of guilt, and laced with an assuredness the Chinese military made great strides through the illegal acquisition of U.S. technology); *see also* Robert Scheer, *The China Scandal that Wasn't*, THE STAR LEDGER (Newark, NJ) Dec. 28, 1999, at 13 (reporting when the Stanford study came out debunking the Cox Committee the media generally ignored its release). *But see*, Gary Milhollin, *Forget National Security, Just Show us the Money*, HOUS. CHRON. Jan. 28, 2000, at 29 (concurring with the Cox Committee's findings that the Chinese improved their missile technology through the illegal acquisition of U.S. technology). Information concerning Chinese activities is still coming to light with new reports culled from documentation provided by a Chinese defector which is only now being translated shows the Chinese concentrated their technology acquisition efforts heavily in the area of missiles. *See* Walter Pincus & Vernon Loeb, *China Spy Probe Shifts to Missiles: Defectors Papers Steer Inquiry*, WASH. POST, Oct. 19, 2000, at A1 (stating the Chinese expended great resources in aggressively obtaining sophisticated U.S. missile technology during the period the Cox Committee was concentrating on in their report); *see also* Walter Pincus & Vernon Loeb, *Pentagon to Add 450 Experts to Protect Defense Secrets*, WASH. POST, Oct. 27, 2000, at A2 (remarking on the Department of Defense's reaction to the news that the People's Republic of China obtained sensitive U.S. missile technology). A Chinese defector provided the U.S. government with over 13,000 pages of documents on the Chinese efforts to procure, through whatever means, U.S. nuclear and missile technology. *See id.* Only a portion of the documentation was translated the rest was thought to be mundane until translated under pressure from the Federal Bureau of Investigation whereupon the documents were found to contain ample evidence U.S. missile technology was compromised by both the military and its contractors. *See id.*

thermore, the report's detractors point to the small number of prosecutions as contradictory to the committee's central contention that the Chinese illegally obtained critical missile technology.[92] The incidents surrounding the Hughes and SS/Loral launch failure investigations were consigned to the United States Attorney's office for criminal investigation with little result.[93]

Nonetheless, the report's detractors fail to take a number of factors into account.[94] Lewis Franklin, a former Vice-President at TRW Space and Defense and one of the authors of an assessment criticizing the Cox Committee report, points out both Hughes and SS/Loral adamantly denied any violation of the export control regulations or the provisions of the licenses for the failed launches.[95] Conversely, the Cox Committee's finding that both Hughes and SS/Loral voluntarily disclosed their violations, after investigations were initiated into the possible illegal transfer, to the Directorate of Defense Trade Controls at the Department of State contradicts Mr. Franklin's assertion.[96] The fact that the original version of the Committee's report was classified would lead one to believe the public version does not con-

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[92] *See* Franklin, *supra*, note 91, at 83 (explaining the Cox Committee report rarely mentions convictions for past violations over the many years it alleges that the Chinese were stealing missile technology).

[93] *See id.* (elaborating on the fact there are no indictments up to that point and there is even less intimation that any are forthcoming).

[94] *See generally* H.R. Rep. No. 105-851, Vol. III, at ii (1999) (noting the report is a declassified summary of the original report, which was determined to contain information that if released would potentially harm national security or jeopardize ongoing criminal investigations).

[95] *See* Franklin, *supra*, note 91, at 82 (strengthening his contention by pointing out the Chinese issued a criticism of the report denying its finding and the Cox Committee assessment is flawed with a more likely scenario being the Chinese technology in question was not illegally obtained, rather it was developed through the natural course of scientific growth and general engineering progress).

[96] *See* H.R. Rep. No. 105-851, Vol. III, at 150-57 (1999) (extrapolating Space System/Loral's voluntary disclosure was in response to a letter previously received from the State Department stating they suspected possible violations of the ITAR in Loral's dealings with China on the launch failure investigation). The State Department, in their correspondence to Loral, recommended Loral cease and desist all activity requiring prior written approval from DDTC, fully disclose all activities to date, and detail all provisions of technical data to China controlled by the ITAR. *See id.*

tain the necessary evidence or information to back up the Committee's findings of violations.[97]

These alleged regulatory violations prompted the Cox Committee to recommend that the sole licensing authority for satellites should be the Department of State.[98] In addition, the Committee suggested that the administration should, with all due haste, carry through with the Satellite Export Control Provisions of the Strom Thurmond National Defense Authorization Act for FY 1999.[99] The act was the implementing legislation transferring the export licensing jurisdiction for commercial communications satellites from the Commerce Department back to the State Department where it originally resided.[100] Some observers in industry and the trade media saw the Cox Committee and the jurisdictional shift as a political witch-hunt.[101] Nevertheless, it did not alter the fact the new regulatory framework exporters would operate under was the authority of the Department of State at DDTC.[102]

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[97] *See id.* at ii (declaring certain classified information was left out of the public version since it may harm national security or interfere with ongoing criminal investigations).

[98] *See id.* at 170 (addressing the Cox Committee's recommendations).

[99] *See id.* (recommending the executive branch should implement all provisions of the Strom Thurmond National Defense Authorization Act with respect to the control of satellite exports and their transfer to the jurisdiction of the ITAR); *see also* Meredith & Flemming, *supra*, note 37, at 39 (discussing the implementation of the Thurmond Act and its resultant amendments to the ITAR and the imposition of stricter controls on the transfer of satellite technology).

[100] *See NATO Allies Protest New U.S. Rules Tightening Curbs on Satellite Exports*, 16 I.T.R. (BNA) 710 (Apr. 28, 1999) (Yerkey, Gary G.) (discussing the legislation authorizing the jurisdictional shift).

[101] *See* Harris, *supra*, note 85 (accusing Congress of orchestrating the shift because of political considerations related to an ongoing campaign finance investigation into the Clinton administration).

[102] *See* Removal of Commercial Communications Satellites and Related Items from the Department of Commerce's Commerce Control List for Retransfer to the Department of State's United States Munitions List, 64 Fed. Reg. 13,338 (Mar. 18, 1999) (amending the EAR by relinquishing control of commercial communications satellites, parts and components, and related technical data); *see also* Control of Commercial Communications Satellites on the United States Munitions List, 64 Fed. Reg. 13,679 (Mar. 22, 1999) (codified at 22 C.F.R. § 121) (amending the ITAR by placing commercial communications satellites back on the USML).

B. Economics v. National Security in Export Regulation

The policy argument on the control of exports and technology for national security reasons and a more liberal control regime for reasons of economic viability has gone on for years.[103] If trade and economic viability are of primary concern, then the Commerce Department is the customary regulatory regime for controlling products and technologies that are commercial in nature and yet retain certain characteristics that warrant control.[104] Some would argue stricter controls benefit foreign satellite manufacturers in that such controls drive foreign customers away from United States manufacturers due to regulatory uncertainty.[105] Over the last five years, Congress became more conservative on the trade front reversing a post-Cold War trade liberalization process begun during the administration of George H. W. Bush.[106] United States allies complained the regulatory change placed them in the same export control category as those countries about which the United States has legitimate

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[103] *Compare* Eric Schmitt, *Change in Control of Satellite Sales Gains in Congress*, N.Y. TIMES, Sept. 18, 1998, at A1 (noting the Clinton administration position where US policy must take into account American business interests when fashioning the export regulatory policy concerning satellites), *with* Bruce S. Middleton, *Satellite Exports: Confusion and Cost*, SATELLITE BROADBAND, May 1, 1999, at 46 (arguing the denials of two export license requests for U.S. manufactured satellites to a majority Chinese owned commercial satellite company was driven by security fears on Chinese ownership and the possible involvement of the Chinese military in the endeavor). *See generally* Karim K. Shehadeh, Comment, *The Wassenaar Arrangement and Encryption Exports: An Ineffective Export Control Regime that Compromises United States' Economic Interests*, 15 AM. U. INT'L L. REV. 271, 280-84 (1999) (delineating the tensions existent between national security and economic pursuits in the export control of computer software products having encryption capability).

[104] *See* H.R Rep. No. 105-851, Vol. III, at 9 (asserting one of the primary objectives of the Export Administration Act of 1979, which was the authority under which the EAR was promulgated, was to "minimize interference with the ability to engage in commerce").

[105] *See* Middleton, *supra*, note 103 (protesting the U.S. satellite manufacturer is the big loser in the regulatory shift of satellite control while Japanese and European manufacturers will reap the rewards if they can offer a quality product without the export control hassles encountered in the U.S. market).

[106] *See* Michael S. Lelyveld, *Republicans Take a Populist Turn*, J. OF COMM., Oct. 22, 1998, at 1A (discerning the Republican's rise in Congressional power has resulted in a less tolerant view towards U.S. trade interests).

security concerns.[107] Some in the satellite industry have in part blamed the regulatory shift as a rationale for the precipitous drop in United States satellite exports from 1998 to 1999.[108]

The national security and foreign policy interests of the United States are the basis of the export control regime fostered under the Arms Export Control Act.[109] The export licensing process outlined in the ITAR and administered by DDTC is meant to strictly scrutinize each application to ensure it is in line with such interests.[110] United States fears of the proliferation of weapons of mass destruction and the possible regional instability that it could cause are not unfounded.[111] Furthermore, the United States Government found that China made a

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[107] *See Treat Allies as Allies on Satellite Exports, Arianespace Says, supra*, note 63 (objecting Arianespace has had as many as ten launch contracts jeopardized by the uncertainty caused by the shift in export regulation mandated by the Defense Authorization Act); *see also* Yerkey, *supra*, note 100 at 710 (pointing out the embassies of the United Kingdom, Germany, France, and Italy each logged a protest with the Clinton administration over the shift in control that in essence penalizes allies by placing them in the same category as the Chinese or Russians thereby jeopardizing long standing trade ties between U.S. and European space markets).

[108] *See* Jeremy Singer, *U.S. Laws, Market Cycle Cited in Export Drop*, SPACE NEWS, Dec. 20, 1999, at 8 (noting the drop in 1999 export sales, from the previous year, of non-military satellites and their parts and components was $275 million constituting a 41 percent reduction).

[109] *See* 22 U.S.C. § 2778 (2000) (indicating the AECA mandates the President to control the export of defense articles in furtherance of world peace and the national security and foreign policy of the country). The AECA stipulates the considerations to take into account when determining the exportability of a particular license application include whether or not the export would contribute to an arms race, if the export could aid in the design or construction of a weapon of mass destruction, aid a terrorist organization, escalate regional tensions or conflicts or be in contravention to international arms control or proliferation agreements. *See id.*

[110] *See* Lelyveld, *supra*, note 3 (contending Congressional intent in shifting satellite jurisdiction back to State was meant to slow down the licensing process for security reasons and the government is there to regulate industry not foster it, in addition to noting the Department of Defense made claims that China obtained information from both Hughes and Space Systems/Loral, which could aid in the improvement of missile weapon technology).

[111] *See* 63 Fed. Reg. 27,781 (May 20, 1998) (giving notice all U.S. export approvals for USML articles are revoked and that future license applications will be denied for India due to India's detonation of a nuclear device and that such revocation was in furtherance of U.S. foreign policy interests); *see also* 63 Fed. Reg. 33,122 (Jun. 17, 1998) (giving notice that all U.S. export approvals for USML articles are revoked and that future license applications will be denied for Pakistan due to Pakistan's detonation of a nuclear device and that such revocation and future denial was in the foreign policy interests of the United States).

concerted effort to illegally obtain sensitive United States military technology.[112] Chinese proliferation of missile technology into destabilized areas, sustained for years, is not isolated outside the normal course of their international dealings.[113] Chinese missile proliferation and attempts to get China to sign up to the Missile Technology Control Regime[114] (MTCR) have long been foreign policy concerns of the United States.[115] While the debate went on for years, concrete numbers concerning lost sales due solely or primarily to export controls are hard to come by.[116] This in turn raises certain doubts concerning the validity

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[112] *See* H.R. Rep. No. 105-851, Vol. I, at 42 (describing a U.S. Customs Service operation establishing the Chinese government, through commercial companies and other means, attempted to divert surplus U.S. missile parts, fighter plane navigation systems, tank parts and components, computer equipment and encryption technology).

[113] *See* Robert Burns, *CIA: China Expanded Missile Role*, AP ONLINE, Aug. 9, 2000 (discussing a recently released CIA report which asserts China aided Pakistan in the development of missile technology and Chinese business entities assisted programs for the development of weapons of mass destruction in Iran, North Korea, and Libya); *see also*, Helene Cooper & Matthew Forney, *Politics & Economy: U.S. and China to Revive Talks on Arms Issues*, WALL ST. J., July 3, 2000, at A14 (stating China increased supplies of critical missile technology and hardware to Pakistan after the 1998 detonations of nuclear devices in India and Pakistan). One reason for the foray into weapons proliferation is thought to be China's unfriendly relations with India, with which China had a border conflict in the earlier part of the 1960s, and a nuclear capable Pakistan serves as a good buffer. *See id.; see also, Robert S. Greenberger, Relations Worsen Between U.S., China as Suspicions, Anger Foment Disputes*, WALL ST. J., July 5, 1995, at A10 (calculating U.S.-Sino relations would not improve in part due to, then, allegations China assisted the Pakistani missile program in violation of certain nonproliferation accords); *see also*, Gerald F. Seib, *Missile Race in Middle East Continue Despite U.S. Efforts to Stall Buildup*, WALL ST. J., June 8, 1992, at A6 (surmising the spread of long-range missiles in the Middle East to countries such as Syria, Iran, Iraq, and Libya lead to suspicions China may be tied to the missile sales).

[114] *See* United States General Accounting Office, Report to the Chairman, Committee on International Relations, House of Representatives, *Export Controls: Some Controls Over Missile Related Exports to China are Weak*, GAO/NSIAD-95-82, Apr. 1995, at 1 (identifying the MTCR as an organization, currently with 25 member states, started in 1987 by the G-7 member countries to stem the proliferation of missiles and related technology); *see also* International Traffic in Arms Regulations, 22 C.F.R. § 126.1 (2000) (denoting the MTCR Annex lists all items controlled under the ITAR for missile proliferation concerns).

[115] *See* GAO/NSIAD-95-82, *supra*, note 114, at 3-5 [hereinafter GAO/NSIAD-95-82] (outlining U.S. negotiations with China between 1992 and 1994 to obtain China's adherence to the MTCR).

[116] *See* Singer, *supra*, note 108 (noting the primary reason for the drop in international satellite sales was the cyclical nature of the business). *But see* Jeffery Silva, *Satellite Reform Costly to U.S. Exports*, RCR RADIO COMM. REP., May 29, 2000, at 24 (arguing satellite exports dropped 40 percent since 1998 due to a tightening of satellite export

of economic contentions surrounding the loss of sales to burdensome regulatory hurdles.[117]

Whatever the doubts or the strengths of each argument, it must be recognized that both sides have valid concerns that must be addressed in the regulatory process.[118] The policy and resultant regulations replacing EAR control with ITAR control were implemented as a means of reducing possible security risks. The government would accomplish this by preventing the wrong technology from getting in the hands of countries seeking to enhance missile capabilities to the possible detriment of United States security interests.[119] Both security and economic vigor are important national concerns that are not mutually exclusive; they are in reality conjoined and best served by mutual government and industry cooperation in the regulatory process.[120] Such cooperation was realized when DDTC enlisted the assistance of the Defense Technology Security Administration (DTSA) and DTAG in the creation of the new special bulk licensing regime for satellite parts, components and associated technical data.[121]

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restrictions). The 40 percent drop and its reliance on the tightening on export controls as the primary cause must be questioned when the final change in jurisdiction did not take place until 1999, thereby nullifying the arguments premise that the tightening of export controls is the driver of a loss in overseas sales. *See generally* 64 Fed. Reg. 13,679 (Mar. 22, 1999) (codified at 22 C.F.R. pts. 121 & 124) (maintaining the jurisdictional shift and the tightening of controls happened in 1999, and under the shift those items were licensed under Commerce and would be maintained under Commerce's jurisdiction until the licenses expire).

[117] *See Treat Allies as Allies on Satellite Exports, Arianespace Says, supra*, note 63 (reasoning the shift in satellite export controls will retard international space commerce, an Arianespace official acknowledges his company neither lost business nor missed the company's launch schedule due to the new regulations).

[118] *See* James M. Broder, *Export Rules Protect U.S. Security*, SPACE NEWS, July 10, 2000, at 20 (postulating the Departments of Defense and State, under the new satellite export control regulatory framework are protecting what should be protected while not placing unnecessary burdens on the satellite industry).

[119] *See id.* (implying the significance of continued vibrant trade relations in space products between the United Sates and its "close allies and friends").

[120] *See id.* (emphasizing the point that the essential tenets of national and economic security are best served through intergovernmental cooperation in the creation and formulation of export control regulations).

[121] *See Defense Trade Security Initiative: Special Commercial Satellite Licensing Regime*, FACT SHEET RELEASED BY THE BUREAU OF POLITICAL-MILITARY AFFAIRS, U.S. DEPARTMENT OF STATE, AND THE OFFICE OF THE UNDERSECRETARY OF DEFENSE FOR ACQUISITION, TECHNOLOGY, AND LOGISTICS, U.S. DEPARTMENT OF DEFENSE, (May 24,

IV. RATIONAL BASIS FOR NEW REGULATION: AN ANALYSIS OF CONSTRUCTION

A. New Regulation and a Constructive Approach

Bad press, the concerns of United States allies and heavy political lobbying helped to ensure the insertion of Section 1309 into the fiscal year 2000 Foreign Relations Authorization Act.[122] The act mandated the State Department, through DDTC, to create a new licensing framework for an expeditious export licensing system for commercial communications satellites, their parts, components, and technologies destined for export by United States industry to North Atlantic Treaty Organization (NATO) allies[123] and major non-NATO allies (hereinafter NATO+Major Allies).[124] In addition to calling for the new licensing regime, the act required DDTC to give priority in the decision making process to United States national security interests and its responsibilities as a party to the Missile Technology Control Regime.[125]

In January, 2000, William Lowell, then Director of the Office of Defense Trade Controls, approached the Defense Trade Advisory Group[126] (DTAG) and tasked them with assisting

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2000) *at*, http://www.state.gov/www/global/ar...reau_pm/dtc/ [hereinafter Fact Sheet] (providing background on the cooperative effort that created the new licensing framework).

[122] *See* 65 Fed. Reg. 34,089 (May 26, 2000) (to be codified at 22 C.F.R. § 123) (announcing the new regulations and summarizing the mandate for the regulations as found in the Foreign Relations Authorization Act).

[123] *See* http://www.nato.int (Nov. 2, 2000) (enumerating NATO member states in the year 2000 as Belgium, Canada, Czech Republic, Denmark, France, Germany, Greece, Hungary, Iceland, Italy, Luxembourg, Netherlands, Norway, Poland, Spain, Turkey, United Kingdom, and United States).

[124] *See* H.R. 3427, 106th Cong. § 1309 (1999) (authorizing the State Department to take such action and defining major non-NATO allies as those enumerated in section 644 (q) of the Foreign Assistance Act of 1961).

[125] *See id.* (placing additional requirements on the Secretary of State when constructing the new licensing regime including license review by the defense and intelligence communities).

[126] *See* 57 Fed. Reg. 11,343 (Apr. 2, 1992) (establishing the Defense Trade Advisory Group to provide an official consultative role in the formulation of regulations and policy dealing with the ITAR); *see also* 63 Fed. Reg. 15,254 (Mar. 30, 1998) (publishing notice the charter of the Defense Trade Advisory Group was renewed for two years), 65 Fed.

DDTC in creating a new bulk licensing process for the export of satellite parts and components and technical data.[127] Through this process, the Department of State sought a logical and rational solution to a regulatory problem faced by industry.[128] The jurisdictional shift of satellite export regulations was borne of politics.[129] The State Department neither asked nor sought the shift, yet they were trying to facilitate the statutory requirements placed upon them with respect to the control of satellite exports.[130]

The DTAG set up the DTAG Comsat Task Force to assist DDTC in this effort.[131] The Task Force began by creating an

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Reg. 11,827 (Mar. 6, 2000) (publishing notice the charter of the Defense Trade Advisory Group is being renewed for another two years).

[127] *See Hearing Before the Senate Foreign Relations Committee, Subcommittee on International Economic Policy, Export, and Trade Promotion*, 106th Cong. (2000) (statement of John D. Holum, Senior Advisor, United States Department of State) [hereinafter Statement of John D. Holum] (detailing the enlistment of the aerospace industry, in the form of the Defense Trade Advisory Group, to form a task force to assist in the implementation of the requirement to create an expedited licensing process for certain satellite technology exports).

[128] *See id.* (explaining many satellite parts and component manufacturers faced a myriad of problems with the jurisdictional shift back to DDTC when under the Commerce regulations many of them did not require a license to affect a sale and ship product); *see also* Statement of James M. Bodner, *supra*, note 35 (declaring the Department of Defense's cooperation in the reform of the satellite export control process). In the cooperative effort, the Department of Defense considered the improvement of national security while giving weight to legitimate space business with U.S. allies and friends. *See id.* Mr. Bodner, in his remarks, noted export control reform is a DoD policy position that would maintain the protection of critical technology, preserve the underlying stability of the defense manufacturing base by promoting new technology initiatives through commercial sales, and fostering cooperation with allies and their space and defense industries. *See id.*

[129] *See* Public Law 105-261 (shifting the statutory and regulatory authority for the control of satellite exports from the Department of State to the Department of Commerce). *See generally* H.R. Rep. No. 105-851 Vol. I, II, III (1999) (detailing the findings of the investigation that helped spur the passage of the export control jurisdictional shift of satellites, their parts and components and associated technical data to the Department of State because of concerns of proliferation of sensitive United States technology).

[130] *See* Statement of John D. Holum, *supra*, note 127 (recalling while the Department of State was in no way involved in the jurisdictional shift of commercial satellite export controls, since gaining jurisdiction they are committed to the administration of the regulations in a manner which adheres to the statutory directive of protecting national security).

[131] *See* Interview with Stuart Quigg, President, Q International and Member of the Defense Trade Advisory Group Comsat Task Force (Nov. 10, 2000) [hereinafter Interview with Stuart Quigg] (recounting the formation of the Task Force by William Lowell then Director of the Office of Defense Trade Controls). The DTAG was given a narrowly

internal structure of sub-committees to address three priority areas. The first concentrated on the export of satellite parts and components and associated technical data, including offshore procurement equipment.[132] This included a limited number of products considered significant military equipment[133] (SME), which receive a higher level of control under the ITAR. The second sub-committee addressed the export of technical data necessary to respond to requests for quote (RFQ) and requests for proposal (RFP), which include plant visits, acceptance and quality assurance testing, and the like.[134] Finally, the third group in this effort examined the export of technical data essential to obtain the requisite insurance for a satellite build and on-orbit health and anomaly insurance.[135]

B. DDTC/DTSA/DTAG: Cooperation in the Creation of a New Regulation.

The United States satellite industry understands the necessity of trade regulation and the importance of national security.[136] The majority of satellite manufacturers, as well as satellite parts and component manufacturers sell to government and commercial end-users alike.[137] The primary problem industry has faced is the political football the regulatory sphere has become with essentially four jurisdictional shifts and rule changes

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focused obligation, which DDTC received from Congress, and organized itself in a manner that allowing for adequate responsiveness to the assignment at hand. *See id.*

[132] *See* Fact Sheet, *supra*, note 121 (defining the priority areas where the new bulk licensing regime will focus, mandated by Section 1309(a) of the Fiscal Year 2000 Foreign Relations Authorization Act, which mirror the working groups created by the DTAG Comsat Task Force).

[133] *See* International Traffic in Arms Regulations, 22 C.F.R. § 120.7 (2000) (defining significant military equipment and noting a heightened level of export control is necessitated by the greater military or strategic capacity inherent in the technology).

[134] *See* Fact Sheet, *supra*, note 121 (stating one major element of the new regime is the technical data needed to respond to requests for bids and proposals).

[135] *See generally* Dave Lenckus, *Space Rates Head Skyward: Best Risks Likely Immune*, BUS. INS., Aug. 30, 1999, at 1 (providing a general overview of the current state of satellite and launch insurance for different coverage scenarios and noting insurance rates are escalating).

[136] *See* Testimony of Clayton Mowry, *supra*, note 36 (asserting "that the U.S. satellite industry holds concern for national security in the highest regard").

[137] *See id.* (describing the U.S. satellite industry's work with and for the United States Armed Forces over the last four decades).

in a decade.[138] Good regulatory compliance is hard to maintain when there is little rationalization to regulatory creation.[139] In addition, rule shifts mandate the application of additional resources to educate corporate personnel and implement new policies and procedures to ensure compliance.[140]

By bringing industry in an advisory capacity through the auspices of the DTAG during the regulatory construction process, DDTC enhanced its ability to create a regulatory scheme that ultimately ensures stated national security objectives while mitigating some of the rigid effects of trade controls under the ITAR.[141] The DTAG Comsat Task Force met on a weekly basis, in full committee, examining the issues tasked by DDTC.[142] Either a day or two after each Task Force meeting, the Task Force would meet with officials from DDTC and DTSA to review proposals for possible bulk license structure and provide comment and voice concerns.[143] The weekly interactions allowed for up-to-date feedback that could be incorporated on a real time basis.[144]

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[138] *See* Interview with William Lowell, *supra*, note 7 (remarking on the problems faced by parts and component manufacturers when jurisdiction was shifted back to the ITAR given that many of them were effectively decontrolled under the EAR). *See generally* Testimony of Clayton Mowry, *supra*, note 36 (discussing problems faced by the satellite industry as a result of the jurisdictional shifts of regulatory control).

[139] *See* Interview with Stuart Quigg, *supra*, note 131 (describing the effect of the regulatory shift on companies Mr. Quigg counsels in export compliance and licensing matters and noting while some are eager to utilize the new bulk license others have not embraced it).

[140] *See id.* (explaining how a number of companies are new to the industry and were never regulated under the ITAR, which then requires a "cradle-to-grave" education process and the institution of internal policies and procedures, not heretofore instituted, to ensure regulatory compliance).

[141] *See* Interview with William Lowell, *supra*, note 7 (declaring the success of the cooperative creation of the bulk license process buy having the DTAG reach out to individual aspects and expertise found within industry and outside the orbit of the Washington lobbying community). People are appointed to the DTAG for their individual expertise and not for their company affiliation which allows for a greater openness of discussion and an exchange of ideas when acting in their advisory capacity to the State Department. *See* Interview with Stuart Quigg, *supra*, note 131.

[142] *See* Interview with Stuart Quigg, *supra*, note 131 (iterating the structural workings and cooperation between the DTAG Comsat Task Force DDTC).

[143] *See id.* (commending the fast turn around of the Task Force's work and how the small group meetings on a regular and timely basis fostered the success of the collaborative relationship).

[144] *See id.* (noting by receiving timely feedback on work brought to DDTC, the Task Force was able to react quickly and not waste time with ideas or suggestions contrary to the intended regulation).

In late May 2000, the new bulk license process was published in the Federal Register.[145]

The new bulk licensing structure created tools for industry to utilize to reduce licensing volume while increasing license scope.[146] Once DDTC approves the initial license request under the bulk license regulatory scheme, the manufacturer may either export to, or once exported retransfer within, NATO+Major Allies to those programs and firms that are pre-approved and published on the DDTC web-site at http://www.pmdtc.org.[147] In order to assist the exporter with use and utilization of the bulk licensing process, DDTC published guidelines for license preparation and application.[148] DDTC also enlisted the aid of the Society for International Affairs[149] (SIA) to sponsor a workshop to rollout the new regulation for bulk licensing to industry.[150]

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[145] *See* 65 Fed. Reg. 34,089 (May 26, 2000) (codified at 22 C.F.R. § 123) (publishing new regulations in the ITAR instituting a bulk license for the export of certain satellite parts, components, sub-systems and associated technical data to NATO+Major Allies approved end-users and end-uses).

[146] *See* Fact Sheet, *supra*, note 121 (announcing the creation of a bulk license under the ITAR for the use in the export of commercial communication satellite parts, components, and technical data to multiple end-users in a defined territory for approved satellite programs in NATO or major non-NATO allied countries). One of the primary benefits of the new bulk license to U.S. manufacturers is once the license is approved product or data may be shipped without advanced provision to DDTC of a contract, purchase order, retransfer authority, or end-use certificates heretofore required prior to the issuance of a license. *See id.* This does not lessen compliance; rather it places the onus of compliance on the manufacturer by requiring electronic post-shipment verification. *See id.*

[147] *See id.* (noting both the list of approved programs and the list of approved firms will be housed on the DDTC web-site.

[148] *See Commercial Communication Satellite Components, Systems, Parts, Accessories, and Associated Technical Data to U.S. Allies: Guidelines for Preparing License Applications for Exports in Accordance with § 123.27*, Oct. 10, 2000, http://www.pmdtc.org [hereinafter Bulk License Guidelines for Preparing Applications] (publishing draft guidelines to the satellite industry on how to utilize the new bulk licenses). These guidelines were published on the DDTC Web Site in draft form. *See id.*

[149] *See generally* Society for International Affairs Internet Web Site, http://www.siaed.org, Oct. 12, 2000 (describing the mission and organization of SIA).

[150] *See* Announcement for *Licensing COMSAT Components, Parts, Accessories and Associated Technical Data*, Society for International Affairs 2000 Summer Workshop, June 28, 2000 (including William Lowell then Director of the Office of Defense Trade Controls, U.S. Department of State, and David Tarbell then Deputy Assistant Secretary of Defense, Defense Threat Reduction Agency, U.S. Department of Defense, as featured speakers in providing an overview of the bulk license process and Ramona Hazera, Chair, DTAG Comsat Task Force heading a discussion panel of industry participants in the regulation's construction). *See generally Commercial Communications Satellites*

V. RECOMMENDATIONS

The satellite trade and export sales are important to the United States economy and have an effect far beyond the mere sale and provision of hardware, parts and components. Satellites provide a conduit for economic activity in telecommunications running telephony, voice, data, and television (video) and expand the reach and breadth of communication and content through the use of celestial bandwidth.[151] Certain technologies, nevertheless, utilized in the manufacture, launch, and operation of commercial communications satellites may be utilized in the creation and manufacture of ballistic or theater range missiles capable of carrying weapons of mass destruction.[152] Such weapons could be deleterious by causing shifts in regional balances of power or destabilizing already precarious international situations.[153] This in turn heightens the necessity of strict national security controls of satellite hardware and technical data to ensure the end-users and end-uses are legitimate.

Whether those controls are administered by the Department of Commerce under the jurisdiction of the Export Administration Regulations or the Department of State under the International Traffic in Arms Regulations is no longer a question for debate.[154] The law has placed the jurisdiction under the

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Special Licensing Regime – ITAR Section 123.27, Directorate of Defense Trade Controls Power Point Presentation at the Society for International Affairs 2000 Summer Workshop, June 28, 2000, at http://www.siaed.org (providing an overview of how the bulk license process works and how to go about utilizing each of the bulk license types).

[151] *See* Testimony of Clayton Mowry, *supra*, note 36 (testifying as to the importance and far reaching impact the commercial communications satellite industry has on the United States and global economies). *See generally* International Telecommunications Satellite Organization Internet Web Site, Nov. 16, 2000, http://www.intelsat.int (allowing the reader to gain rudimentary knowledge of the kind of services and products distributed by a global commercial communications satellite constellation organization).

[152] *See* Statement of James M. Bodner, *supra*, note 35 (testifying certain export controls are in place to deter the transfer of technology, which are utilized in ballistic missile production and its direct relation to launch vehicle technology).

[153] *See* Helene Cooper & Matthew Forney, *Politics & Economy: U.S. and China to Revive Talks on Arms Issues*, WALL ST. J., July 3, 2000, at A14 (discussing the destabilizing nature of ballistic missile sales and other technologies of proliferation concern to the South Asian region).

[154] *See generally Hearing Before the Senate Committee on Armed Services on the National Security Implications of Export Controls and the Export Administration Act of 1999*, 106th Cong. (2000) (statement by Mr. Donald Mancuso, Deputy Inspector General,

ITAR[155] and the possibility for a shift back to BIS is unlikely in the foreseeable future. Battling over jurisdiction in the press serves little constructive purpose in that it does not provide United States manufacturers of satellites, satellite parts and components any relief from restrictive national security controls. The United States satellite industry needs to utilize the new commercial communications satellite parts and components bulk licensing regime embodied in 22 C.F.R. 123.27.[156] In addition, industry and government need to continue cooperative efforts either through the DTAG, or another equally viable vehicle, to shape and mold the new bulk licensing process to provide flexibility and decreased license processing time while ensuring a high degree of compliance to protect against proliferation.[157]

A. Utilization as Mitigation

The new regulation was published in the Federal Register on the May 26, 2000, and presently very few companies sought to utilize it.[158] Prior to the jurisdictional shift many of the satellite parts and component manufacturers had little in terms of licensing and resultant compliance requirements under the EAR.[159] The bulk licensing vehicle provides the manufacturer

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Department of Defense) (testifying on the export licensing process and concerns over commerce and national security in export control while noting the deficiencies existent in both EAR and the ITAR and how they are administered).

[155] *See* Public Law 105-261 (transferring jurisdiction of satellite parts and components to the ITAR).

[156] *See* Interview with Stuart Quigg, *supra*, note 131 (noting the new licensing mechanism was in place and industry needs to utilize it as a tool and incorporate it into its regular licensing processes). Industry has spent more time complaining since the transfer of jurisdiction back to DDTC instead of utilizing those tools at hand, which could mitigate delays and provide enormous flexibility to a company's ability to win foreign sales. *See id.;* Interview with William Lowell, *supra*, note 7.

[157] *See generally* Compliance: The Critical Element (Society for International Affairs 1999) (videotape on file with the author) (explaining the necessity for export control compliance as a means of furthering United States national security and foreign policy interests).

[158] *See* Interview with Stuart Quigg, *supra*, note 131 (describing his amazement that in the first five months the new bulk license regime was in place only one company submitted a license request).

[159] *See* Interview with William Lowell, *supra*, note 7 (noting when looking at compliance under the new regulation, consideration should be given to the fact many of the satellite parts and component manufacturers were effectively decontrolled when under

the flexibility to rapidly respond to market conditions and ease their overall licensing requirements while not contradicting other portions of the ITAR such as the Congressional notification requirement.[160] The flexibility comes in the ability of a United States satellite parts and component supplier to answer the potential customer on a rapid basis, and to conduct post sale operations in conjunction with the test and acceptance of the products sold.[161]

Conversely, the new regulation provides the State Department, a means of control by allowing for the review of the technology and technical data proposed for export prior to issuance of a license to the approved territory for approved end-users and projects.[162] It provides for compliance through post shipment verification and allows for the addition of new end-use and projects on an initial review basis.[163] Satellite manufacturers in the United States and abroad could reduce license process time and many of the hurdles currently complained of by contractually requiring the use of the new bulk license where applicable and where the regulation permits. The ability to retransfer within NATO+Major Allies without prior approval and only post shipment verification saves license process time and allows for flexibility in program and project management planning.[164]

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the Commerce Department's jurisdiction). Flexibility was built into the system to provide the component manufacturer a speed to market factor mitigating any burdens of DDTC licensing by allowing, after an initial review and approval for use in the NATO+Major Allies territory. *See id.*

[160] *See id.* (describing the advantages given the exporter in under the new bulk licensing regime).

[161] *See* Bulk License Guidelines for Preparing Applications, *supra*, note 149 (directing exporters on the use and utilization of the new bulk license and the submission, review and post shipment reporting requirements for obtaining license approval).

[162] *See* Interview with William Lowell, *supra*, note 7 (explaining compliance aspects of the bulk license vehicle such as the reporting and monitoring requirements built into the regulation); Bulk License Guidelines for Preparing Applications, *supra*, note 149; Fact Sheet, *supra*, note 121.

[163] *See* Bulk License Guidelines for Preparing Applications, *supra*, note 149 (detailing the regime's requirement for electronic post shipment verification, which meet the documentary requirements of the ITAR under §123.1 (c)(4) & (5) for exports and § 123.9 for retransfers as well as the maintenance and publishing of the approved foreign persons and satellite programs).

[164] *See* Interview with Stuart Quigg, *supra*, note 131 (expressing the view the process created a licensing precedent for pre-approval of sales, which provides for greater flexibility in the licensing and business processes of the satellite industry).

B. Refinement of the Process

The conception and construction of the bulk license process was transparent in both its administration and execution.[165] DDTC keeps and maintains lists of both approved foreign persons and approved satellite programs for utilizing the license.[166] Additional countries may be considered for inclusion in a bulk license submission and for addition to the list of approved end-users and projects when those entities are members of either the European Union or the European Space Agency.[167] The application itself is electronic with the requirement that submission of requisite supporting documentation will also be electronic.[168] Moreover, there is a requirement that all post shipment verification reports and the submission of any other documentary requirements imposed by specific provisions on the license must be filed electronically.[169]

DDTC must go further and, with the input of industry, incorporate automatic electronic procedures for publication and notification of the list of approved foreign persons and approved satellite programs. Additionally, post shipment reporting and verification should be automatic. Through coordination with the United States Customs Service and through the Automated

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[165] *See id.* (detailing the license construction process and its openness of exchange).

[166] *See* 65 Fed. Reg. 34,089, 34,090 (May 26, 2002) (codified at 22 C.F.R. § 123) (identifying the process for locating and utilizing the lists of approved foreign persons and satellite programs).

[167] *See id.* at 34,092 (noting the method for approval of additional foreign companies and programs and allowing for export to companies from countries resident in the European Union or European Space Agency, which are not resident in the territory of NATO+Major Allies).

[168] *See* Bulk License Guidelines for Preparing Applications, *supra*, note 149 (directing exporters they are required to file all license applications electronically and a hard copy of the application must be submitted with an original signature following the electronic submission). In addition, DDTC requires the exporter to submit all documentation in support of the license application in an unalterable electronic format. *See id. See generally* Chris Gillis, *Streamlining the Export License Process*, AM. SHIPPER, Sept. 1, 2000, at 68 (discussing how the different areas of the United States Government, tasked with export licensing, are moving to a paperless environment by instituting various forms of electronic licensing).

[169] *See* Bulk License Guidelines for Preparing Applications, *supra*, note 149 (laying out the process for post shipment reporting).

Export System,[170] whereby shipping documentation is filed electronically, a transmission would be filed with DDTC automatically. DDTC should implement beta tests conducted with industry on the front end to iron out any process or procedural kinks, which were not considered in the creation of the new license vehicle.[171]

CONCLUSION

The cooperation and coordination between DDTC and the United States satellite industry demonstrated through the DTAG Comsat Task Force proved a good model for export control regulatory construction. Continued cooperation is in the best interests of both parties. The United States satellite industry must make a more concerted effort to utilize the new bulk licensing regime, otherwise it risks alienating the Directorate of Defense Trade controls and any future cooperative efforts in reducing regulatory requirements and processes. However, compliance must be the watchword of industry's international sales strategies. No longer are we in an era, like the Cold War, where the national security threat is easily defined.

Flexibility in the export process will only come about through a dedication of resources, by the senior management of satellite manufactures, to enhance corporate export compliance.

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[170] *See* Automated Export System Main Page, Nov. 17, 2000, http://www.customs.treas.gov (explaining the Automated Export System as the computerized system where exporters may file shipping documentation and invoices electronically to the United States Customs Service). The utilization of AES will become mandatory for all exporters regulated under the ITAR sometime in 2004. *See id.*

[171] *See generally, Seventeen Agreed Proposals of the Defense Trade Security Initiative,* FACT SHEET RELEASED BY THE BUREAU OF POLITICAL MILITARY AFFAIRS, U.S. DEPARTMENT OF STATE, http://www.state.gov/www/global/ar...au_pm/dtc Aug. 29,2000 (announcing the seventeen different proposals of the Defense Trade Security Initiative designed to put into place licensing processes and procedures benefiting industry by reducing license cycle time and some of the administrative costs associated with export licensing while still maintaining a high degree of export compliance to address national security concerns); *Export Controls: Albright Announces Reforms to Enhance U.S. Defense Industry Cooperation with Allies,* BNA WASH. INSIDER, May 25, 2000, at d2 (announcing the initiation of the Defense Trade Security Initiative at a NATO meeting). DDTC and the rest of the United States Government national security export control apparatus have shown they are open to bettering the process to lessen industry's export control burden. *See id.* In addition, they were open about the process and elicited industry support on an occasional basis. *See* discussion *supra*, pp. 53-57.

DDTC also has to work more closely with industry to better foster a cooperative atmosphere in the satellite trade community. The ITAR has a tool to aid the satellite industry in its export sales. Now it's up to the satellite industry to step up to the plate and institute the bulk license into its export operations.

INTERNATIONAL LAW GOVERNING THE ACQUISITION AND DISSEMINATION OF SATELLITE IMAGERY

Ram Jakhu[*]

I. INTRODUCTION

A. Definition and Technology

Satellite imaging or space remote sensing denotes the collection of data (images, information) acquired, in photographic or digital form, by space-based devices, instruments or sensors without any physical contact with the sensed object(s), but using electromagnetic radiation (radio waves).[1] Before the space age began on 4 October 1957, human beings gathered information, on any part of the Earth, on the ground or from air using balloons and aircraft carrying cameras. However, the way humans gathered information on the surface of the Earth changed radically when the first artificial Earth orbiting satellite was launched on 18 August 1960 specifically designed to photograph the Earth's surface. Since then, the technology has advanced considerably both in the military as well as the civil domain.

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[*] LL.M., D.C.L.; Associate Professor, Institute of Air and Space Law, Faculty of Law, and the Director of the Centre for the Study of Regulated Industries; McGill University, Montreal, Canada.

[1] *See* The UN Principles Relating to Remote Sensing of the Earth from Outer Space, G.A. Res. 41/65, U.N. GAOR, 41st Sess. 95th plen. mtg., princ. I. (a), U.N. Doc. A/RES/41/65 (adopted without vote on 3 December 1986) [hereinafter The UN Resolution on Remote Sensing] (defining the term "remote sensing" as "the sensing of the Earth's surface from space by making use of the properties of electromagnetic waves emitted, reflected or diffracted by the sensed objects, for the purpose of improving natural resources management, land use and the protection of the environment"); and The US National Oceanic and Atmospheric Administration (NOAA) General Regulations of the Environmental Data Service, 15 C.F.R. § 960.3 (2000) (defining "remote sensing space systems" as "any device, instrument, or combination thereof, the space-borne platform upon which it is carried, and any related facilities capable of actively or passively sensing the Earth's surface, including bodies of water, from space by making use of the properties of the electromagnetic waves emitted, reflected, or diffracted by the sensed objects").

Remote sensing satellites are of two types, which correspond to the functioning characteristics of their sensors; i.e. passive and active. While passive satellites (with optical sensors) observe merely radiation emitted by the sensed object, active satellites (with radar sensors) emit radiation toward the object being sensed and measure the energy reflected or "backscattered" by that object.[2] Currently both types of sensors are being used for various applications. However, active satellites using radar or synthetic aperture radar (SAR) sensors are becoming popular because of their advantages as they can take images or "see" at night and through clouds. The "seeing" capability of a satellite is described in its spatial resolution, which corresponds to the size of the smallest object that can be observed by that satellite. For example, a satellite image of one meter (m) resolution indicates that objects measuring one-meter across or more are depicted in that image. This means the higher the resolution of satellite imagery the more detailed and precise information of the sensed objects.[3]

However, high resolution or quality of satellite images cannot exclusively and automatically result in high quality of and readily useable information. Operating space systems and taking images, which essentially occur in outer space, must be supplemented by ground–based activities for appropriate data processing and interpretation in order to make the satellite imagery practically useful. Satellites collect first imagery in the form of

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[2] Passive sensors like optical imagers measure emitted radiation at any wavelength producing high spatial resolution images and multispectral sensors, using several radio frequency bands, can produce false colour images. On the other hand, active sensors, like radars or synthetic aperture radars, using "backscattered" radiation can measure distance, altitude or velocity and produce high-resolution images. *See* David H. Staelin & John Kerekes, *Remote Sensing Capabilities, in* HEAVEN AND EARTH: CIVILIAN USES OF NEAR EARTH Space 163, 165 (Dorinda Dallmeyer & Kosta Tsipis eds., 1997).

[3] John Pike, *Resolution Comparison*, FEDERATION OF AMERICAN SCIENTISTS, INTELLIGENCE RESOURCE PROGRAM (Dec. 30, 1997), *at* http://www.fas.org/irp/imint/resolve3.htm (last visited June 11, 2000). Comparing satellite resolutions, Pike indicates that "1-meter resolution imagery permits the identification of buildings, and the recognition of vehicles. 2.5-meter resolution imagery is marginally adequate for the identification of buildings, and the detection but not recognition of vehicles. 5-meter resolution imagery permits the recognition but not the identification of buildings, but not the detection of vehicles. 10-meter resolution imagery is marginally adequate for the detection of larger buildings, but not the detection of vehicles." *Id.*

raw data, which is also known as unprocessed data. "Primary data" or "unenhanced data", derived from raw data after some processing, consists of radio signals that have been pre-processed or not yet processed enough to make them useable images or other products.[4] Primary data is processed with the use of sophisticated computer and other technologies and expertise to produce useable products.[5] Data interpretation techniques are used to obtain information from images that convey ideas or impressions. Therefore, the term "analysed information" is used to indicate the facts and figures, which result "from the interpretation of processed data, inputs of data and knowledge from other sources".[6] The degree of accuracy and completeness of the information depends largely upon the interpreter's experience and the knowledge of objects being analysed and their surroundings, which are collected from the material in literature, such as maps, books, articles and reports.

B. Satellite Systems and Their Capabilities: Commercial Opportunities and Security Threats

Since the launch of the first remote sensing satellite in 1960, significant technological advances have been made as active satellites are routinely launched and used, imagery of one-meter resolution is readily available and highly accurate infor-

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[4] The terms "primary data" and "unenhanced data" are synonymous. The UN Resolution on Remote Sensing, *supra* note 1, at princ. I (b) (defining the term "primary data" as "the raw data that are acquired by remote sensors borne by a space object and that are transmitted or delivered to the ground from space by telemetry in the form of electromagnetic signals, by photographic film, magnetic tape or any other means"); 15 C.F.R. § 960.3 (2000) (defining "unenhanced data" as "remote sensing signals or imagery products that are unprocessed or subject only to data pre-processing"). Data pre-processing 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. *Id.* 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.*

[5] The UN Resolution on Remote Sensing, *supra* note 1, at princ. I (c) ("Processed data means the products resulting from the processing of the primary data, needed to make such data usable").

[6] *Id.* at princ. I. (d).

mation is being derived by using sophisticated data interpretation techniques and expertise. A large number of remote sensing satellites are currently in orbit and more are expected to be launched in the near future by several counties like Brazil-China, Canada, France, India, Israel, Japan, Russia and the US. They currently provide and will continue providing imagery at various details for numerous civil and military applications.[7] For example, it is recently reported that by tripling its military space spending Canada will be enhancing its "intelligence-gathering and surveillance of and from Space".[8] Canada's RADARSAT-1 remote sensing satellite was launched in 1995 and is currently being used for civilian and military applications. It will be replaced possibly in 2003 by RADARDSAT-2, which will produce images with 3 m resolution and RADARSAT-3 is also expected to be planned soon.[9]

The Indian Space Research Organisation (ISRO) currently markets worldwide 5.8 m resolution imagery from its Indian Remote Sensing (IRS) satellite series. It has also planned to launch in 2003 its new remote sensing satellite called CARTOSAT, which will produce 2.5 m images and help meet growing demand for satellite imagery in India and aboard.[10]

An Israel-US private joint venture called ImageSat will launch and operate the company's Earth Remote Observation Satellite (EROS) which would be derivatives of Israel's OFEQ-3 surveillance satellites. ImageSat, which replaced West Indian Space Company of Cayman Islands, is incorporated in the Netherlands Antilles. The company plans to complete by 2005 the launch of all its satellites, two of which will have 1.8 m resolu-

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[7] For a detailed information about numerous remote sensing satellite systems belonging to various countries, visit: http://www.fas.org/spp/guide/index.html (date accessed: 6/11/00).

[8] L. Pugliese, *Canada Plans to Triple its Military Space Spending*, SPACE NEWS, Nov. 6, 2000, at 3.

[9] *Id.*

[10] K.S. Jayaraman, *Indian Imagery Business Expected to Boost Profits, and, Antrix Sets Sights on Commercial Satellite Market*, SPACE NEWS, Aug. 7, 2000, at 36. (http://www.skyrocket.de/space/index_frame.htm http://www.skyrocket.de/space/doc_sdat /irs-p5.htm)

tion capability and others would take images with 0.82 m resolution for commercial purposes.[11]

The US Government's LANDSAT-7 remote sensing satellite, launched more than a year ago, produces 18 m resolution imagery, which is distributed globally.[12] An American private company, Space Imaging, has launched in September 1999 the world's first commercial remote sensing satellite, called IKONOS, that takes black-and-white images with 1 m resolution and colour with 4 m resolution.[13] For its extensive global commercial operations, Space Imaging has already established business offices in Athens, Tokyo, Seoul and Dubai. It has entered into an agreement with a Turkish company to sell high-resolution images to Turkish industry and to Turkish military, which could buy "intelligence and mapping data at world commercial sale prices".[14] A similar agreement has been concluded with India's Antrix Corporation, the commercial arm of the ISRO, under which IKONOS's 1 m resolution data will be distributed in India.[15] If approved by the US Government, Space Imaging is planning to launch in 2004 its second satellite that will take images with half-meter resolution.[16]

The French SPOT (*Systeme Probatoire d'Observation de la Terre*) satellite has a 10 m resolution. The European Space Agency (ESA) has also launched two Earth Remote Sensing (ERS1 and 2) satellites carrying a SAR. Russia has also been marketing its remote sensing products. At present the best quality data are obtained from the Russian sensor KVR1000 on board some of the Cosmos satellites, which have photographic resolution of about 2 m (or an equivalent of about 1 m pixel size). This is considerably better than that acquired from either the French or the Indian satellites.

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[11] Barbara Opall-Rome, *ImageSat International Plans Initial Public Offering*, SPACE NEWS, Aug. 14, 2000, at 16.

[12] Ben Iannotta, *Landsat 7 Satellite Maintains Resolution Quality*, SPACE NEWS, Aug. 7, 2000, at 34.

[13] Burak E. Bekdil & Umit Enginsoy, *U.S. Satellite Operator Offers Imagery to Turkey*, SPACE NEWS, Sep. 11, 2000, at 4.

[14] *Id.*

[15] K.S. Jayaraman, *India, U.S. Firm Agree to Sale of 1-Meter Imagery*, SPACE NEWS, July 17, 2000, at 1.

[16] B.E. Bekdil & U. Enginsoy, *supra* note 13.

Historically, remote sensing was exclusively developed and used for military purposes prior to the launch of the first civilian the American LANDSAT-1 in 1972. It has been estimated that at least 75 per cent of all satellites are launched for military purposes, mainly to increase the effectiveness of terrestrial forces by utilising advanced photographic, electronic and ocean surveillance satellites employed to acquire information on military targets. The early warning, meteorological and highly accurate navigation systems together with the ability to communicate via satellites providing rapid, efficient and reliable capabilities have enhanced the sophisticated modern weapons systems. Such satellite capabilities have been employed in actual wars, e.g. in the Persian Gulf area and Yugoslavia.[17] The most significant impact in the military field has been the application of reconnaissance technology to verification of compliance with the terms of arms control treaties and confidence building measures. Only the US and Russia operate early warning spacecraft. The Russian satellites use the Molniya orbits, in which a satellite takes about 12 hours to go round the Earth once. In contrast, the US early warning spacecraft are put into

[17] In the Gulf War, the US and allied powers had extensively relied on space capabilities, which included (a) seven military remote sensing making 12 passes a day over the area of war, (b) civilian remote sensing satellites like SPOT and US Landsat, (c) 15 – 20 signal intelligence satellites, (d) 3 weather satellites, (e) 4 military communications satellites, and (f) 16 navigation satellites (GPS). According to the US Air Force Chief of Staff, Merril McPeak, "Desert Storm was the first space war, since it was the first occasion on which the full range of modern military space assets was applied to a terrestrial conflict," *quoted in* Ivan Vlasic, *Space Law and the Military Applications of Space Technology, in* PERSPECTIVES ON INTERNATIONAL LAW 385 (1995); "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." *Testimony on National Security Space Programs and Policies, in Review of the Defense Authorization Request for the Fiscal Year 2000 and the Future Years Defence Program, Hearing Before the Strategic Subcomm., Senate Armed Forces Comm.*, 106th Cong. 1st Sess. (1999) (written testimony of General Richard Meyers, USAF, Commander-in-chief of U.S. Space Command), *available at* http://www.spacecom.af.mil/usspace/speech14.htm (last visited Oct. 4, 2001); and Denise N. Shorb, *Space Technology Enhances Allied Force Bomber Missions (in Yugoslavia),* AIR FORCE NEWS, Apr.14, 1999, *at* http://www.fas.org/man/dod-101/ops/docs99/n19990414_990673.htm (last visited Oct. 4, 2001).

the geostationary orbit. The new generation of the US photographic reconnaissance satellites are capable of resolution between 0.10 m and 0.15 m. France has also developed a reconnaissance satellite called HELIOS with a resolution of about 1 m.[18] Germany's interest in photoreconnaissance satellites was revived in April 1989 as Chancellor Helmut Kohl said that: "European observation satellites could enable us, in the future, to monitor compliance with arms control agreements using our own resources."[19]

Since the end of Cold War, military remote sensing technology and techniques are being increasingly applied for civilian applications. Consequently, the capabilities of civil remote sensing satellites are increasing to such an extent that they could now be applied to military tasks to a large extent. Besides better resolution of modern systems on board satellite, another significant improvement has been the ability to point the camera side ways. For example, the French SPOT satellite can tilt its optics 30 degrees on either side of its ground track to observe any site within a 950 km swath. This reduces the revisit time of the spacecraft to 2.5 days compared to 16 days. In this way an object could also be viewed from different angles enabling the acquisition of stereoscopic images and, thus, facilitating interpretations. Other recent developments in the remote sensing field include (a) advanced commercial data interpretation techniques and fast distribution channels,[20] and (b) better and long-lasting cameras and sensors.[21] The US military satellites have

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[18] *France Begins Work on Helios Reconnaissance Satellite,* 141 AEROSPACE DAILY, Feb. 20, 1987, at 270; ARIANE SENDS FRENCH SPYSATS INTO ORBIT, at http://www.spacedaily.com/spacecast/news/ariane-99x.html (date accessed June 12, 1999).

[19] Dr. Helmut Kohl, Address *in* 58 EUROPEAN SPACE AGENCY BULLETIN, May 1989, at 22.

[20] Recently, Eastman Kodak Co. declared that it would enter into remote sensing commercial market in order to provide, via Internet, information which it will extract from satellite imagery. Jason Bates, *Kodak Aggressively Chasing New Market in Remote Sensing*, SPACE NEWS, Aug. 28, 2000, at 26.

[21] *Id. See also* J. Singer, *Sensor May Lengthen Life of Missile Warning Satellites*, SPACE NEWS, Nov. 6, 2000, at 10 ("The US Air Force is developing a new type of infrared sensor that could lengthen the life of missile-warning satellites while reducing their weight and cost").

the capability to provide remote sensing imagery on a very short notice, but such data were not available to the public for civilian applications.[22] Recently, the Canadian and European experts developed a new system to prove that "commercially available remote sensing and communication satellites can be used together in a challenging, real-world application" like fighting forest fires with a response time as little as 10 to 15 minutes.[23]

There are numerous applications of satellite imagery both for civilian and military purposes. Civilian uses could include: meteorology and weather forecasting, crop monitoring, pollution monitoring and environmental protection, cartography and land use, marine and Earth resources discovery and management, natural disaster assistance, news gathering etc. Military applications of satellite imagery include: reconnaissance, missile launch detection, arms control treaty verification, strategic and tactical planning etc. Increased capabilities of civilian remote sensing satellites and readily availability from commercial sources of satellite imagery are fast developing new applications and a huge worldwide market. However, these developments have started giving rise to security concerns as well. It has rightly been pointed out by Colleen Hanley that:

> As the commercial availability of detailed, unclassified imagery increased, so did the concern that commercially available imagery would be used for non-sanctioned military or terrorist activities. High-spatial resolution imagery can reveal the precise location of roads, railways, airport layouts, military installations, and other structures. It can be used to gather intelligence, assist in battlefield mapping, or, in some cases, used in conjunction with cruise missile technology for precise weapons delivery.[24]

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[22] Ben Iannotta, *Remote-Sensing System to Help Fight Forest Fires*, SPACE NEWS, Aug. 28, 2000, at 28.

[23] *Id.*

[24] Colleen Hanley, *Regulating Commercial Satellites Over Israel: A Black Hole in the Open Skies Doctrine?*, 52 ADMIN. L.R. 423, 427 (2000); General Richard B. Meyers, *Moving Towards a Transparent Battlespace*, DEFENCE REVIEW MAGAZINE, Spring 1999, *available at*, http://www.spacecom.af.mil/usspace/defrev.htm (last visited Oct. 4, 2001). "The proliferation of near real-time, militarily-significant imagery is a major concern for

In view of the increasing security concerns, various countries have started changing their traditionally held regulatory policies on the acquisition and distribution of the remote sensing satellite imagery.

This paper discusses the relevant issues of international law with respect to the following three aspects:

1. Right to acquire remote sensing imagery: right to launch remote sensing satellites

2. Right to disseminate remote sensing imagery (without the prior consent of the sensed State)

3. Right to seek remote sensing satellite imagery (from the sensing State)

In addition, the paper will discuss and examine newly adopted regulations and policies to determine whether or not they are consistent with the applicable principles of international law.

II. INTERNATIONAL LAW

A. Right to Acquire Remote Sensing Imagery: Right to Launch Remote Sensing Satellites

Even before the launch of Earth's first artificial satellite on October 4, 1957, legal scholars were advocating that it would not be logical and desirable to extend a State's sovereignty beyond the air space above its territory. Moreover, after the launch of first satellites both by the Soviet Union and the US, no State protested the passage of these satellites over its territory. Such a failure to protest was considered to be a "tacit or implied consent or agreement" among States to allow the free passage of satellites over their territories. This "consent or agreement" was given a formal recognition in the United Na-

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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." *Id.*

tions General Assembly (UNGA) Resolution No. 1721 XVI of 1961 and also Resolution No. 1962 XVII of 1963. These Resolutions are viewed as having enunciated legally binding principles (including the freedom of outer space principle) as they have been incorporated *in toto* in the 1967 Outer Space Treaty.[25] Article I paragraph 2 of the Treaty clearly specifies that: "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."

Although the terms "exploration" and "use" are not defined in the Outer Space Treaty, they are generally understood to include exploitation of outer space for all scientific, military and commercial purposes. The phrase "all States" does not mean that only "States" are allowed to explore and use outer space. This freedom extends to States, their private natural or legal persons under their authority and supervision, and to the international organisations of which they are members.[26] However, the freedom of use of outer space is not absolute, but rather an attribute of State sovereignty which may be referred to as freedom of action.[27] Since this sovereignty is not outside or above the law, freedom of action can thus be exercised only within the limitations prescribed and to the extent allowed by law.[28] As noted earlier, the Outer Space Treaty entitles all States to freedom of action, but such freedom is allowed to be exercised only "without discrimination of any kind", "on a basis of equality", and "in accordance with international law". The phrase "with-

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[25] 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] (currently there are over ninety States Parties to this Treaty).

[26] *Id.* at art. 6.

[27] Thomas R. Adams, *The Outer Space Treaty: An Interpretation in Light of the No-Sovereignty Provision*, 9 HARV. INT'L J. 140, 141 (1968).

[28] ARTHUR LARSON & WILFRED JENKS ET AL., SOVEREIGNTY WITHIN THE LAW 433 (1965). "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." *Id. See also* Gerald Fitzmaurice, *The General Principles of International Law Considered from the Standpoint of the Rule of Law*, 92 RECUEIL DES COURS 49 (1957). "States are sovereign but it does not imply for them an unlimited freedom of action". *Id.*

out discrimination of any kind", read in conjunction with the Preamble and other provisions of the Outer Space Treaty, implies that if certain States are able, only at a later stage, to make use of outer space, their freedom shall not be circumscribed by those States that have already placed their satellites in orbits around the Earth. The phrase "on the basis of equality" refers to the equal rights of all States to explore and use outer space. The term "equality" must be understood to mean *de jure* equality or "sovereign equality" as recognised in Article 2(1) of the Charter of the United Nations.[29] Since absolute freedom of action may lead to chaos, emphasis on the equality of States serves to guarantee the protection of the rights of all States. Space activities must be carried out "in accordance with international law, including the Charter of the United Nations." One of the most important rules of international law that applies to the use of outer space is that States must exercise their rights in such a way as not to abuse their rights[30] and not to adversely interfere in the enjoyment of similar rights by other States.[31] In

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[29] "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 D. DICKINSON, THE EQUALITY OF STATES IN INTERNATIONAL LAW 3 (1920).

[30] Under international law, the concept of "abuse of rights" provides that States are responsible for their acts "which are not unlawful in the sense of being prohibited" but cause injury to other States. IAN BROWNLIE, PRINCIPLES OF PUBLIC INTERNATIONAL LAW 446-447 (1998). *See also Id.* at 448 (quoting Lauterpacht). Also according to Lauterpacht, "There is no legal right, however well established, which could not, in some circumstances, be refused recognition on the ground that it has been abused." *Id.*

[31] *See* Preliminary Report on Int'l Liability for Injurious Consequences Arising out of Acts not Prohibited by Int'l Law, paras. 52, 56 and 60, UN Doc. A/CN.4/334/Add.2, (1980) (opining 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"); *Cf.* Record of Meeting Held on Feb. 11, 1982, 4, UN Doc. A/AC.105/C.2/SR.369, (1982). *See also Fisheries* (U.K. v. Nor.) 1951 I.C.J. No.74, at 116 (Dec. 18); and MANFRIED LACHS, THE LAW OF OUTER SPACE: AN EXPERIENCE IN CONTEMPORARY LAW-MAKING 117 (1972). "There can be no doubt that the freedom of action of States in outer space or on celestial bodies is neither unlimited absolute or 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." *Id.*

other words, the right of freedom of use of outer space by States is limited by analogous rights of other States.

It is generally considered that the legal principle of freedom of exploration and use of outer space has become a part of customary international law (in fact *jus cogens*[32]) that is binding upon all States, whether or not they are Parties to the Outer Space Treaty.[33] Irrespective of the challenge posed by the so-called Bogotá Declaration,[34] the universal validity of the freedom of exploration and use of outer space remains unaffected.[35]

It is pertinent to note here that remote sensing by aircraft has been carried out before the advent of satellites. Such activity has always been governed by the principles of State sovereignty over the airspace above a State's territory as recognised under international law.[36] Remote sensing by satellite, on the other hand, is a space activity carried out under the legal regime of freedom of use of outer space. Therefore, the use of satellites for remote sensing has not been seriously questioned because a satellite, not being an aircraft[37], would not be subject to the legal regime of State sovereignty. Temporary passages of satellites through air space of States while "going to" or "coming

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[32] Vienna Convention on the Law of Treaties, May 23, 1969, art. 53, U.N. Doc. A/Conf. 39/28, UKTS 58 (1980), 8 ILM 679. "A treaty is void if, at the time of its conclusion, it conflicts with a peremptory norm of general international law. For the purposes of the present Convention, a peremptory norm of general international law is a norm accepted and recognised by the international community of States as a whole as a norm from which no derogation is permitted and which can be modified only by a subsequent norm of general international law having the same character." *Id.*

[33] Ian Vlasic, *The Growth of Space Law 1957-65; Achievements and Issues, in* YEARBOOK OF AIR AND SPACE LAW 365, 379-380 (1965). *See also* NICOLAS M. MATTE, AEROSPACE LAW: TELECOMMUNICATIONS SATELLITES 30-31 nn. 60-62 (1982).

[34] *See* Declaration of the First Meeting of Equatorial Countries, Dec. 3, 1976, *reprinted in* 2 MANUAL ON SPACE LAW 383 (Nandasiri Jasentuliyana & R. Lee eds., 1979) (hereinafter Bogotá Declaration).

[35] Under the Bogotá Declaration, a number of equatorial States had declared their sovereignty over those portions of the geostationary orbit that are above their national territories. *Id.* These claims have generally been dismissed as contrary to the established principles of international law. *See also* Ram Jakhu, *The Legal Status of the Geostationary Orbit*, 7 ANNALS OF AIR AND SPACE LAW 333 (1982).

[36] Convention on International Civil Aviation, Dec. 7, 1944, art. 1, 61 Stat 1180, 1180 [hereinafter Chicago Convention]. "The contracting States recognise that every State has complete and exclusive sovereignty over the airspace above its territory." *Id.*

[37] An "Aircraft" is a "machine which can derive support in the atmosphere from the reaction of the air": Annex 6 to the 1944 Chicago Convention, *Id.*

from" outer space have also been accepted by States without any significant protest.[38]

An obvious conclusion drawn from the above discussion is that every State is equally entitled to launch remote sensing satellites to acquire all sorts of imagery without discrimination of any kind. Each State is prohibited to abuse its rights and is obliged to respect the corresponding rights and interests of other States. Therefore, each State is entitled to launch remote sensing satellites for acquiring imagery for scientific, military and commercial purposes without any kind of prior authorisation or consent from the sensed State(s). Since the provisions of the Outer Space Treaty provide the general legal regime for the exploration and use of outer space, the United Nations General Assembly's Committee on Peaceful Uses of Outer Space (COPUOS) has been attempting to adopt a specific legal regime to govern the acquisition and distribution of satellite imagery. Since the freedom of use of satellites for acquiring remote sensing data imagery is generally recognised, the main focus of the debates in the COPUOS has been on the distribution of remote sensing imagery acquired with the use of satellite(s).[39]

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[38] *See* D. Goedhuis, *The Question of Freedom of Innocent Passage of the Space Vehicle of One State Through the Space Above the Territory of another State which is not Outer Space*, 2 COLLOQUIUM ON THE LAW OF OUTER SPACE 42, 42-43 (1960). *See also* ANDREW G. HALEY, SPACE LAW AND GOVERNMENT 62-63 (1963); MYRES MCDOUGAL ET AL, LAW AND PUBLIC ORDER IN SPACE 203 (1963); JOHN COOPER, EXPLORATIONS IN AEROSPACE LAW: SELECTED ESSAYS BY JOHN COBB COOPER 1946-1966 274 (Ivan Vlasic ed. 1968). However, the Council of the International Civil Aviation Organisation has been of the opinion that "(d) The right of innocent passage of spacecraft through the sovereign airspace is proposal *de lege ferenda* (i.e. a legislative proposal not reflecting the existing law); such right does not exist under the present international law of the air; an unconditional right of passage through the sovereign airspace does not exit even with respect to the civil aircraft and is specifically subject to a special authorisation with respect to State aircraft and pilot-less aircraft; (e) The operation of spacecraft in the airspace may require operational co-ordination with air navigation services to ensure the safety of air navigation." (ICAO Doc. C-WP/8158 of 15/1/86 as presented by the ICAO Observer to the Legal Subcommittee of the COPUOS at its 1986 session)

[39] Ivan Vlasic, *Principles Relating to Remote Sensing of the Earth from Space*, 1 MANUAL ON SPACE LAW 303, 309 (Nandasiri Jasentuliyana & R.S.K. Lee eds., 1979) (stating, "...the principal concern of States in relation to remote sensing was not so much the lawfulness of the observation activity conducted from space, which few contested, as the question of the disposition of data gathered by remote sensing satellites.").

B. Right to Disseminate Remote Sensing Imagery (without the Prior Consent of the Sensed State)

The legality of dissemination of the satellite imagery has been the subject of controversy in the COPUOS for over two decades. There essentially were two opposing views: one stressed sovereignty in the form of freedom of action of the sensing State and the other pleaded sovereignty over natural resources of the sensed State. The first view was presented by the States (i.e. the US and some of the Western countries) that advocated the unrestricted use of satellites for remote sensing and freedom of distribution of satellite imagery. The second view, advanced mainly by the Socialist and developing countries, stressed that the reception, processing and distribution of the imagery acquired with satellites are essentially earth-based activities and thus must be governed by State sovereignty, especially the universally recognised principle[40] of permanent sovereignty over natural resources within a State's territorial jurisdiction.[41] They advocated the need of prior consent of the sensed State for distribution of satellite imagery to third State(s). This view is well expressed in the following position, which was jointly propagated by the Soviet Union and France:

> A State which obtains information concerning the natural resources of another State as a result of remote sensing activities shall not be entitled to make it public without the clearly expressed consent of the State to which the natural resources belong or to use it in any other manner to the detriment of such State. Documentation resulting from remote sensing activities may not be communicated to third parties, whether Governments, international organisations or private persons, without the consent of the State whose territory is affected. [42]

This view was not shared by other delegations to the COPUOS. However, after lengthy discussions in the COPUOS,

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[40] Declaration on Permanent Sovereignty over Natural Resources, G.A. Res. 1803 (XVII), U.N. GAOR, (1962).

[41] This principle is considered to have become a part of *jus cogens* applicable to all States. *See* BROWNLIE, *supra* note 30, at 515.

[42] UN Doc. A/AC.105/C.2/L.99 (1974).

the UN General Assembly, on the recommendation of the COPUOS in 1986, finally adopted unanimously a Resolution containing the Principles Relating to Remote Sensing of the Earth from Outer Space.[43] Principle IV of the Resolution recognizes the interests of the sensed State(s) as it provides that remote sensing activities,[44]

> shall be conducted on the basis of respect for the principle of full and permanent sovereignty of all States and peoples over their own wealth and natural resources, with due regard to the rights and interests, in accordance with international law, of other States and entities under their jurisdiction. Such activities shall not be conducted in a manner detrimental to the legitimate rights and interests of the sensed State.

However, it is nowhere mentioned in the Resolution that the sensing State should seek the consent or authorisation of the sensed State prior to the distribution of the imagery acquired with the use of a satellite. As noted earlier, the principle of full and permanent sovereignty of all States over their natural resources is a principle of customary international law. However, the information about these resources acquired by remote sensing satellite becomes the property of the sensing State, which remains free to use or disseminate this information. Moreover, it should be kept in mind that the launching State [i.e. State of Registration] retains jurisdiction, control and ownership over its satellites launched into outer space[45] and consequently over the benefits accrued, including imagery acquired with the use of satellite(s). In other words, the right of control over and ownership of satellite imagery are based on the principle of State sovereignty,[46] though within the parameters of

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[43] The UN Resolution on Remote Sensing, *supra* note 1.

[44] The term "remote sensing activities" as defined by Principle I (para f) of the UN Resolution on Remote Sensing means "the operation of remote sensing space systems, primary data collection and storage stations, and activities in processing, interpreting and disseminating the processed data". *Id.*

[45] Outer Space Treaty, *supra* note 25, art. 8.

[46] State sovereignty implies the existence and the freedom of action of States, as limited by international law, in their international relations as well as with respect to their internal affairs; especially, the freedom of exclusive jurisdiction over their terri-

international law. Thus, a State, in its relations with others, is authorised to both positive and negative rights over its property (including property belonging to its nationals); i.e. a State can use or dispose of its property as well as not to use or not to distribute to others. It is well known that only a State is the best judge, within the parameters set by international law, of its actions and thus it may decide not to disseminate all or certain type of satellite imagery to others. In this regard, the latest regulatory policy initiatives of the US and other countries are enlightening and relevant.

In 1997, at the request of Israel, the US decided, by adopting a law, for not allowing any American satellite operator to collect or distribute a certain type of satellite imagery of Israel's territory.[47] This prohibition applies to such imagery, which is no more detailed or precise than the satellite imagery of Israel which is routinely available from commercial sources. The US has also decided not to declassify or otherwise release satellite imagery with respect to Israel unless the satellite imagery of Israel is no more detailed or precise than what is routinely

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tory, their personal jurisdiction over their citizens and legal persons established under their jurisdiction, things present and maters happening in their jurisdiction.

[47] *See* National Defense Authorization Act for Fiscal Year 1997, S. Rep. No. 104-278, 104th Cong., 2nd Sess. (1996). Authorizing appropriations For Fiscal Year 1997 For Military Activities of the Department of Defense, For Military Construction, And For Defense Activities of the Department of Energy, To Prescribe Personnel Strengths For Such Fiscal Year For The Armed Forces, And For Other Purposes:

PROHIBITION ON COLLECTION AND RELEASE OF DETAILED SATELLITE IMAGERY RELATING TO ISRAEL AND OTHER COUNTRIES AND AREAS.

COLLECTION AND DISSEMINATION – No department or agency of the Federal Government may license the collection or dissemination by any non-Federal entity of satellite imagery with respect to Israel, or to any other country or geographic area designated by the President for this purpose, unless such imagery is no more detailed or precise than satellite imagery of the country or geographic area concerned that is routinely available from commercial sources.

DECLASSIFICATION AND RELEASE – No department or agency of the Federal Government may declassify or otherwise release satellite imagery with respect to Israel, or to any other country or geographic area designated by the President for this purpose, unless imagery is no more detailed or precise than satellite imagery of the country or geographic area concerned that is routinely available from commercial sources.

available from commercial sources. It is important to note that similar prohibitions on the collection and distribution of satellite imagery of any other country or geographical area can be imposed by the President of the US. Though the phrases like "no more detailed or precise" and "routinely available from commercial sources" are ambiguous and could create problems in the future, yet from the international law perspective it is important to note that this American decision demonstrates two points: Firstly, the sensing State controls the collection and distribution of satellite imagery and secondly, the sensing State has the right to distribute as well as not to distribute satellite imagery with or without the agreement with the sensed State(s), but subject to its obligations under international law.

In order to further expand and implement the abovementioned prohibitions, the National Oceanic and Atmospheric Administration (NOAA) of the US Department of Commerce, has issued new Interim Final Regulations relating to the "Licensing of Private Land Remote-Sensing Space Systems."[48] These Regulations have been issued on 31 July 2000 under the Land Remote Sensing Policy Act of 1992,[49] as amended by the 1998 Commercial Space Act[50] and the Presidential Policy announced March 10, 1994.[51] The Regulations provide for requirements for the licensing, monitoring and compliance of operators of private Earth remote sensing satellite systems. They also include provisions that are considered necessary for the promotion of the collection and availability of satellite imagery, while preserving US national security interests, foreign policy and international obligations.

Under Section 960.4 of these Regulations, a license is required by a person subject to the jurisdiction or control of the

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[48] NOAA, 15 C.F.R. Part 960 (Docket No.: 951031259-9279-03) RIN 0648-AC64.(current through May 26, 2003, 68 FR 28646). The date for public comments on this interim final rule was extended until 30 October 2000. [hereinafter referred to as the 2000 US Remote Sensing Regulations].

[49] Land Remote Sensing Policy Act of Oct. 28, 1992, Sec. 202 (b)(2), Pub. L. No.102-555, 15 U.S.C. § 5601-5672, 106 Stat. 4163.

[50] Commercial Space Industry Act, H.R. 1702, 105th Cong. (1998).

[51] Entitled, "US Policy on Foreign Access to Remote Sensing Space Capabilities" (PDD 23).

United States who operates or proposes to operate a private remote sensing satellite system, either directly or through an affiliate or subsidiary. 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 US launch vehicle and/or platform; operate a spacecraft command and/or data acquisition or ground remote station in the United States; and process the data at and/or market it from facilities within the United States.[52] Each licensee is required to comply with the Land Remote Sensing Policy Act of 1992, these Regulations and the conditions of his license. These conditions would include that:

> (a) The licensee shall maintain operational control from a location within the United States at all times, including the ability to override all commands issued by any operations centers or stations. (the so-called shutter control right of the US government).
>
> (b) The licensee could be required by the US Secretary of Commerce to limit data collection and/or distribution as determined to be necessary to meet significant national security

[52] *See* 15 C.F.R § 960.3. "Person means any individual (whether or not a citizen of the United States) subject to U.S. jurisdiction; a corporation, partnership, association, or other entity organized or existing under the laws of the United States; a subsidiary (foreign or domestic) of a U.S. parent company; an affiliate (foreign or domestic) of a U.S. company; or any other private remote sensing space system operator having substantial connections with the United States or deriving substantial benefits from the United States that support its international remote sensing operations sufficient to assert U.S. jurisdiction as a matter of common law." 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.*

> or significant foreign policy concerns, or international obligations of the United States.[53]

The terms "significant national security" and "significant foreign policy concerns" are nowhere defined in the Regulations and thus can be used arbitrarily, depending upon the political convenience of the American Administration in power at a given time. It is not difficult to see that because of these Regulations, the US policy and law, in practice, will have an extensive extra-territorial application with respect to the collection and/or distribution of satellite imagery by not only American satellites but also by non-American systems like, the Canadian RADARSAT system.[54]

In fact, Canada has already declared to follow the American approach in developing national controls on the collection and distribution of satellite imagery. On 9th June 1999, the Canadian Ministers for Defence and Foreign Affairs jointly issued a policy statement according to which Canada will develop new legislation to control commercial remote sensing satellites.[55] The new law will enable the processing, analysis, exploitation and distribution of data collected by high-performance satellites but subject to the Canadian national security and foreign affairs interests.[56]

India is trying to control the distribution of satellite imagery but to its own nationals. Under a July 2000 agreement between the Government of India and Space Imaging company of the US, "sensitive Indian installations such as military bases and airfields will be blotted out of Ikonos images before they are

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[53] *Id.* § 960.11.

[54] Jason Bates, *NOAA Lifts Cap on Foreign Investment in Satellite Imaging*, SPACE NEWS, Aug. 14, 2000, at 1. "Radarsat-2, imaging satellite also could fall under US jurisdiction. Radarsat-2 is being built by MacDonald Dettwiler and Associates, a Canadian subsidiary of Orbital Sciences Corp., Dulles." *Id.*

[55] DEPARTMENT OF FOREIGN AFFAIRS AND INTERNATIONAL TRADE, NEWS RELEASE NO. 134 (June 9, 1999) [Hereinafter Canada News Release No. 134].

[56] *Id.* "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."

distributed" in India.[57] The usefulness and effectiveness of this approach are questionable.[58] However, this example provides further evidence of State practice to control the distribution of satellite imagery at least about its own territory and to its own nations. India's control practice, undoubtedly, is quite limited as compared to that of the US.

Meteorological data has always been considered to be a public good to be used to benefit all. This was one of the main reasons that even the US did not privatise meteorological satellites when it opened the Earth resources remote sensing satellites for private operation. Meteorological data has always been exchanged freely on a non-discriminatory basis and without any fee. However, the World Meteorological Organisation (WMO) at its 12th Congress in 1995, for the first time in its history, adopted a Resolution that imposed a restriction, though limited, on the exchange of meteorological data among the member States of the WMO.[59] The Resolution includes a provision that allows member States to place conditions on the re-export of meteorological data for commercial purposes. It has been rightly observed that the Resolution "has hampered the free flow of meteorological data for weather services world-wide for the largest operational application of remote sensing."[60]

The European Organisation for the Exploration of Meteorological Satellites (EUMETSAT), an intergovernmental European organisation, has been established with the primary objective of acquiring, maintaining and exploiting operational meteorological satellites. EUMETSAT retains "world-wide exclusive ownership of all data" produced by its satellites. Since 1994, EUMETSAT has been encrypting its satellite data with the intention of restricting the availability of the data only to those

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[57] Jayaraman, *Supra* note 15. "This is a security requirement even for the 5.8-meter resolution imagery from India's own remote sensing satellites."

[58] *India's Futile Imagery Policy*, SPACE NEWS, July 24, 2000, at 22.

[59] 12th World Meteorological Congress, Res.40 (Cg-XII), (1995). "WMO Policy and Practice for the Exchange of Meteorological and Related Data and Products Including Guidelines on Relationships in Commercial Meteorological Activities." *Id.*

[60] Joanne I. Gabrinowicz, *Expanding Global Remote Sensing Services, in* PROCEEDINGS OF THE WORKSHOP ON THE SPACE LAW IN THE TWENTY-FIRST CENTURY 97, 108 (2000).

who have been specifically authorised. Thus its data distribution practice has become more restrictive.

The 1998 Agreement between EUMETSAT and NOAA provides for guiding principles for the dissemination of satellite meteorological data from the merged US and European satellite systems.[61] Under these guiding principles a certain type of satellite data could be denied to an enemy country during crisis or war. The phrase "crisis or war" includes "a peacemaking or peacekeeping operation involving US and Allied personnel and resources."[62]

A brief discussion in this section shows that (a) subject to applicable principles of international law, each State is entitled to distribute or not to distribute all or certain type of satellite imagery to others without the consent of the sensed State(s), (b) the distribution or denial of satellite imagery is essentially determined by national laws and policies of the sensing State(s), and (c) a increasing number of States have started adopting their laws and policies to restrict the distribution of satellite imagery while maintaining their right to acquire such imagery without the consent of the sensed State(s).

C. Right to Seek Remote Sensing Satellite Imagery (from the Sensing State)

A State cannot be considered legally entitled to a right to seek from the sensing State satellite imagery of a third country in view of the right of the sensing State, as discussed above, to deny to distribute such imagery. However a question arises: does the sensed State have a right under international law to seek or demand from the sensing State the satellite imagery of its own territory? In this regard, one must discuss Principle XII of the 1986 UN Principles on Remote Sensing, which provides that:

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[61] Agreement Between the United States National Oceanic and Atmospheric Administration and the European Organisation for the Exploration of Meteorological Satellites on an Initial Joint Polar-Orbiting Operational satellite Systems, 19 Nov. 19, 1998.

[62] *Id*, Annex 1.

> 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 analysed 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.

Does this Principle on non-discriminatory access (.i.e. open skies) entitle the sensed State to a right to demand satellite imagery about its territory? An answer to this question depends upon the legal status of the 1986 UN Resolution on Principles on Remote Sensing. However, the legal status of the Resolution still remains somewhat controversial as there are two schools of thought on the issue: one strongly believes that the Resolution has become part of customary international law, thus binding all States;[63] and second acknowledges its value as merely a recommendation, without any legal obligations.[64] Even if one accepts that this Resolution is not part of customary international law, one must not ignore the fact that this Resolution, particularly its Principle on non-discriminatory access, has often been cited by various nations and their entities as an authoritative principle applicable to their satellite imagery distribution policies.[65] Of particular interest here is the provision in the cur-

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[63] Gabrynowicz, *supra* note 60, at 100-104; Robert A. Ramey, *Armed Conflict on the Final Frontier: The Law of War in Space*, 48 AIR FORCE LAW REVIEW n.501 (2000); and Philippe Gaudrat & Paul H. 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 (Gabriel Lafferranderie & Daphne Crowther eds., 1997).

[64] Michael Bourbonniere & Louis Haeck, *Canada's Remote Sensing Program and Policies, in* COMMERCIAL OBSERVATION SATELLITES: AT THE LEADING EDGE OF GLOBAL TRANSPARENCY 263, 287 n.4 (John Baker, Kevin O'Connell & Ray Williamson eds., 2001).

[65] Gabrynowicz, *supra* note 60, at 101, n.26 (citing The US Commercialization Act, (14 U.S.C. §§ 4201 –4292 (1984)), now repealed and replaced with the US Land Remote Sensing Policy Act of 1992, (5601-5642; Canadian RADARSAT Data Policy, Document no. RSCA-PR0004, Sec. 10.1 b., (Canadian Space Agency), July 13, 1994, at 11; ESA Envisat Data Policy, ESA/PB-EO (97) rev. 3, Paris, (European Space Agency), 19 Feb. 98; Principles of the Provision of ERS Data to Users, ESA/PB-EO (90) 57, rev. 6 Paris, 9

rently applicable US Land Remote Sensing Policy Act of 1992, which expresses the American position on the issue as it obliges each private remote sensing satellite operator to "make available to the government of any country (including the United States) unenhanced data collected by the system concerning the territory under the jurisdiction of such government as soon as such data are available and on reasonable terms and conditions".[66] Thus the US legislation appears to maintain its consistency with the 1986 UN Resolution, except that it adds conditions to such non-discriminatory access, as discussed below.

Principle XII of the 1986 UN Resolution under its mandatory wording (e.g. "shall have access") clearly recognises the legal right of the sensed State to seek from the sensing State satellite imagery of its own territory. This Resolution, as noted earlier, has been the result of lengthy discussions and compromises between the member States of the COPUOS and seems to have achieved a good compromise as it was finally adopted unanimously.[67] While the Resolution has accepted the position of the Western States by recognising the right of the sensing State to acquire satellite imagery without the consent of the sensed State, it has also incorporated the position taken by the Socialist and developing countries as it recognises their interests in having non-discriminatory access to satellite imagery of their respective territories. It is therefore expected of the sensing State(s) to positively respond to the requests by the sensed

May 1994, (European Space Agency, Earth Observation Programme Board), Sec. 2 General Principles, 2.1 Legal Principles, para. 2, at 2.)

[66] The UN Resolution on Remote Sensing, *supra* note 49 (The provisions of this subsection are repeated in Sec. 960.11(b) 10 of the 2000 US Remote Sensing Regulations, *supra* note 48).

[67] Stephan Gorove, *Developments in Space Law: Issues and Policies*, 10 UTRECHT STUDIES IN AIR AND SPACE LAW 300 (1991). "The long negotiations accompanying the drafting of Principles on Remote Sensing revealed strongly held political convictions and ideological beliefs frequently at loggerhead positions. It was quite a feat to bridge the seemingly irreconcilable views and come up with a text that the countries in the North and South, East and West could live with. The reason for the final success may be attributed .... to the hard work and willingness of COPUOS members to go an extra mile, resulting in a give and take.." *See also* Gaudrat & Tuinder, *supra* note 63, (according to whom 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.").

States for satellite imagery of their respective territories.[68] A denial of such a request would likely be considered contrary to the provisions of the 1986 Resolution, particularly of its Principle XII. It must however be recognised that this right of the sensed State may be limited in scope because of the following reasons:

1. The UN Principles apply only to satellite imagery acquired for "the purpose of improving natural resources management, land use and the protection of the environment". This does not include imagery for meteorological and military purposes.

2. The sensed State could have access "on a non-discriminatory basis and on reasonable cost terms". This phrase is not defined and is open to several inconsistent interpretations, which could possibly make it an ineffective right.

3. As noted above, the sensing State (or its relevant entity) maintains ownership over imagery acquired by its satellites and determines the distribution or denial of such imagery, though in accordance with international law.

Therefore, the practical implementation of the right to non-discriminatory access might run into some problems. A brief discussion of the applicable US law gives us a sample of such problems. The US data policy for remote sensing satellite systems has been specified in Section 960.12 of the 2000 Regulations on Licensing of Private Land Remote-Sensing Space Systems. It *inter alia* provides that:

1. If the US government has financially supported a satellite system, the licensee will be obligated that "all of the unenhanced data from the system be made available on a non-

[68] It must also be noted that Principle XII recognises 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. BROWNLIE, *supra* note 30, at 29.

> discriminatory basis except on the basis of national security, foreign policy or international obligations".
>
> 2. If a satellite system has been funded by private sources, the licensee may provide access to its unenhanced data in accordance with reasonable commercial terms and conditions, subject to the requirement of providing data to the government of any sensed state.
>
> 3. If the U.S. Government has (either directly or indirectly) funded a licensed system, the US government reserved the right to determine, subject to national security concerns, whether widespread availability of remote sensing data on reasonable cost terms and conditions requires that some or all of the unenhanced data from the system be made available on a non-discriminatory basis.

Therefore under the US law, the sensed State may have access to unenhanced data, but non-discriminatory access may be allowed only subject to the US national security concerns, foreign policy interests or international obligations. On the basis of these restrictions (exceptions), the US may deny a sensed State the satellite imagery of its territory, but such denial would be considered contrary to the 1986 UN Resolution as it does not entitle any sensing State to such exceptions. Canada is planning to adopt a data distribution policy and law similar to that of the US.[69] Other countries, thus, could also be expected to follow a similar approach in the future. This trend would certainly upset the balance of interests that was painfully achieved under the 1986 UN Resolution and the availability of satellite imagery for all purposes, including for commercial and peace-keeping missions, could depend upon pure discretion of the sensing

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[69] The following is one of the several principles that will guide the Canadian Government in the drafting and adoption of the law to regulate the distribution of satellite imagery by the Canadian remote sensing satellite operator, "The Government of Canada reserves the right to .... make available to the government of any country, including Canada, data acquired by its system concerning the territory under the jurisdiction of such a government (sensed state) in accordance with the United Nations A/RES/41/65 Principles Relating to Remote Sensing of the Earth from Space. However, such data shall not be provided to the sensed state if its uncontrolled release is determined to be detrimental to Canada's national security and foreign affairs interests." Canada News Release No. 134, *supra* note 55.

State(s) rather than on an international principle of non-discriminatory access.

III. CONCLUSIONS AND FINAL REMARKS

The observing capability of remote sensing satellites is increasing and their operation is being privatised rapidly. These developments have given rise to some serious security concerns.

International law entitles all States to freely acquire satellite imagery without the consent of the sensed States. Subject to the applicable principles of international law, a sensing State is entitled to determine the distribution or denial of satellite imagery. The 1986 UN Resolution recognises the right of the sensed State to have access, on a non-discriminatory basis, to satellite imagery of its own territory. However, contrary to the provisions of this Resolution, several States have started making such access subject to their national security concerns, foreign policy interests or international obligations.

Ironically, the United States that has always and ardently advocated the freedom of acquisition and non-discriminatory dissemination of satellite imagery (i.e. open skies policies) has started imposing the most detailed, complex and extensive national legal prohibitions on the collection and distribution of such imagery. These prohibitions apply not only to the American private remote sensing satellite operators but also to almost all foreign operators and satellite imagery distributors that have any link with the US. Any unilateral application of such prohibitions universally, purely on the basis of national interests, will be contrary to the principles of the 1986 UN Resolution and will seriously impede non-discriminatory access to any satellite imagery even for peaceful commercial purposes and peace-keeping missions. Moreover, because of a close affinity between the civilian uses of remote sensing satellites and military reconnaissance, 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 anticipatory attacks. Therefore, it is suggested that an international agreement be reached, at least initially amongst the satellite imagery producing States, (a) to ensure the readily and non-discriminatory

availability of satellite imagery in all forms for civilian, commercial and peace-keeping purposes, and (b) to prohibit the use of any force against all remote sensing satellites (i.e. a prohibition similar to the one under Article XII (2) of the 1972 Treaty on the Limitation of Anti Ballistic Missile Systems, which forbade interference with "national technical means of verification" that included early warning satellites). Such agreement should be negotiated as soon as possible because an unreasonable delay would seriously hinder the expansion of the satellite remote sensing industry, which currently struggles to become a commercially viable space activity.

THE *JUS AD BELLUM IN SPATIALIS*: THE EXACT CONTENT AND PRACTICAL IMPLICATIONS OF THE LAW ON THE USE OF FORCE IN OUTER SPACE

Ricky J. Lee[*]

I. INTRODUCTION

It is a common observation that the existing framework of international space law is very ill prepared for the commercial ventures in space today. One aspect of this is the increasing interplay between military and civilian use of outer space, especially in the areas of satellite communications, global positioning and navigation systems and remote sensing. In the conduct of such space activities, the restrictions placed on the military use of outer space as imposed by the instruments of international space law and, as applied generally, the principles of public international law, are often neglected.

This neglect is partly the result of the academic and practical uncertainty over the exact content of the *jus ad bellum* in outer space, especially after the adoption of the Treaty on the Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and other Celestial Bodies (Outer Space Treaty) in 1967.[1] The main provision in relation to use of force in space is found in Article IV of the Outer Space Treaty, which provides for the partial demilitarisation of outer space. Contrary to common belief, Article IV in fact does not prohibit military uses of outer space, although as a

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[*] School of Law, University of Western Sydney, Australia. Member of the IISL and the space law committees of the ILA and IBA. This article is written in the personal capacity of the author and does not necessarily represent the views or opinions of any organisation with which the author is associated. Author email: rickylee@bigpond.net.au.

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

minimum it does provide for a complete demilitarisation of celestial bodies and a prohibition on the deployment of weapons of mass destruction in space.

In addition, it is necessary to keep in mind the provisions of Article III of the Outer Space Treaty as well as Chapter VII and Article 103 of the Charter of the United Nations (Charter) when considering the law concerning the use of force in space. Considered together, these provisions have the effect of further limiting and modifying the rights and obligations of States in the application of the international legal principles of *jus ad bellum* on Earth to outer space. This is because Article IV and any other provision of the Outer Space Treaty must be considered in the broader context of public international law and, in particular, the Charter. In particular, it is important to consider the application of Article 103 of the Charter to Article IV of the Outer Space Treaty and how the Charter consequently interacts with the application of Article IV.

There are two further implications arising from the *jus ad bellum* in outer space in the context of private space activities. Firstly, the provisions of international treaties directly limit the rights and interests of States in the conduct of their commercial space activities but they can only indirectly limit those of private commercial entities through domestic legislation or other forms of legal incorporation. As a result, in the absence of any domestic law, private space activities may not be subject to any legal duty or obligation that arises from the international *jus ad bellum* and there would be no direct impact on the liability of private operators for such activities under international law. Secondly, while it is true that a private entity cannot do what its State cannot legally undertake, only a State can be found liable for breaches of international law arising from activities conducted by the State and those that may be attributed to the State under the principles of state responsibility. Consequently, even if there is an unlawful use of "force" that has been undertaken by a private operator, there is a vacuum in the enforcement capacity of international legal principles against such private operators that may require the concerted efforts of States to redress.

II. CONTENT OF ARTICLE IV OF THE OUTER SPACE TREATY

The Committee on the Peaceful Uses of Outer Space (COPUOS) of the United Nations has long affirmed the principle that military uses of outer space are to be limited or confined in some way by the law. This is embodied in the treaties and declarations adopted by the General Assembly. However, the provisions are far from clear as it appears to draw distinctions between outer space *sensu stricto*, or the empty space between celestial bodies, and outer space *sensu lato*, which includes both "outer space" and the celestial bodies.[2] Article IV states that:

> 1. State Parties to the Treaty undertake not to place in orbit around the Earth any object 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.
>
> 2. The Moon and other celestial bodies shall be used by all State 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 manoeuvres 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.

The first paragraph of Article IV contains a prohibition on the deployment of any nuclear weapons and other weapons of mass destruction in outer space. This presumably refers to outer space *sensu lato*, thus including outer space, the Moon and other celestial bodies. However, this provision, or any other, does not prohibit the stationing of any other type of weapon in outer space for military purposes, such as conventional or even laser weapons. In other words, this provision does not prevent States from using outer space for military purposes, provided

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[2] *Id.* at art. IV.

that these do not involve deploying nuclear weapons and other weapons of mass destruction.[3]

It must be noted that there is a high degree of specificity in the terms of the prohibitions in the first paragraph of Article IV. The paragraph prohibits a State from "placing in orbit", "installing" or "stationing" such weapons in outer space "in any other means". There are two inferences to be drawn from these terms. The first is that the prohibition applies only where the weapon is positioned into a stable orbit or on a celestial body. In other words, the prohibition does not apply to any deployment of a weapon of mass destruction if the deployment does not involve its insertion into orbit or placement on the Moon or another celestial body.

The second inference, perhaps more controversial, is that the prohibition applies only to the deployment and not to the use of weapons of mass destruction in space. The first paragraph of Article IV makes no reference to the use of weapons of mass destruction in outer space *sensu stricto* or on celestial bodies. The combined practical effect of these two inferences drawn is that there is no prohibition on the use of weapons of mass destruction in outer space, provided that the weapon was launched directly from the Earth and did not involve the weapon being inserted into orbit or stationed on a celestial body before it reached its target. The direct launch of a nuclear missile targeted on an orbiting space station, for example, would fall outside the prohibitions of Article IV.

Regardless of the exact content of this first paragraph of Article IV, it is clear that any activity not prohibited by the application of the first paragraph would nevertheless be confined and limited by the operation of the second paragraph of Article IV of the Outer Space Treaty. This paragraph requires the use of celestial bodies to be exclusively for peaceful purposes only. The absence of any reference to outer space and the specific reference to the Moon and other celestial bodies mean that the paragraph appears to apply only to the Moon and other celestial

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[3] Bin Cheng, *The Legal Status of Outer Space and Relevant Issues: Delimitation of Outer Space and Definition of Peaceful Use,* 11 J. SPACE L. 89, 101-02 (1983).

bodies and not to outer space *sensu stricto*.[4] Both the United States and the Soviet Union pointed out during the negotiations in COPUOS that, by omitting the mention of "outer space" from the peaceful purposes requirement in Article IV, the States have rejected a broad prohibition of military activities in space and restricted the requirement to celestial bodies only.[5]

Even if a broader application is inferred from the combined effect of the two paragraphs of Article IV, as has been suggested by some commentators, the United States has long argued that the term "peaceful purposes" means "non-aggressive purposes" rather than "non-military purposes".[6] In other words, Article IV of the Outer Space Treaty implements only the existing obligations under public international law for non-aggressive use of space, but not to impose a new obligation involving the full demilitarisation of celestial bodies.[7] States are therefore free to deploy weapons, personnel, fortifications and facilities for defensive purposes, even on the surface of the Moon and on other celestial bodies.

This interpretation may be considered to be contrary to existing interpretations of the same phrase that are found elsewhere in international law. For example, the similarly worded Antarctic Treaty, to which the United States is also a signatory, defines "peaceful" as "non-military" and specific references to military installations are regarded as exemplificative rather than exhaustive in nature.[8] The Soviet Union also took a contrary view and argued that Article IV prohibits all military activities, regardless of their aggressive nature, on celestial bod-

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[4] *Contra* Marco G. Markov, *The Juridical Meaning of the Term "Peaceful" in the 1967 Space Treaty*, 11 PROC. COLL. L. OUTER SPACE 30 (1969).

[5] *See Treaty on Outer Space: Hearings Before the Senate Committee on Foreign Relations*, 90th Cong., 22, 59 (1967) (statement of Arthur J. Goldberg, Ambassador to the U.N.); and SUMMARY RECORD OF THE U.N. COMMITTEE ON THE PEACEFUL USES OF OUTER SPACE (1966) U.N.Doc.A/AC.105/C.2/SR.66 at p. 6 (statement of the Permanent Representative of the Soviet Union). *See also* S. HOUSTON LAY AND HOWARD J. TAUBENFELD, THE LAW RELATING TO ACTIVITIES OF MAN IN SPACE 97 (University of Chicago Press ed., 1970); and CARL Q. CHRISTOL, THE MODERN INTERNATIONAL LAW OF OUTER SPACE 29-30 (1982).

[6] *Treaty on Outer Space: Hearings Before the Senate Committee on Foreign Relations*, *supra* note 5, at 59; and CHRISTOL, *supra* note 5, at 29-30.

[7] U.N. Charter, art. 2, para. 4.

[8] Antarctic Treaty, Dec. 1, 1959, art. I, 12 U.S.T. 794, 402 U.N.T.S. 71.

ies.[9] By inference, the interpretation used in applying the Antarctic Treaty should therefore be equally applicable to Article IV of the Outer Space Treaty as well.

However, the United States is also a signatory to several nuclear non-proliferation treaties and Washington would undoubtedly consider it absurd for States to be able to assert that their development and manufacture of nuclear weapons is for "non-aggressive" purposes only and therefore permissible under the Nuclear Non-Proliferation Treaty and other instruments.[10] Similarly, the same argument may be contended in relation to Article IV of the Outer Space Treaty, where there is also an absence of definition of the term "peaceful" as contained in the treaty provisions. Consequently, the interpretation suggested by the United States with respect to "peaceful" use of outer space may arguably also be contrary to existing principles of international law.

Consequently, as a result of the controversy that would undoubtedly result otherwise, the most desirable interpretation of Article IV for all concerned is probably the literal one. In other words, States are required to observe the prohibition on the deployment and use of force on celestial bodies and the total prohibition on the deployment of weapons of mass destruction anywhere in space. However, there are no prohibitions on the deployment and use of conventional arms in outer space *sensu stricto* as imposed by Article IV of the Outer Space Treaty and subsequent international space law instruments, nor is there any prohibition on the use of nuclear weapons and other weapons of mass destruction launched from the Earth in outer space.

III. ARTICLE 103 OF THE CHARTER AND ARTICLE III OF THE OUTER SPACE TREATY

Regardless of the scope of the prohibitions imposed under Article IV of the Outer Space Treaty, it is clear that the rules of

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[9] Malcolm Russell, *Military Activities in Outer Space: Soviet Legal Views*, 25 HARV. INT'L. L. J. 153, 161 (1984); INTERNATIONAL SPACE LAW (A.S. Piradov, ed., Boris Belitsky, trans., 1976); and CHRISTOL, *supra* note 5, at 28-29.

[10] Treaty on the Non-Proliferation of Nuclear Weapons, July 1, 1968, 21 U.S.T. 483, 729 U.N.T.S. 161.

jus ad bellum as contained in general international law must also be observed in space. This is because Article III of the Outer Space Treaty states that:

> State 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.

It has commonly been accepted that the Charter provides the authoritative principles of international law in relation to the use of force on Earth. It is pertinent, therefore, to consider the application of Article 103 of the Charter on the provisions of the Outer Space Treaty. Article 103 states that:

> In the event of a conflict between the obligations of the Members of the United Nations under the present Charter and their obligations under any other international agreement, their obligations under the present Charter shall prevail.

This is further reinforced by the 1980 Vienna Convention on the Law of Treaties (Vienna Convention), which provides that the provisions of later treaties prevail over earlier ones except for the application of Article 103 of the Charter.[11] Article 30 of the Vienna Convention states that:

> 1. Subject to Article 103 of the Charter of the United Nations, the rights and obligations of States parties to successive treaties relating to the same subject matter shall be determined in accordance with the following paragraphs.
>
> 2. When a treaty specifies that it is subject to, or that it is not considered to be incompatible with, an earlier or later treaty, the provisions of that other treaty shall prevail.
>
> 3. When all the parties to the earlier treaty are parties also to the later treaty but the earlier treaty is not terminated or suspended in operation under Article 59, the earlier treaty applies

[11] Vienna Convention on the Law of Treaties, Jan. 27, 1980, 1155 U.N.T.S. 331.

only to the extent that its provisions are compatible with those of the latter treaty.

While it is clear from a literal reading of Article 103 that the Charter takes precedence over any other treaty, there are two important points to take into consideration. Firstly, Article 103 provides only for obligations under the Charter, and not rights, to prevail over other treaties. Consequently, if a subsequent treaty revoked a right provided under the Charter, a State cannot rely on Article 103 to continue asserting that right despite being bound by the terms of the later treaty. Secondly, Article 103 deals only with obligations arising from the provisions of the Charter and, consequently, it is unclear whether it would apply to an obligation that arises not from the provisions directly but from the exercise of a power or the discharge of a function under the Charter, such as a decision of the General Assembly or the Security Council.[12]

In other words, it is unclear whether Article 103 would apply to obligations imposed by means other than the Charter itself. To put it in practical terms, there are three types of decisions that may be made by the United Nations or its principal organs that require consideration in the context of Article 103:

1) decisions that are externally binding;

2) decisions that are internally binding but with external effects; and

3) external decisions that are not binding but in certain circumstances would have binding effect.[13]

Under the Charter, the only externally binding decisions of the United Nations are decisions of the Security Council that are concerned with the maintenance of international peace and security.[14] As the obligation to observe such decisions arise not

[12] Richard Lauwaars, *International Law: The Interrelationship between United Nations Law and the Law of Other International Organisations*, 82 MICH. L. REV. 1604, 1606 (1984).

[13] Ricky J. Lee, *The United Nations: From Peacekeeping Success to Peace Enforcement Failures*, AUST. INT'L. L. J. 180 (2000).

[14] U.N. Charter, arts. 25, 48.

from the resolutions or decisions but directly from Articles 25 and 48 of the Charter, it is an obligation to which Article 103 would have application.

Even though the General Assembly and the Economic and Social Council may make decisions with dispositive force and effect on the external relations of States, they are not decisions that are externally binding.[15] As there is no obligation directly under the Charter for States to comply with such decisions, Article 103 would have no application on any obligation arising from such internal decisions.[16]

The final category of decisions includes General Assembly resolutions or those of other organs that contain declarations of legal principles concerning a particular aspect of international activities. In space law, the legal principles concerning remote sensing is an example of such resolutions.[17] These decisions are not binding but, if accepted by the States concerned, it may be considered to be the codification of existing customary international law or the creation of new custom by simultaneous state practice or, at the very least, *opinio juris*. In other words, the resolution itself is not binding and creates no obligation except for the customary principles contained therein. As Article 103 deals only with conflicts between obligations arising from the Charter, there can be no application of Article 103 to a conflict between custom created by the United Nations and subsequent treaties. This is consistent with the view that States can contract out of customary principles by the adoption of treaties unless the principles are *jus cogens* and therefore the resulting *erga omnes* obligations must be observed.

It can be seen from this that Article 103 only requires States to observe their obligations:

- directly arising from the provisions of the Charter; or

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[15] Certain Expenses of the United Nations, 1962, I.C.J. 151, at 163 (July 20).

[16] Lauwaars, *supra* note 12, at 1607.

[17] *The UN Principles Relating to Remote Sensing of the Earth from Outer Space*, G.A. Res. 41/65, U.N. GAOR, 41st Sess. 95th plen. mtg., U.N. Doc. A/RES/41/65 (adopted without vote on 3 December 1986) (hereinafter Principles").

- arising from binding decisions of the Security Council in relation to international peace and security,

over their obligations in other treaties, such as the Outer Space Treaty. In order to analyse the content of the *jus ad bellum* in space, it is therefore essential to consider not only the content of Article IV of the Outer Space Treaty but also the extent of any obligations that arise under the Charter to which Article 103 may have application.

IV. ARTICLE IV AS CUSTOM?

Before adopting the application of Article 103 of the Charter in such a clear-cut way over Article IV of the Outer Space Treaty, even as limited as its application is, one must consider whether Article IV has crystallised into a peremptory norm of international law, or a principle of *jus cogens*, that cannot be overridden by treaties. For example, Article 53 of the Vienna Convention provides that:

> A treaty is void if, at the time of its conclusion, it conflicts with a peremptory norm of general international law. For the purposes of the present Convention, a peremptory norm of general international law is a norm accepted and recognised by the international community of States as a whole as a norm from which no derogation is permitted and which can be modified only by a subsequent norm of general international law having the same character.

Even assuming that the Vienna Convention is the codification of the existing customary rules on the law of treaties, it is clear that the provisions of Article IV cannot have been a principle of *jus cogens* at the time of the conclusion of the Charter in 1945. Consequently, none of the provisions of the Charter can be considered void as against a principle of *jus cogens* created from the crystallisation of the terms of a later treaty.

In any event, it is arguable that Article IV of the Outer Space Treaty, despite its overwhelming "acceptance" by States, can be regarded as a principle of *jus cogens* when there remains so much uncertainty over the exact obligations created by the provision. Unless Article IV is restricted in its application to

only its literal reading, it is unlikely that there would be international consensus on any other interpretation that would broaden the scope and application of the provision to military uses of outer space.

V. PROHIBITING THE USE OF FORCE UNDER THE CHARTER

Article 2(4) of the Charter provides that States are to refrain "from the threat or use of force against the territorial integrity or political independence of any State, or in any other manner inconsistent with the Purposes of the United Nations". This principle, prohibiting the use of force by States, has been found by the International Court of Justice to be *jus cogens* and binding on all States as a customary norm.[18]

This blanket prohibition on the use of force is not without exceptions. Under Chapter VII of the Charter, the Security Council may authorise the use of force "to maintain or restore international peace and security" if there is a "threat to the peace, breach of the peace, or act of aggression" for which economic and trade sanctions would be inadequate. Further, Article 51 provides that there is an inherent right by States to use force for individual or collective self-defence "until the Security Council has taken measures necessary to maintain international peace and security".

There have been some instances since the creation of the United Nations where this principle appeared to have been breached or, in other words, there have been several occasions where the operation of Article 2(4) may have been invoked. For example, in 1956 when France and the United Kingdom issued an ultimatum to Egypt and Israel demanding a cease-fire within twelve hours, this ultimatum would be considered a "threat of force". Further, in 1960, the Soviet Union issued the warning that any unauthorised flights over Soviet territory will result in the bases where the planes flew from being attacked. In 1994, when Iraq positioned artillery and tanks near its border within range of Kuwait, the United Kingdom declared that this would

[18] Military and Paramilitary Activities in and against Nicaragua (Merits), 1986 I.C.J. 14 (June, 27).

be considered a "threat to Kuwait and a breach of the provisions of the Charter".[19]

Further, there is the qualification that the use of force is only prohibited where it is conducted "against the territorial integrity or political independence of any State". This may be seen as a limiting factor in the prohibition on the use of force under international law. In this way, a distinction can be drawn between annexations or permanent occupations, which infringe the territorial "integrity" of a State, and trespassing, which infringes the territorial "inviolability" of a State. In the *Corfu Channel* case, the United Kingdom argued that Operation Retail, in which the Corfu Channel, located in Albanian territorial waters, was swept for mines after a British ship was damaged, "threatened neither the territorial integrity nor the political independence of Albania".[20] In a similar way, surgical air strikes against strategic targets may arguably be justified.

Brownlie argued against such a limited approach as, in his view, "it is difficult to accept a 'plain meaning' which permits evasion of obligations by means of a verbal profession that there is no intention to infringe territorial integrity".[21] In his view, this provision must be read with the totality of the sovereign rights of a State in regard to its territories.[22] Harris suggested that the territorial integrity issue is irrelevant as the last clause of Article 2(4) amounts to a total prohibition on the use of armed force.[23] This is because one of the Purposes of the United Nations is to "maintain peace and security" and consequently any form of use of force, regardless of whether it infringes the integrity of a State or otherwise, is contrary to the Purposes of the

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[19] U.N. Doc S/PV.3431, at 11-12 (1994), (statement of Sir David Hannay).

[20] Corfu Channel (U.K. v. Alb.) (Merits), 1949 I.C.J. 222 (June, 24) (the Court did not refer to this particular submission).

[21] IAN BROWNLIE, INTERNATIONAL LAW AND THE USE OF FORCE BY STATES 267-68 (Oxford University Press 1963).

[22] *See also* Declaration on Principles of International Law concerning Friendly Relations and Cooperation among States and Cooperation Among States in Accordance with the Charter of the United Nations, G.A. Res. 2625, U.N. GAOR, 6th Sess, U.N. Doc. A/8082 (1970) (supporting this view).

[23] DAVID HARRIS, CASES AND MATERIALS ON INTERNATIONAL LAW 866 (Sweet & Maxwell 5th ed., 1998).

United Nations and therefore in contravention of Article 2(4) of the Charter.

Consequently, if this broader interpretation is adopted, it may be suggested that the use of force can be legally justified only where:

> 1) it is intended and restricted to individual or collective self-defence within the terms of Article 51 of the Charter;
>
> 2) it is mandated by a decision of the Security Council under Article 42 of the Charter; or
>
> 3) in humanitarian interventions, which is a somewhat controversial justification for the use of force that has been used in recent times.[24]

Careful analysis of the events since 1945 involving the use of force may well find that this principle is honoured more in its breach than its observance. It does not, however, alter the balance that use of force on Earth is only permitted in those three situations. Of these situations, it is clear at least that humanitarian interventions, as a unilateral act without reference to the Charter, cannot attract the application of Article 103. As a result, the conduct of humanitarian intervention operations in outer space, if one is possible, must respect the limitations imposed by Article IV of the Outer Space Treaty or, namely, the prohibition on weapons of mass destruction and the demilitarisation of celestial bodies. In the case of use of force for self-defence or Security Council mandated actions under Article 42, it is important to consider in more detail the application of Article 103 on those specific provisions in Chapter VII of the Charter.

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[24] *Id. See also* Bruno Simma, *NATO, the UN and the Use of Force: Legal Aspects* 10 EUR. J. INT'L. L. 1 (1999); Antonio Cassese, *Ex iniuria ius oritur: Are We Moving towards International Legiimation of Forcible Humanitarian Countermeasures in the World Community* 10 EUR. J. INT'L. L. 23 (1999); and Michael Reisman, *Unilateral Action and the Transformations of the World Constitutive Process: The Special Problem of Humanitarian Intervention* 11 EUR. J. INT'L. L. 3 (2000).

VI. ARTICLE 51 OF THE CHARTER: SELF-DEFENCE

Article 51 states that:

> Nothing in the present Charter shall impair the inherent *right* of individual or collective self-defence if an armed attack occurs against a Member of the United Nations, until the Security Council has taken measures necessary to maintain international peace and security. Measures taken by Members in the exercise of this right of self-defence shall be immediately reported to the Security Council and shall not in any way affect the authority and responsibility of the Security Council under the present Charter to take at any time such action as it deems necessary in order to maintain or restore international peace and security.[25]

This recognises the inherent right in law of individual or collective self-defence where an armed attack takes place "until the Security Council has taken measures necessary to maintain international peace and security". In the absence of any express provisions in a resolution of the Security Council, this doctrine could arguably justify the use of force against Iraq in the defence of Kuwait, even though at the time the armed attack against Kuwait was already complete.[26]

It is interesting to note that Article 51 of the Charter considers collective self-defence to be a right rather than an obligation, even though one would have considered collective security to be the responsibility of all States rather than a "right" to be exercised. It may be seen that States have completely surrendered their sovereignty in relation to the use of force to the Security Council and, as a result, collective self-defence has become a "right" to use force outside the authority of the Security Council rather than an obligation borne by States towards other States in the international community.[27] In other words, the

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[25] Italics added.

[26] HANS KELSEN, THE LAW OF THE UNITED NATIONS: A CRITICAL ANALYSIS OF ITS FUNDAMENTAL PROBLEMS 792 (Stevens & Sons, ed., 1951); and DEREK BOWETT, SELF-DEFENCE IN INTERNATIONAL LAW 216-18 (1958).

[27] *See* Malvina Halberstam, *The Right to Self-Defence Once the Security Council Takes Action*, 17 MICH. J. INT'L. L. 229, 248 (1996) (stating "it is difficult to believe that some 180 states would have agreed to give up the most fundamental attribute of sover-

"obligation" of collective security imposed on States is given effect by the other provisions of Chapter VII, especially under Article 42, and consequently all that remains is a "right" to use force in self-defence outside the authority of the Council.

The practical effect of all this on the use of force in outer space is that Article 103 of the Charter, applying only to obligations and not rights, would have no application on Article 51. The right of a State to use force in self-defence in outer space, therefore, would have to observe the prohibitions and limitations imposed under Article IV of the Outer Space Treaty. From the discussion above, Article IV would not prevent the use of force by States in space, provided it did not involve the deployment of weapons of mass destruction nor involve the use of the Moon or other celestial bodies.

VII. ARTICLE 41 OF THE CHARTER

Article 41 provides that:

> The Security Council may decide what measures not involving the use of armed force are to be employed to give effect to its decisions, and it may call upon the Members of the United Nations to apply such measures. These may include complete or partial interruption of economic relations and of rail, sea, air, postal, telegraphic, radio, and other means of communication, and the severance of diplomatic relations.

Consequently, the Security Council can decide on the "complete or partial interruption of economic relations and of rail, sea, air, postal, *telegraphic, radio and other means of communication*" to restore international peace and security.[23] The Security Council can make a binding decision under Article 41 that communications links with a particular State are to be interrupted. As the obligation of States to be bound by the decision

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eignty, the right to use force in self-defence, to an international body and particularly one like the Security Council. The Security Council decides on the basis of the political interests of the states voting — the state attacked may not even have a vote. It is inconceivable that they would have done so in language that affirms the 'inherent right of individual and collective self-defence'").

[23] Italics added.

arises directly from the terms of the Charter, this is an obligation that Article 103 would apply.

Consequently, if decided upon by the Security Council, the States may be required to take steps to ensure that communications with that State is interrupted. These steps would be limited to internal steps, or steps taken within the State, as Article 41 would not authorise a State to take external steps to disrupt another State's link and communications that would amounts to an use of force. This is analogous to shipping links, where each State would be required to ensure that no shipping under its flag reached the target State and no shipping of the target State is serviced through its territorial waters and ports, but it cannot actively undertake a naval blockade or to arrest or attack ships in international waters that are destined for the target State.

In Resolution 221 of 1966, the Security Council determined that the supply of oil from tankers calling at the port of Beira constituted a threat to the peace and called upon both Portugal and the United Kingdom to take action to prevent oil from reaching Southern Rhodesia.[29] This is probably an action taken by the Security Council under Article 42 rather than Article 41 as it involved the use of military force to undertake a blockade that is expressly excluded from the authority of Article 41.

Applying Article 41 to outer space would mean that, when required, States would have to take steps to ensure that no transmissions from ground segments within their control are relayed through satellites to the target State. It would also mean that satellites registered to other States would similarly be required to cease transmissions to the target State. Such actions would not contravene Article IV of the Outer Space Treaty and, as a result, it would not be necessary to invoke Article 103 of the Charter for such actions to take place. In the case of satellites registered to the target State, Article 41 cannot provide the legal authority for the Security Council to require other States to disrupt or interfere with their transmissions, as that would amount to a use of force by the interfering States.

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[29] U.N. SCOR, 21st Sess., at 218 (1966).

VIII. ARTICLE 42 OF THE CHARTER

Article 42 forms the fundamental legal basis for the authority of the Security Council to authorise or require the use of force by States. It provides:

> Should the Security Council consider that measures provided for in Article 41 would be inadequate or have proved to be inadequate, it may take such action by air, sea, or land forces as may be necessary to maintain or restore international peace and security. Such action may include demonstrations, blockade, and other operations by air, sea, or land forces of Members of the United Nations.

Traditionally, it has been observed that Article 42 was the only provision in the Charter that allows the Security Council to "take action by air, sea or land forces" where necessary to maintain or restore international peace and security.[30] However, the International Court of Justice had taken a contrary view in the *Certain Expenses of the United Nations* case, where the Court rejected the proposition that the use of force in the Congo must be based on Article 42 of the Charter.[31]

In any event, it is important to note that Article 42 authorises States only to undertake measures by air, sea and land forces "as may be necessary to maintain or restore international peace and security". There is clearly no mention of operations in space or measures taken by space forces in Article 42. Of course, there is no reason why a State cannot use the authority provided by the Security Council under Article 42 to use force in outer space by "land" or "air" forces, though this would appear to be contrary to the literal meaning of "air, sea or land forces" in the provision.

There are clearly at least two views on the content of this limitation in relation to the authority of Article 42 in outer space. Firstly, it could be seen as limiting the scope of the authority given to the Security Council only to use of force by ter-

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[30] *See* KELSEN, *supra* note 26, at 744-45.

[31] *In* Certain Expenses of the United Nations, *supra* note 15, at 167 (it can also be based on the consent of the Congolese Government, or art. 51 of the charter).

restrial forces and, consequently, the Security Council has no authority to require States to take military action in outer space. This would mean that the total ban of military force in space, so eagerly sought after by some framers of the Outer Space Treaty, would be achieved. The only use of force allowed in outer space would be for self-defence under Article 51 of the Charter and this would be confined by the limitations of Article IV of the Outer Space Treaty as discussed above.

Secondly, it can be argued that the drafters of the Charter simply did not anticipate the possibility of military combat in space, even though they had intended for the Security Council to be able to decide on the use of all forms of military force. It should be noted that the first satellite in space was not launched for another fourteen years after the Charter of the United Nations entered into force. In any event, there is no reason why the scope of Article 42 cannot be altered by consistent and uniform practice by States on the Security Council and, as a result, it may find itself having the authority to require military actions in space.[32]

In practice, this means that a decision by the Security Council requiring States to use force or to take all measures necessary to address a breach of international peace and security would clearly fall under the scope of Article 103. Consequently, the Security Council has the legal authority under Article 42 to override the prohibitions and limitations imposed under Article IV of the Outer Space Treaty, whatever the scope or content of these prohibitions and limitations may be. For the purposes of the use of force in outer space that is mandated by the Security Council, therefore, the provisions of Article IV may

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[32] *See, e.g.*, U.N. Charter, art. 27. Except for procedural matters, "Decisions of the Security Council ... shall be made by an affirmative vote of nine members including the concurring votes of the permanent members; provided that ... a party to a dispute shall abstain from voting." The concurrence of the permanent members have since been interpreted as meaning merely that a negative vote has not been cast by any permanent member. Abstentions of the permanent members in voting do not therefore constitute a veto — this is now generally regarded as customary international law. *Id.* *See* KELSEN, *supra* note 26, at 239-44; and RÜDIGER WOLFRUM & CHRISTIANE PHILIPP, UNITED NATIONS: LAW, POLICIES AND PRACTICE 1404-1405 (1995).

have no more than a placebo effect in restricting the military use of space.

IX. THE DUST SETTLES: *JUS AD BELLUM IN SPATIALIS*?

It would be difficult to specify the exact scope and content of the *jus ad bellum* in outer space without clarifying the precise mandate of Article 42 in relation to use of military force in space. However, as there is no judicial review of decisions made by the Security Council, it is unlikely that different interpretations of Article 42 would make any difference to the authority of the Security Council and its impact on the limitations imposed under Article IV of the Outer Space Treaty.

A. Celestial Bodies

In relation to military use of celestial bodies, the prohibitions and limitations contained in Article IV of the Outer Space Treaty would apply unless there is a conflicting obligation arising under the Charter. It is clear that the right of self-defence provided under Article 51 would not extend to celestial bodies. States would be allowed to take action permitted under Article 41 on celestial bodies provided they did not amount to use of force that would have nevertheless contravened existing principles of international law.

As for a decision made by the Security Council under Article 42, the use the force in outer space and on celestial bodies may be authorised, even if it involved the deployment of nuclear weapons or other weapons of mass destruction. This is because States are required under Articles 25 and 48 of the Charter to implement decisions of the Security Council, Article 103 would operate to allow States to use military force on celestial bodies, despite the prohibition contained in the second paragraph of Article IV of the Outer Space Treaty. Presumably such authority would permit the deployment of weapons of mass destruction as well, unless the prohibition contained in the first paragraph of Article IV has crystallised into a principle of *jus cogens*.

B. *Outer Space (sensu stricto)*

In relation to use of force in outer space, either in Earth orbit or in other parts of the Solar System, the first paragraph of Article IV requires only that weapons of mass destruction are not deployed in orbit. In other words, there is no prohibition under the Outer Space Treaty of the deployment or use of military force in outer space, including the use of nuclear weapons and other weapons of mass destruction provided that this does not involve orbital insertion.

Even where the first paragraph of Article IV is reduced to no more than a ban on the deployment of nuclear weapons in orbit, the Security Council nevertheless would have the ability to require States to do so notwithstanding such a prohibition, assuming that the prohibition has not crystallised into a principle of *jus cogens*.

X. SATELLITE TELECOMMUNICATIONS: THE ITU CONSTITUTION AND CONVENTION

In addition to the Outer Space Treaty and other general space law instruments, satellite telecommunications is mainly regulated by the International Telecommunication Union (ITU) and its Member States are bound by the terms of its Constitution and Convention. There are two main reasons for the need for international regulation of satellite telecommunications. Firstly, the use of radio frequencies is a finite resource that must be centrally allocated at an international level in order to prevent interference by different States utilising the same or similar frequencies for their services. Secondly, with the advent of satellite telecommunications, it was recognised early that the use of the geostationary orbit would have to be controlled. Article 44 of the ITU Constitution and Convention states that:

> 1. Members [States] shall endeavour to limit the number of frequencies and the spectrum used to the minimum essential to provide in a satisfactory manner the necessary services. To that end, they shall endeavour to apply the latest technical advances as soon as possible.

> 2. 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.

In addition to general regulatory provisions, the ITU Constitution and Convention also sets out several principles in relation to the conduct of satellite telecommunications. For example, telecommunications devices cannot be established or operated in such a manner that causes harmful interference to the radio communications or services of other States.[33] The term "harmful interference" is defined in the Annex of the ITU Constitution as "interference which endangers the functioning of a radionavigation service or of other safety services or seriously degrades, obstructs or repeatedly interrupts a radiocommunications service operating in accordance with the Radio Regulations".

More relevant to the issue of military use is Article 48, which provides:

> 1. Member States retain their entire freedom with regard to military radio installations.
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> 2. Nevertheless, these installations must, so far as possible, observe statutory provisions relative to giving assistance in case of distress and to the measures to be taken to prevent harmful interference, and the provisions of the Administrative Regulations concerning the type of emission and the frequencies to be used, according to the nature of the service performed by such installations.[34]
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> 3. Moreover, when these installations take part in the service of public correspondence or other services governed by the

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[33] ITU Constitution and Convention, art. 45.

[34] *Id.* at art. 45 (the harmful interference provision); and *Id.* at art. 46 (the distress provision).

> Administrative Regulations, they must, in general, comply with the regulatory provisions for the conduct of such services.

It is clear that the "entire freedom" referred to in the first paragraph of Article 48 means that any military use of radio communications would be subject only to the obligations set out in the second paragraph of Article 48. This is an implicit endorsement of the view that Article IV of the Outer Space Treaty does not amount to a broad requirement for outer space to be used for peaceful purposes only, as such a broad interpretation would clearly eliminate any existing "freedom" concerning military radio installations.

Specific to the issue of military radio installations and the prohibition on harmful interference in the ITU Constitution and Convention is the effect of any Security Council decisions under Article 41 of the Charter. As discussed above, Article 103 would allow a binding decision of the Security Council to override the provisions of subsequent treaties. Therefore, the deliberate termination and harmful interference with the satellite communications of the target States as required by a Security Council resolution would override the operation of the ITU Constitution and Convention.

XI. REMOTE SENSING

A. The Law of Remote Sensing

In response to the need for specific legal rules for remote sensing activities, the General Assembly of the United Nations adopted the Principles Relating to Remote Sensing of the Earth from Outer Space in 1986 (Principles) to govern the remote sensing activities of States, their nationals and commercial entities.[35] In these Principles, "remote sensing" is defined as activities involving "the sensing of the Earth's surface from space by

[35] *See* Carl Q. Christol, *Remote Sensing and International Space Law*, 16 J. SPACE L. 21 (1988).

making use of the properties of electromagnetic waves emitted, reflected or diffracted by the sensed objects".[36]

One major concern relating to remote sensing is its potentially detrimental effect on the sovereignty and the interests of the sensed States. This is especially the case where the States that are subject to the remote sensing activities of other States have not consented to the activities and have not been consulted prior to the activities taking place. As a result, the Principles address remote sensing as well as the data produced, including the processing of the "primary data" and the dissemination of "analysed information".[37] As with most other international space law instruments, the Principles require States to "promote international cooperation" by allowing participation of all States on an "equitable and mutually acceptable terms".[38] Further, the Principles call for the establishment of international processing facilities for remote sensing data "within the framework of regional agreements and arrangements whenever feasible".[39] The use of vague phrases such as "whenever feasible" and "mutually acceptable" have ensured that the terms of the Principles would not be specific enough in its terms to be overly controversial for the industrialised States while addressing the real or ideological concerns of the developing States.[40]

This is not to suggest that the Principles provide no legal obstacles to military satellite reconnaissance activities. Specifically, Principle I requires remote sensing activities by States to be undertaken to improve natural resources management, land use and the protection of the environment. This leaves open the interpretation that remote sensing technologies can only be applied for those limited purposes, thus prohibiting any military application as well as other civilian purposes.[41] Alternatively, a

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[36] *UN Principles Relating to Remote Sensing of the Earth from Outer Space, supra* note 17.

[37] *Id.* at princ. XII.

[38] *Id.* at princ. V.

[39] *Id.* at princ. VII.

[40] *See* STEVEN GOROVE, DEVELOPMENTS IN SPACE LAW: ISSUES AND POLICIES 293-302 (G.C.M. Reijnen, ed., 1991).

[41] Ricky J. Lee, *Reconciling Space Law for the Commercial Realities of the Twenty-First Century*, 4 SINGAPORE J. OF INT'L. & COMP. L. 198, 216 (2000).

more creative argument would be to suggest that remote sensing for other purposes are not prohibited but that they, in fact, fall outside the purview of the Principles and are therefore governed by existing principles of international law that may relate to such activities.[42]

In terms of international state responsibility for governmental and private activities, Principle IV of the Principles require activities not to be conducted in a manner that is detrimental to the legitimate rights and interests of the sensed State and with due regard of the rights and interests of other States "in accordance with international law". In regard to the dissemination of data, the Principles require the distribution of data should be done on a "non-discriminatory basis" and any supply of data is to be done on "reasonable cost terms".[43] Specifically, Principle XII states:

> 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 analysed 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.

As Jakhu pointed out, there is no definition and no indication as to what is reasonable and what would constitute a non-discriminatory basis.[44] Meanwhile, there is no limitation on the use of the disseminated data afterwards, which is arguably the stage at which most harm can be done to the sensed States.

The Principles also require States to ensure that remote sensing activities are conducted in accordance with the Principles and that the operator complies with the "norms of international law on state responsibility for remote sensing activities".[45]

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[42] *Cf.* Ram Jakhu, *International Policy and Law-Making Process for Remote Sensing by Satellite* 22:1 ANN. AIR & SPACE L. 451, 452 (1997).

[43] Principles, *supra* note 17, at princ. XII.

[44] Jakhu, *supra* note 42, at 452.

[45] Principles, *supra* note 17, at princ. XIV.

This is rather ambiguous since there are, at present, no norms of international law on state responsibility *for* remote sensing activities. The French text, to which the Russian version is similar, uses the phrase *en ce qui concerne* instead of "for", inferring that the provision relates to the applicability of the general principles of state responsibility to remote sensing activities.[46] As each of the texts is equally official in status, it is difficult to determine which interpretation provides the correct operation and approach of the provision.

These views have to be balanced with the specific circumstances in which the Principles were adopted, along with the terms of the Resolution itself. The Principles resolution was adopted without a vote by the General Assembly in 1986, as with most other space law principles.[47] However, some States nonetheless expressed serious reservations at some of the terms and provisions of the Principles, especially on the issue of the need for consent of the sensed States.[48] The continuing debate over the meaning of the terms "discrimination" and the "reasonable basis" for the supply of data lends further support to the view that the Principles, as a whole, cannot be considered to be evidence of existing principles of customary international law.

Although the whole of the Principles may not be considered to be the embodiment of customary international law, this does not prevent some of its provisions of the Principles, especially Principle IV, from having crystallised into custom. In my view, the fact that the resolution containing the Principles was adopted by consensus, with most of the reservations being made by States to advocate a further requirement of consent to the existing obligation of Principle IV, suggests that the require-

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[46] *See* Vladimir Kopal, *Principles Relating to Remote Sensing of the Earth From Outer Space: A Significant Outcome of International Cooperation in the Progressive Development of Space Law,* 30 PROC. COLL. L. OUTER SPACE 322 (1987).

[47] RESOLUTIONS ADOPTED BY THE GENERAL ASSEMBLY AT ITS 41ST SESSION, United Nations Dag Hammarskjöld Library, *at* http://www.un.org/Depts/dhl/res/resa41.htm (last visited on July 21, 2003).

[48] Even though formal consensus was reached, the speeches from various delegations at the final negotiations indicated that serious differences of opinion remained in the States' approaches to the issue. U.N.Doc. A/AC.105/SR.290 (1986); Venezuela (1986) U.N.Doc. A/SPC.41/SR.37 (1986) at 14; Turkey (1986) U.N.Doc. A/SPC.41/SR.38; and Algeria at 7.

ment of not undertaking remote sensing activities to the detriment of legitimate rights and interests of sensed States is one of virtually universal support and therefore has crystallised into customary international law. Similarly, the lack of express reservations or disputes over the operation and application of Principle XII may allow such a principle to be asserted to be a binding principle of custom as well.

B. Implications on Military Use of Remote Sensing

As discussed above, Article IV of the Outer Space Treaty poses no obstacles to the use of remote sensing for military purposes, especially when the use of satellite remote sensing is done to further the fulfilment of the requirements of a Security Council decision under Chapter VII of the Charter. The crucial factor in practice, therefore, in the determination of the legality of the military use of remote sensing is whether there is a contravention of Principle XII, assuming it has crystallised into customary law.

In an armed conflict, the sensing State is highly unlikely to make available any data collected from the remote sensing operation to the sensed State on a non-discriminatory basis and on reasonable cost terms. Therefore, this produces a *prima facie* breach of Principle XII of the Principles, which does not provide any exceptions in its application, unless there is a resolution of the Security Council authorising the denial of the remote sensing data to the sensed target State, even if it was merely through the reference to the use of "any means necessary" or phrases with like effect. This is because the obligations arising under the Charter would override any obligation imposed in customary international law (though not by the operation of Article 103 as it only applies to conflicts with treaties) unless it has attained the status of *jus cogens*.

XII. CONCLUSIONS

It is clear from the above analysis that the limiting provision of international law on the use of military force in outer space is not Article IV of the Outer Space Treaty but Chapter VII of the Charter as it is the case on Earth. In any event, the

scope and content of the prohibitions and limitations contained in Article IV of the Outer Space Treaty, when considered with the proper and literal interpretation, are quite narrow in nature.

In order to provide for a definitive *jus ad bellum* in space, it would be necessary to clarify the appropriate interpretation to be placed on the authority of the Security Council under Article 42 in regard to outer space. Such a clarification can be achieved only by the creation of a *jus cogens* principle on the prohibition of military force, or an amendment to the Charter to either expressly include or exclude the use of space forces under Article 42. Until either development takes place, however, one would have to be content with the thought that the intended prohibition of military use in space is far from being realised by the provisions of the Charter and the Outer Space Treaty.

Regardless of when the States would agree on the question of lawfulness, it nonetheless highlights the fact that there is an absence of appropriate enforcement measures for the space law instruments or the principles adopted by the General Assembly. Further, there are no adequate remedies available to States for any non-economic injury inflicted on them by any contravention of Principle XII of the Principles or the ITU Constitution and Convention. These issues should, among other issues and considerations, provide sufficient fuel for the codification of the law of military uses of services provided by satellite into a binding convention that most States would find acceptable.

INTERSPUTNIK INTERNATIONAL ORGANIZATION OF SPACE COMMUNICATIONS: AN OVERVIEW

*Victor S. Veshchunov and Victoria D. Stovboun**

I. INTERNATIONAL LEGAL STATUS[1]

The Intersputnik International Organization of Space Communications[2] was established in 1971, in accordance with the *Intergovernmental Agreement on the Establishment of the Intersputnik International System and Organization of Space Communications*[3]. It now also conforms to *the Protocol on Amendments to the Agreement on the Establishment of Intersputnik International System and Organization of Space Communications.*[4] Intersputnik is an international, intergovernmental organization headquartered in Moscow, Russia. Its international legal status is also regulated by the *Agreement on the Legal Capacity, Privileges and Immunities of Intersputnik*[5], and the *Agreement Between Intersputnik and the Government of the USSR Concerning the Settlement of Questions Relating to the Seat of the Intersputnik Organization in the USSR.*[6] The Russian Federation officially assumed all the rights and liabilities arising from these agreements through the Ministry of Foreign Affairs of Russia.[7] In compliance with the *Intersputnik Agree-*

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* Victor S. Veshchunov, Director, Intersputnik International and Legal Department and Victoria D. Stovboun, Lawyer, Intersputnik International and Legal Department

[1] Immediately following this article, the full texts of the following documents are reproduced: 1) Agreement on the Establishment of the INTERSPUTNIK International System and Organization of Space Communication; 2) PROTOCOL on the Amendments to the Agreement on the Establishment of the INTERSPUTNIK International System and Organization of Space Communications; and, 3) OPERATING AGREEMENT of the INTERSPUTNIK International Organization of Space Communications. These texts were provided by the authors.

[2] Hereinafter, referred to as Intersputnik.

[3] Hereinafter, referred to as Intersputnik Agreement (November 15, 1971).

[4] Hereinafter, referred to as the Protocol (November 4, 2002).

[5] September 20, 1976.

[6] September 15, 1977.

[7] Ministry's Note No. 837/UMNTS of December 28, 1991.

ment, Intersputnik is a legal entity with the right to execute contracts, acquire, lease and alienate property and to institute proceedings.

Initially, Intersputnik had nine member states. At present, the Governments of the following twenty-four countries are members: State of Afghanistan, Republic of Bulgaria, Republic of Belarus, Hungarian Republic, Socialist Republic of Vietnam, Federal Republic of Germany, Georgia, Republic of India, Yemen Republic, Korean People's Democratic Republic, Republic of Kazakhstan, Kirghiz Republic, Republic of Cuba, Lao People's Democratic Republic, Mongolia, Republic of Nicaragua, Republic of Poland, Romania, Russia, Syrian Arab Republic, Republic of Tajikistan, Turkmenistan, Ukraine and the Czech Republic. Consultations on possible accession are in progress with a number of countries including Uzbekistan, Iran and Azerbaijan.

Intersputnik was registered with the United Nations Organization on March 27, 1973.[8] Intersputnik has the official status of a permanent observer with the UN Committee for the Peaceful Uses of Outer Space; the International Telecommunication Union; and UNESCO. It also participates in the activities of these organizations. Intersputnik is a member of the Asia-Pacific Satellite Communications Council which is headquartered in Seoul; the Global VSAT Forum; and the non-profit partnership Telecom Forum in Moscow. Intersputnik maintains contacts and develops cooperation with other global, regional and private satellite communications organizations.

II. NEW CONSTRUCTIVE DOCUMENTS

The XXVth session of the Intersputnik Board, held November 1996, reviewed and approved the final version of the two new Intersputnik constructive documents, the *Protocol* and the *Operating Agreement of INTERSPUTNIK*.[9] The Board recommended that the Member countries of Intersputnik approve the

[8] No. 12343.

[9] Hereinafter, referred to as the Operating Agreement.

Protocol in compliance with their national legislative procedures.

Both the *Intersputnik Agreement* and the *Protocol* are intergovernmental agreements to be adopted and ratified by the Governments. Conversely, the *Operating Agreement* is an international, interdepartmental agreement whose Parties are telecommunications entities, irrespective of being public or private and/or Telecommunications Administrations appointed by the members of the Intelsat. The *Protocol* entered into force on November 4, 2002, after two-thirds of the members of Intelsat approved it.

Entry into force of the *Protocol* resulted two categories of members in Intersputnik: the first consisting of the members that ratified the *Protocol* and the second consisting of those that did not. Under Article 24 of the *Intersputnik Agreement* and paragraph 4(b) of the *Vienna Convention on the Law of International Treaties*, the effective amendments are binding only on those members that ratified the Protocol. Those that did not approve the *Protocol* will continue to abide by the 1971 version of the *Intersputnik Agreement* in their relations with other Intersputnik Members and among themselves.

One should note that the authors of the *Protocol* and the *Operating Agreement* considered the interconnection and simultaneous entry into force of these two documents to be important in order to avoid controversies and a legal vacuum arising from a significant gap in their entry into force. Both documents use the same definitions and complement each other. The interconnection between the *Protocol* and the *Operating Agreement* are illustrated by two facts. First, no state may continue to be, or become a Member of, Intersputnik unless a Signatory appointed by it also signs the *Operating Agreement*, and second, in the case of a Signatory withdrawing from Intersputnik, the relevant Member is also considered to withdraw from the *Operating Agreement* unless it appoints another Signatory. Both the *Protocol* and the *Operating Agreement* provide that each Signatory acquires the rights provided for Signatories in the Basic Agreement and in *Operating Agreement* and undertakes to fulfill the obligations placed upon it by the two documents. Both the Depositary of the *Protocol* (the Government of the Russian Federa-

tion represented by the Foreign Ministry) and that of the *Operating Agreement* (the Intersputnik Director General) are notified of the appointment and withdrawal of the Signatories.

The main changes introduced by the *Protocol* and the *Operating Agreement* in the Intersputnik structure and activities are as follows:

-along with the right of ownership of the space segment, Intersputnik may lease it not only from its Members, but from any country or legal entity;

-a new body of the Intersputnik, the Operations Committee, is set up for the purpose of prompt consideration and decision-making with regard to Intersputnik's activity and the structure of Intersputnik's administration and financing is changed respectively as will be shown below;

-an institute of Signatories – telecommunications entities and/or Telecommunications Administration appointed by Intersputnik Members - is introduced, providing that one Member may appoint several Signatories.

No reservations either to the *Protocol* or to the *Operating Agreement* are admissible. Any dispute regarding interpretation or execution of the *Operating Agreement* arising between Signatories or between Signatories and the Organization may be settled by award of an ad-hoc arbitration.

III. MANAGEMENT STRUCTURE

The governing body of Intersputnik is the Board. The Board's functions cover the outlining strategic goals and fulfillment of international legal functions. It is worth noting that the Board reviews and approves the Operations Committee's activity. Each Member country of Intersputnik has a representative on the Board. Each representative has one vote and equal rights. Regular sessions of the Board are held at least once a year. The Board seeks to make its decisions unanimously. However, if this is not achieved the decisions of the Board are considered adopted if the decision is approved by two thirds of all Members of the Board. Decisions approved shall be binding upon each Member of Intersputnik.

The Operations Committee has wide authority on decision-making related to Intersputnik's activity, providing for an open list of its functions. In particular, the Operations Committee examines and approves issues related to the construction, procurement or lease as well as operation of the space segment; approves plans for the development and improvement of the communications system of Intersputnik; approves its action plan for the next calendar year; makes decisions on *all* financial issues; supervises the activity of the Directorate; and approves amendments to the Operating Agreement and submits them to the Board for confirmation.

As for the financial issues the Operations Committee adopts Intersputnik's financing policy, examines and approves finance rules, annual budgets and annual finance reports, sets tariffs for the transmission of units of information or channel lease charges associated with the use of Intersputnik's communication satellites, and makes decisions on any other financial issues including investment shares and their redistribution. The Operations Committee determines the size of the Share Capital. In this connection one should note that unlike the original 1971 version of the *Intersputnik Agreement*, which contained only general conditions and the details were supposed to be formalized by a special protocol, the *Operating Agreement* provides for a detailed procedure of formation and usage of the Share Capital. In case a Signatory fails to fulfill its financial obligations in respect of the Organization, the Operations Committee has the right to suspend its rights both under the *Intersputnik Agreement* and the *Operating Agreement*. The Operations Committee is vested to elect the Chairperson and members of the Auditing Commission, and approve the working procedure and reports of this Commission.

The Operations Committee will be composed of seventeen members, with thirteen members representing a Signatory or a group of Signatories which have the greatest investment share in the Share Capital of the Organization. The other four members come from those Signatories which are not represented in the Committee in any other way and are elected by the Board irrespective of their investment share in order to observe the principle of fair geographic representation. Any Signatory that

is not a member of the Committee may participate in sessions of the Committee as an observer. The initial composition of the Operations Committee will be announced by the Intersputnik Board based on information presented to the Board by the Members. The composition of the Operations Committee will be defined further in accordance with the Rules of Procedure to be adopted by the Operations Committee.

Each member of the Committee shall have a weighted vote equal to the investment share or investment shares contributed to the Share Capital. The voting share of a member of the Committee may not exceed 25% of the total volume of weighted votes. Should the voting share of a member of the Committee exceed 25% of the total number of weighted votes, the surplus shall be distributed among the rest of the members of the Committee in proportion to their investment shares in the Share Capital. The Committee shall seek consensus in its decision making. Should it be impossible to achieve consensus decisions will be made by a qualified majority of votes or by a simple majority of votes, subject to the importance of the issue in question.

The permanent executive and administrative body of Intersputnik is the Directorate. The Directorate consists of the Director General, his Deputy and the required staff. The Director General, who acts on the principles of undivided authority, is the Chief Executive Officer of the Organization. In this capacity, the Director General represents the Organization in relations with competent authorities of the Members of the Organization in all matters relating to its activities, as well as in relations with states whose governments are not Members of the Organization and with international organizations, with whom the Board and the Operations Committee finds it necessary to cooperate. The Director General is responsible to the Board and the Operations Committee and acts within the scope of the authority conferred on him by the *Intersputnik Agreement* and the decisions of the Board and the Operations Committee.

Under the *Intersputnik Agreement*, the Organization's finances are controlled by the Auditing Commission. The Commission consists of three members elected by the Operating Committee for a term of three years from among the nationals of different states, whose governments are Members of the Or-

ganization. The Auditing Commission annually audits the financial and economic activity, as well as book-keeping of Intersputnik. Reports of the Auditing Commission are approved by the Operations Committee. Any recommendations of the Auditing Commission approved by the Operations Committee must be implemented by the Director General.

IV. PRIVILEGES AND IMMUNITIES

As an international, intergovernmental organization Intersputnik is granted a number of privileges and immunities. The entry into force of the *Protocol* and the *Operating Agreement* neither changed its international legal status nor was there a split of its public and commercial functions. Thus the new constructive documents do not affect any of Intersputnik's privileges and immunities

The Agreement on the Legal Capacity, Privileges and Immunities of Intersputnik provides for the following immunities and privileges for the Organization in the territories of all Intersputnik member countries:

> -The premises of Intersputnik are inviolable. The property, assets and documents of Intersputnik, wherever they may be, are immune from any form of administrative or judicial intervention except when the Intersputnik Board itself waives the immunity in a particular case.
>
> -Intersputnik is exempted from any direct dues and taxes, both national and local.
>
> -Intersputnik is exempted from customs duties and limitations on the import and export of articles for official use.

The *Agreement between Intersputnik and the Government of the USSR Concerning the Settlement of Questions Relating to the Seat of the Intersputnik Organization in the USSR*, defines general conditions of Intersputnik having its headquarters in Russia, including the granting of the above privileges and immunities. Since Intersputnik is headquartered in Moscow, this Agreement explicitly states that Intersputnik's financial activity

is not subject to control by federal or local authorities of the host country.

For the purpose of independent performance of their functions, a number of principal staff members of the Directorate, Representatives on the Board, members of relevant delegations and members of the Auditing Commission are granted a number of immunities and privileges, specifically:

-Immunity from personal arrest or detention.

-Inviolability of official correspondence and documents.

-Exemption from personal services and direct duties and taxes in respect of remuneration paid by the country that sent a Representative or member of a delegation, as well as in respect of the salaries paid by Intersputnik to the principal staff members who are not citizens of the Organization's host country.

These staff members also enjoy customs privileges with respect to personal luggage and personal belongings.

V. OPERATIONS

Intersputnik is one of the first global satellite operators with more than 30 years of experience in operations. It operates modern communications satellites providing coverage of most of the globe. Intersputnik also offers services on Russian-built Express-A-series satellites (Express-6A(80E), Express-3A(11W), Express-A1R(40E)) as well as on the LMI-1 satellite (75E) procured by the joint venture Lockheed Martin Intersputnik. Additionally, Intersputnik has agreements in place on cross-marketing with a number of international and Russian operators, allowing it to offer transponder capacities of Eutelsat, Europe*Star and Gazkom to potential clients.

Intersputnik leases satellite channels to provide telecommunication services, including analogue and digital video, audio broadcasting, voice, data and multimedia transmissions. Jointly with its partners Intersputnik also provides for supply and integration of ground equipment and its experts provide technical support to the clients of the Organization.

In addition to its traditional operator activity, Intersputnik is also successful in implementing new projects. It is developing the Intersputnik-100M project to establish a global fleet of small communications satellites. This project provides for the manufacture and GSO injection of small communications satellites. Each satellite will have from eight to 20 transponders, weigh 500 to 1000 kg and its payload will consume 1.0 to 2.5 kW. It is planned to use relatively inexpensive launch services by Russian converted missiles. The core of this program is to reduce the cost of the satellite and its launch thus cutting lease prices and expanding the circle of potential users, starting with those in the developing countries.

Under the Intersputnik-100M project, relatively inexpensive small communications satellites are going to be built both for Intersputnik itself and for the interested customers. The governments of a number of developing countries in Asia and Africa, with medium to low traffic requirements or inadequately developed telecommunications infrastructure and which would like to have their own space programs and independent satellite systems demonstrated interest in cooperating with Intersputnik.

Within the framework of this project, Intersputnik drafted and presented comprehensive technological and commercial proposals regarding such small satellites to competent government authorities of a number of countries. Advanced discussions are underway with respect to the purchase of a small satellite with some of these countries.

Jointly with Gilat Satcom Ltd., Intersputnik connects corporate customers and Internet providers to the Internet backbone, via dedicated satellite channels. Intersputnik places special emphasis on this service in the developing countries in Africa and Asia, where it has over 200 clients and the number is growing. Intersputnik offers this service to customers in Pakistan, Nigeria, Cameroon, Ghana, Madagascar, South Africa, Kenya, Zimbabwe, Ethiopia, Somalia, Mongolia, Vietnam, etc.

Intersputnik is implementing several projects to establish additional international satellite voice links with more than 100 operators, including those in a number of developing countries, via an earth station in Moscow serving as a transit facility. Such

voice traffic channels are operational between Moscow and Baku, Moscow and Tashkent and Moscow and Baghdad. Advanced discussions are in progress with a number of other national telecom operators.

AGREEMENT

ON THE ESTABLISHMENT OF THE "INTERSPUTNIK" INTERNATIONAL SYSTEM AND ORGANIZATION OF SPACE COMMUNICATIONS

The Contracting Parties,

recognizing the need to contribute to the strengthening and development of comprehensive economic, scientific, technical, cultural and other relations by communications as well as by radio and television broadcasting via satellites;

recognizing the utility of cooperation in theoretical and experimental research as well as in designing, establishing, operating and developing an international communications system via satellites;

in the interests of the development of international co-operation based on respect for the sovereignty and independence of states, equality and non-interference in the internal affairs as well as mutual assistance and mutual benefit;

in pursuance of the provisions of Resolution 1721 (XVI) of the United Nations General Assembly and the Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and other Celestial Bodies, of January 27,1967;

have agreed on the following:

ARTICLE 1

1. There shall be established an international system of communications via satellites.

2. To ensure cooperation and coordination of efforts in the design, establishment, operation and development of the com-

munications system the Contracting Parties set up the "INTERSPUTNIK" international organization, hereinafter referred to as the Organization.

ARTICLE 2

1. "INTERSPUTNIK" is an open international organization.

2. The Members of the Organization shall be the governments that have signed this Agreement and have deposited their instruments of ratification in accordance with Article 20 as well as the governments of other states that have acceded to this Agreement pursuant to Article 22.

ARTICLE 3

The seat of the Organization shall be in Moscow.

ARTICLE 4

1. The international system of communications via satellites shall include as its components:

   - a space segment comprising communications satellites with transponders, satellite-borne facilities and ground systems of control to ensure the normal functioning of the satellites;

   - earth stations mutually communicating via satellites.

2. The space segment shall be the property of the Organization or is leased from Members possessing such systems.

3. The earth stations shall be the property of states or recognized operating agencies.

4. The Members of the Organization shall have the right to include the earth stations which they have built into the communications system of the Organization provided these stations meet the Organization's specifications.

ARTICLE 5

The international communications system shall be established by the following stages:

- The stage of experimental work done by Members at their earth stations with the use of satellite communications channels made available to the Organization free of charge by the Union of Soviet Socialist Republics on its communications satellites. This stage shall cover the period until the end of 1973.

- The stage of work, involving the use of communications channels on Members' communications satellites on the basis of lease.

- The stage of commercial operation of the communications system with the use of the space segment owned by the Organization or rented from its Members. Transition to this stage will be effected when the establishment of the space segment owned by the Organization or its lease are considered economically advisable by the Contracting Parties.

ARTICLE 6

Communication satellites owned by the Organization shall be launched, put into orbit and operated in orbit by Members which possess appropriate facilities for this purpose on the basis of agreement between the Organization and such Members.

ARTICLE 7

The Organization shall coordinate its activities with the International Telecommunication Union and cooperate with other organizations concerned with the use of communications satellites both in technology (the use of the frequency spectrum, the applications of technical standards for communications channels and of equipment standards) and in international reglamentation.

ARTICLE 8

The Organization shall be a legal entity and shall be entitled to conclude contracts, acquire, lease and alienate property and to institute proceedings.

ARTICLE 9

1. It shall enjoy in the territory of the states whose governments are Members of the Organization the legal capacity necessary for the attainment of its goals and the performance of its functions. The scope of this legal capacity shall be determined by appropriate agreements with the competent authorities of the states in whose territory it carries out its activities.

2. The legislation of the states in whose territory the Organization carries out its activities shall apply to all matters not covered by the present Agreement or by agreements referred to in paragraph I of this Article.

ARTICLE 10

1. The Organization shall be liable with respect to its obligations within the limits of the property which it owns.

2. The Organization shall not be liable with respect to the obligations of the Contracting Parties, nor the Contracting Parties shall be liable with respect to the obligations of the Organization.

ARTICLE 11

1. The following bodies shall be established to govern the activities of the Organization:

   - the Board - a governing body;
   - the Directorate - a permanent executive and administrative body - headed by the Director-General.

The time for the establishment of the Directorate and the beginning of its activities shall be determined by the Board.

2. Prior to the beginning of the Directorate's activities the functions of the Director General in representing the Organization set forth in paragraph 2 of Article 13 shall be performed by the Chairman of the Board.

3. The Auditing Commission shall be established to supervise the financial activities of the Organization.

4. The Board may also set up auxiliary bodies required for the attainment of the goals of this Agreement.

ARTICLE 12

1. The Board shall be composed of one representative from each Member of the Organization.

2. Each Member of the Organization shall have one vote in the Board.

3. The Board shall hold its regular sessions at least once a year. An extraordinary session may be held at the request of any Member of the Organization or the Director General if no less than one third of the Members of the Organization favour its convocation.

4. The sessions of the Board shall be held, as a rule, at the seat of the Organization. The Board may decide to hold sessions in the territories of other states whose governments are Members of the Organization at the invitation of these Members.

   Prior to the beginning of the Directorate's activities the Board shall meet in succession in the states whose governments are Members of the Organization in the alphabetic order of their names in the Russian language. In this case

the costs of holding such sessions are borne by the host Members of the Organization.

5. Chairmanship at the sessions of the Board shall be rotated among the Members of the Organization in the alphabetic order of their names in the Russian language. The representative of the Member next in the alphabet shall be deputy chairman. The chairman and his deputy shall remain in office until the next regular session of the Board.

6. The Board shall be competent to deal with matters covered by this Agreement. The Board shall:

   6.1. examine and approve measures for establishing, acquiring or leasing and operating the space segment;

   6.2. approve plans for the development and improvement of the Organization's communications system;

   6.3. determine specifications for the Organization's

   6.4. examine and approve the programme of putting into orbit the Organization's communications satellites;

   6.5. approve the plan for the distribution of the communications channels among the Members of the Organization as well as the procedure and conditions for the utilization of the communications channels by other users;

   6.6. determine specifications for the earth stations;

   6.7. determine whether the earth stations offered for inclusion into the communications system of the Organization meet the specifications;

   6.8. elect the Director General and his deputy and supervise the activities of the Directorate;

6.9. elect the chairman and members of the Auditing Commission and approve the procedure for the work of the Commission;

6.10. approve the structure and staff of the Directorate as well as the Directorate's Staff Regulations;

6.11. approve the plan of the activities of the Organization for the coming calendar year;

6.12. examine and approve the budget of the Organization and the report on its execution as well as the Organization's balance sheet and distribution of profit;

6.13. examine and approve annual reports of the Director General on the activities of the Directorate;

6.14. approve the report of the Auditing Commission;

6.15. take note of the official statements of the governments wishing to accede to the Agreement;

6.16. determine the procedure and the dates for the payment of proportional contributions as well as readjust the contribution shares in accordance with paragraph 5 of Article 15;

6.17. set the rates for transmitting a unit of information or the lease cost of the Organization's satellites communications channel;

6.18. consider proposals for amendments to this Agreement and submit them to the Contracting Parties for approval as provided for in Article 24;

6.19. adopt its own rules of procedure;

6.20. examine and decide on other matters arising from this Agreement.

7. The Board should seek unanimity in adopting its decisions. If this is not achieved, the decisions of the Board shall be considered adopted if no less than two thirds of all Members of the Board vote for them. The decisions of the Board will not be binding on those members who did not favour their adoption and submitted their reservations in writing; however, such Members may later associate themselves with the decisions.

8. In performing its functions set forth in paragraph 6 of this Article the Board shall act within the resources determined by the Contracting Parties.

9. The first session of the Board shall be convened by the government of the state where the seat of the Organization is situated not later than three months after the entry into force of this Agreement.

ARTICLE 13

1. The Directorate shall consist of the Director General, his deputy and the required staff.

2. The Director General who acts on the principles of undivided authority shall be the chief executive of the Organization and in this capacity shall represent it in relations with the competent authorities of the Members of the Organization in all matters relating to its activities, as well as in relations with states whose governments are not Members of the Organization and with international organizations with which the Board finds it necessary to cooperate.
3. The Director General shall be responsible to the Board and shall act within the scope of the authority conferred on him by this Agreement and the decisions of the Board.

4. The Director General shall perform the following functions:

   4.1. ensures the implementation of the Board's decisions;

4.2. negotiates with the communications authorities, design agencies and industrial enterprises of the Members of the Organization on the questions of designing the entire system and of designing, manufacturing and delivering the satellite-borne equipment elements and units for the Organization's communications satellites;

4.3. negotiates on the questions of launching communications satellites for the Organization;

4.4. concludes on behalf of the Board and within the authority determined by the Board international and other agreements;

4.5. draws up the budget estimates for the forthcoming fiscal year, submits them to the Board for approval and reports to the Board on the execution of the budget for the past financial year;

4.6. prepares for submission to the Board the report on the Directorate's activities for the past year;

4.7. draws up plans for the Organization's activities as well as for the development and improvement of the communications system and submits them to the Board for approval;

4.8. ensures the preparation, convocation and holding of the sessions of the Board.

5. The Director General and his deputy shall be elected from among the nationals of the states whose governments are Members of the Organization for a period of four years. The Deputy Director General may be elected, as a rule, for one term only. The Director General and his deputy shall not be citizens of the same state.

6. The staff of the Directorate shall be composed of nationals of the states whose governments are Members of the Organization with due regard for their professional qualifications and the equitable geographical representation.

ARTICLE 14

1. The Auditing Commission shall consist of three members elected for a period of three years from among the nationals of different states whose governments are Members of the Organization. The chairman and a member of the Auditing Commission shall not hold any office in the Organization.

2. The Director General shall make available to the Auditing Commission all material and documents required for auditing.

3. The report of the Auditing Commission shall be submitted to the Board of the Organization.

ARTICLE 15

1. A statutory fund (fixed and current assets) shall be established to finance the activities of the Organization. The decision on the establishment and the size of the statutory fund shall be taken by the Contracting Parties on the basis of the recommendation of the Board and shall be formalized by a special protocol. The amount of the proportional contributions of the Members of the Organization to the statutory fund shall be fixed in proportion to the extent to which they use the communications channels.

2. If in the process of the improvement of the communications system a necessity to increase the statutory fund is revealed, the sum of additional contributions shall be apportioned among the Members of the Organization who have given their consent to such an increase.

3. The contributions of the Members of the Organization to the statutory fund shall be used to meet the following expenses of the Organization:

   3.1. for research, design and experimental work relating to space segment and the earth stations;

   3.2. for design, construction, acquisition or lease of the space segment;

   3.3. for launching and putting into orbit communications satellites of the Organization;

   3.4. for other purposes in connection with the activities of the Organization.

4. Prior to the establishment of the statutory fund the Organization shall conduct its activities on the basis of a special budget drawn up for each calendar year. The expenses envisaged in the budget for the maintenance of the staff of the Directorate, the holding of the Board's sessions and other administrative activities shall be met by the Members of the Organization in proportions fixed by the Contracting Parties on the recommendation of the Board and formalized by a special protocol.

5. Upon the admission of new Members to the Organization or in the case of the withdrawal from the Organization, the share of contributions of each remaining Member shall be changed accordingly.

6. The currency in which contributions are paid to the statutory fund and the Organization budget shall be determined by the Contracting Parties on the recommendation of the Board.

7. The Organization shall charge 3 per cent annually for sums which Members have failed to pay by the date fixed.

8. If a Member of the Organization fails to meet its financial obligations within one year the Board will decide on a partial or complete suspension of its rights arising from membership in the Organization.

9. The profits derived from the operation of the communications system shall be shared by the Members of the Organization in proportion to the amount of their contributions. The Members may decide to use the profits to increase the statutory fund or to set up some special funds.

10. The expenses for the maintenance of participants in conferences and meetings convened in connection with the implementation of the goals of the Organization, including the sessions of the Board, shall be met by the Contracting Parties represented on such conferences and meetings.

ARTICLE 16

1. The Organization shall operate the space segment making communications channels available to its Members and other users in accordance with the provisions of this Agreement.

2. The communications channels at the disposal of the Organization shall be distributed among the Members of the Organization on the basis of their needs for channels. Communications channels which are in excess of aggregate requirements of all Members of the Organization may be leased to other users.

3. Payment for the communications channels made available shall be charged according to rates established by the Board. The rates shall be fixed at the average world level calculated in gold francs.

   The payment for communications services shall be made in a manner determined by the Board.

ARTICLE 17

1. Any of the Contracting Parties may denounce this Agreement by notice in writing to that effect given to the Depositary Government.

   The denunciation of the Agreement by such Contracting Party takes effect upon the termination of the financial year during which a period of one year expires from the date of notification of the Depositary Government of the denunciation. Such Contracting Party shall pay within the period fixed by the Board the sum of contributions due for the financial year in which the denunciation becomes effective and shall also carry out all other financial obligations assumed.

2. The amount of the monetary compensation due to the Contracting Party which has denounced the Agreement shall be determined by the Board in accordance with the sum of contributions paid by that Contracting Party to the statutory fund of the Organization with due regard to physical and moral depreciation of the fixed assets. The monetary compensation shall be paid following the approval by the Board of the budget report for the financial year during which the denunciation takes effect.

ARTICLE 18

1. This Agreement may be terminated with the consent of all the Contracting Parties.

   The termination of the Agreement amounts to the dissolution of the Organization.

   The procedure for the dissolution of the Organization shall be determined by the Board.

2. In the event of the dissolution of the Organization its fixed assets shall be realized and the Members of the Organiza-

tion shall be paid monetary compensation according to their participation in capital expenditure for the establishment of the communications system with due regard to physical and moral depreciation of the fixed assets. The available current assets, with the exception of the part intended to meet the obligations of the Organization shall be distributed among the Members of the Organization in proportion to the monetary contributions actually paid as of the date when the Organization was dissolved.

ARTICLE 19

The languages of the Organization shall be English, French Russian, and Spanish.

The extent to which language is used shall be determined by the Board depending on the actual requirements of the Organization.

ARTICLE 20

1. This Agreement is open for signing until the 31st December, 1972 in Moscow.

   The Agreement shall be subject to ratification. Instruments of ratification shall be deposited with the Government of the USSR which is designated the Depositary Government of this Agreement.

ARTICLE 21

The Agreement shall enter into force on the deposit of six instruments of ratification.

ARTICLE 22

1. The government of any state which did not sign this Agreement may accede to it. In that case the government shall submit to the Board of the Organization a formal statement to the effect that it shares the goals and principles of the ac-

tivities of the Organization and assumes the obligations under this Agreement.

2. Instruments of accession to the Agreement shall be deposited with the Depositary Government.

ARTICLE 23

For governments whose instruments of ratification or accession are deposited subsequent to the entry into force of this Agreement, it shall enter into force on the date of the deposit of the above instruments.

ARTICLE 24

Amendments to this Agreement shall come into force for each Contracting Party accepting the amendments upon their approval by two thirds of the Contracting Parties. An amendment which has come into force shall be binding on the other Contracting Parties after their acceptance of such amendment.

ARTICLE 25

1. The Depositary Government of the Agreement shall inform all Contracting Parties of the date of each signature of the date of deposit of each instrument of ratification and accession, of the date of the entry into force of the Agreement and of all other notices it has received.

2. This Agreement shall be registered by the Depositary Government pursuant to Article 102 of the Charter of the United Nations.

ARTICLE 26

This Agreement, the English, French, Russian and Spanish texts of which are equally authentic, shall be deposited in the archives of the Depositary Government. Duly certified copies of the Agreement shall be transmitted by the Depositary Government to the Contracting Parties.

In witness whereof the undersigned, duly authorized, have signed this Agreement.

Done in Moscow on the 15th of November 1971.

PROTOCOL

ON THE AMENDMENTS TO THE AGREEMENT ON THE ESTABLISHMENT OF THE INTERSPUTNIK INTERNATIONAL SYSTEM AND ORGANIZATION OF SPACE COMMUNICATIONS

The Contracting Parties,

proceeding from the purposes and objectives of the INTERSPUTNIK International Organization of Space Communications;

recognizing the need to improve the legal basis of the activity of the INTERSPUTNIK International Organization of Space Communications and

noting INTERSPUTNIK's transition to commercial operation of the satellite communications system managed by INTERSPUTNIK;

have agreed to insert the following amendments and revisions to the Agreement dated November 15, 1971 on the Establishment of the INTERSPUTNIK International System and Organization of Space Communications (hereinafter referred to as the Agreement):

Article 1

Modify Article 1 of the Agreement as follows:

1. Include the following subparagraph in paragraph 2: "INTERSPUTNIK is an open international organization".

2. Add new paragraphs 3 and 4:

"3. For the purpose of this Agreement

"Member of the Organization" means a Government for which this Agreement has become effective;

"Operating Agreement" means the Operating Agreement of the INTERSPUTNIK International Organization of Space Communications;

"Signatory" means a telecommunications entity and/or Telecommunications Administration appointed by a Member of the Organization under Article 2 hereof, for which the Operating Agreement has become effective;

"Space segment of the Organization" means communication satellites with transponders, satellite-borne systems and ground control facilities providing normal operation of the satellites and owned or leased by the Organization;

"Share Capital" means the Organization's own capital formed by the Signatories to support the activity of the Organization.

"Property of the Organization" means anything that irrespective of its nature can be the subject of a right of ownership, inclusive contracting and other rights, revenues and interests.

4. According to the provisions hereof, there shall be concluded the Operating Agreement.

Article 2

Modify Article 2 of the Agreement as follows:

1. Exclude paragraphs 1 and 2

2. Include the following new paragraphs:

"1. Each Member of the Organization shall appoint a Signatory under its jurisdiction to sign the Operating Agreement. A

single Member of the Organization may appoint several Signatories.

2. A Member of the Organization shall notify in writing the Depositaries of this Agreement and the Operating Agreement of the Signatory or Signatories appointed by it.

3. The relations between the Member of the Organization and the Signatory shall be governed by appropriate national laws. The Member of the Organization shall give reqisite directives to the Signatory in compliance with national laws.

4. A Member of the Organization shall not be liable for any obligations of Signatories."

Article 3

Add to Article 3 of the Agreement:

"If recommended by the Operations Committee, the Board may decide to relocate the Organization's headquarters to one of the member-countries."

Article 4

Replace in paragraph 2, Article 4 of the Agreement:

"...from Members of the Organization possessing such systems" with "by the Organization".

Article 5

Replace in the first phrase of subparagraph 3, Article 5 of the Agreement:

"...from its members" with "by the Organization".

Article 6

Change Article 6 of the Agreement as follows:

"Communications satellites owned by the Organization shall be launched, positioned in orbit and controlled by the Members of the Organization having appropriate facilities or by other contractors on the basis of relevant agreements."

Article 7

Replace in paragraph 2, Article 10:

"Contracting Parties, nor the Contracting Parties shall be liable with respect to the obligations of the Organization" with "Members of the Organization and similarly the Members of the Organization shall not be liable for the Organization's obligations".

Article 8

Change Article 11 of the Agreement as follows:

1. Replace in paragraph 1: "govern" with "perform".

2. Paragraph 1: add a new hyphen between the hyphens "Board" and "Directorate":

   "the Operations Committee - a body of the Organization for immediate examination of and decision-making on different issues related to the Organization's activity."

3. Exclude the last subparagraph from paragraph 1.

4. Exclude paragraph 2.

5. Change the wording of paragraph 4 as follows: "The Board and the Operations Committee may, within the framework of their competence, establish auxiliary bodies required for the attainment of the goals of this Agreement and the Operating Agreement".

6. Modify paragraph 5:

"5. The meetings of the Organization's bodies may be held not only in the territories of the Members of the Organization but in any other place found most conducive by the Organization for its activity."

Article 9

Modify Article 12 of the Agreement:

1. Paragraph 3: add the words "the Operations Committee" after "any Member of the Organization."

2. Exclude second subparagraph from paragraph 4.

3. Word paragraph 6 as follows:

"6. The Board shall be competent to

6.1. make decisions on the Organizations's general policy and long-term goals including regulation of and non-discriminative access to the space segment;

6.2. supervise performance hereunder and under the Operating Agreement;

6.3. ensure that the Organization's activity complies with the purposes and principles of the UN Charter as well as provisions of any other international agreement binding on the Organization by its decision;

6.4. make decisions on the Operations Committee's recommendations;

6.5. review and approve annual reports of the Operations Committee on its activity;

6.6. review and approve annual reports of the Director General on the activity of the Organization;

6.7. approve its own rules of procedure;

6.8. define geographic regions, from which an adequate number of members of the Operations Committee shall be elected from each region on the basis of fair geographic representation, and

6.9. make decisions on issues related to the Organization's official relations with states, both Members and non-Members, and with international organizations;

6.10. make decisions on any amendments hereto or to the Operating Agreement;

4. Redraft paragraph 7 as follows: "The Board shall seek unanimity in approving its decisions. If this is not achieved, the decisions of the Board shall be considered adopted if voted for by no less than two thirds of the attending and voting Members of the Organization. Decisions approved shall be binding upon each Member of the Organization.

A decision shall not be binding upon any Member of the Organization if this Member does not agree to this decision and as a direct consequence withdraws from the Organization.

Any decision on the changes regarding the existing structure or major goals of the Organization may be approved only by common consent of the Members of the Organization. To determine whether the Board's decision results in the change of the structure or major goals of the Organization, the procedure set forth in the first subparagraph of paragraph 7 of this Article shall be applied."

5. Delete paragraph 9.

Article 10

Add new Article 12[bis]:

"Article 12[bis]

1. The Operations Committee is the body of the Organization set up for the purpose of prompt consideration and decision-making with regard to the Organization's activity.

   Any Signatory may be a member of the Committee.

2. The Operations Committee shall

   2.1. examine and approve issues related to the construction, procurement or lease as well as operation of the space segment;

   2.2. approve plans for the development and improvement of the communications system of the Organization;

   2.3. define specifications for the Organization's communication satellites;

   2.4. examine and approve in-orbit delivery programmes for the Organization's communication satellites;

   2.5. approve plans of communication channels allocation to the Members of the Organization and Signatories as well as the criteria applicable to the use of the Organization's space segment by other users including the procedure of authorizing such use;

   2.6. define specifications for earth stations; establish the procedure of clearing an earth station for access;

   2.7. determine whether an earth station intended for access to the Organization's communications system meets the specifications;

   2.8. if necessary, establish within the framework of its competence auxiliary bodies and hold specialized meetings;

2.9. approve the structure and staff table of the Directorate as well as the regulatory documents of the Directorate;

2.10. approve the Organization's action plan for the next calendar year;

2.11. adopt the Organization's financing policy, examine and approve finance rules, annual budgets and annual financial reports, fix tariffs for the transmission of units of information or channel lease charges associated with the use of the Organization's communication satellites as well as make decisions on any other financial issues including investment shares and their redistribution;

2.12. determine the size of the Share Capital;

2.13. make decisions to approach national or international banking institutions for credits as well as define the terms and conditions of external financing from other sources;

2.14. examine and approve reports of the Director General on the activity of the Organization;

2.15. elect the Chairperson and members of the Auditing Commission, approve the working procedure and reports of this Commission;

2.16. approve amendments to the Operating Agreement and submit them to the Board for confirmation;

2.17. annually submit to the Board reports on its activity;

2.18. appoint an arbitrator when the Organization is involved in arbitration;

2.19. lay down and pursue the Organization's policy of intellectual and industrial property protection in relation to

inventions or technological information created as a result of the Organization's activity or under contracts with the Organization;

2.20. supervise the activity of the Directorate;

2.21. approve its own rules of procedure;

2.22. perform any other functions under any other Article of this Agreement or the Operating Agreement as well as any other functions required for the attainment of the Organization's purposes."

Article 11

Change Article 13 of the Agreement as follows:

1. Delete in paragraph 2:

   "Who acts on the principles of undivided authority".

2. Word paragraph 3 as follows:

   "The Director General shall be responsible to the Board and the Operations Committee and shall act within the scope of his/her authority, and in this activity is guided by decisions of the Board and the Operations Committee."

3. Number subparagraphs of paragraph 4 as follows: 4.1., 4.2., 4.3. . . . and modify them:

   a) Add to subparagraph 1: ".....and the Operations Committee's";

   b) Remove from subparagraph 2:
   "with the telecommunications administrations, design agencies and industrial enterprises of the Members of the Organization."

c) Subparagraph 4:
add "on behalf of the Organization" after "negotiates"

d) Change in subparagraphs 5 and 7: "Board" to "Operations Committee" respectively.

e) Add to subparagraph 6: "and the Operations Committee" after "the Board"; replace "the Directorate's" with "the Organization's".

f) Add to subparagraph 8: ".....and the Operations Committee and their auxiliary bodies".

4. Add to paragraph 5:

"The Director General is jointly elected by the Board and the Operations Committee that may if necessary recall him from his post."

5. Change paragraph 6 as follows:

"The staff of the Directorate shall be composed of nationals of the states whose governments are Members of the Organization with due regard for their professional qualifications and the equitable geographical representation, and if necessary in exceptional cases of the nationals of the states whose governments are non-members of the Organization."

Article 12

Change Article 14 of the Agreement as follows:

1. Paragraph 1: change "Board" to "Operations Committee".

2. Paragraph 3: change "submitted to the Board" to "approved by the Operations Committee".

Article 13

Word Article 15 of the Agreement as follows:

"1. A Share Capital shall be established out of Signatories' contributions to support the activities of the Organization.

2. Investment shares in the share capital shall be appropriated to meet the following expenses of the Organization to the extent insomuch as the operating receipts are insufficient for this purpose:

   a) Research and development costs related to the space segment and terrestrial communication satellite control system.

   b) Costs for the designing, construction, procurement or leasing of the space segment and terrestrial communication satellite control systems.

   c) Costs for the launch and in-orbit delivery of the Organization's communication satellites.

   d) Other costs associated with the Organization's activity."

Article 14

Change Article 16 of the Agreement as follows:

1. Paragraph 1: change "Members of the Organization" to "Signatories".

2. Paragraph 2: change "Members of the Organization" to "Signatories".

3. Word paragraph 3: Payment for communications channels made available shall be charged according to rates established by the Operations Committee.

Article 15

Change the wording of Article 17 as follows:

"1. Any Member of the Organization or Signatory may voluntarily at any time withdraw from the Organization by notice in writing to that effect given to the Depositary. Upon withdrawal of a Signatory from the Organization, corresponding notice to that effect shall be given by the Member of the Organization that appointed this Signatory.

The withdrawal of a Member of the Organization shall entail simultaneous withdrawal of any Signatory appointed by this Member.

2. Upon receipt, by the Depositary, of the withdrawal notice, the Member of the Organization that gave such notice and any Signatory appointed by it or a Signatory whose withdrawal is notified shall forfeit the right of representation and the right of vote in any body of the Organization and may not assume any obligations after the date of receipt of such notice. However, upon withdrawal of any Signatory both the Organization and the Signatory shall remain liable for financial settlements. For any Member of the Organization and/or Signatory said withdrawal shall become effective, and this Agreement and/or Operating Agreement invalid upon expiry of three months as from the date of receipt, by the Depositary, of written notice as set forth in paragraph 1.

3. Whenever a Signatory withdraws from the Organization, the Member of the Organization that appointed that Signatory shall, before the effective date of withdrawal, appoint a new Signatory as from this date or withdraw from the Organization. If a Member of the Organization fails to take said measures before that date, it shall be considered to cease to be a Member as from the aforesaid date.

4. If for whatever reason a Member of the Organization wishes to appoint a new Signatory, such Member of the Organization shall give the Depositary written notice to that effect. The Operating Agreement shall become effective for the new

Signatory and invalid for the former Signatory as soon as the new Signatory assumes the obligations that its predecessor failed to meet and signs the Operating Agreement."

Article 16

Modify Article 18 of the Agreement as follows:

1. Replace in the first subparagraph of paragraph 1:

"Contracting Parties" with "Members of the Organization".

Add to the third subparagraph of paragraph 1:

"on the basis of recommendations submitted to it by the Operations Committee" after "the Board".

2. Change the wording of paragraph 2, Article 18 as follows:

"2. In the event of the dissolution of the Organization any receipts resulting from the sale of its property shall be paid after the Organization meets all its obligations to the Signatories according to their shares in the Organization's Share Capital."

Article 17

Add new paragraphs 3 and 4 to Article 22 of the Agreement:

"3. No state may continue to be or become a Member of the Organization unless any Signatory appointed by it signs the Operating Agreement."

"4. No reservations hereto and to the Operating Agreement shall be admissible".

Article 18

Change the wording of Article 24 as follows:

"1. Any Member of the Organization may propose amendments to this Agreement. Proposed text of amendments shall be forwarded to the Directorate which shall within three months upon receipt ask the Members of the Organization and its Signatories for comments and circulate such comments.

The Operations Committee shall examine and approve a recommendation concerning a given amendment at its next meeting but in no way earlier than after the expiry of a three-month period as from the date of circulation.

2. After a given amendment is examined by the Operations Committee it shall be reviewed at the next session of the Board of the Organization. If the Board approves the amendment it shall take effect as from the date of receipt by the Depositary of the last of the acceptance notices from two thirds of the Members of the Organization. An amendment which has come into force shall be binding on all Members of the Organization."

Article 19

1. This Protocol shall be accepted by each Member of the Organization according to its internal procedures. Notices of acceptance of this Protocol shall be forwarded to the Depositary of the Agreement.

2. This Protocol shall take effect as from the date of receipt by the Depositary of notices mentioned in paragraph 1 of this Article from two thirds of those governments that will be the Members of the Organization as at the date of acceptance of the text of the Protocol.

3. This Protocol becomes binding on any Member of the Organization that accepts this Protocol after it takes effect as from the date when such Member of the Organization gives corresponding notice to the Depositary.

4. Members of the Organization may declare that they accept the provisional application of the Agreement on the Establishment of the INTERSPUTNIK System and Organization of Space Communications as amended by the Protocol with corresponding notice to the Depositary.

5. For any Member of the Organization that supported the acceptance of the text of this Protocol or gave notice to the Depositary as set forth in paragraph 4 hereof, provisions of the Agreement establishing rules other than those arising out of this Protocol shall be suspended together with the Protocol of November 26, 1982 to the Agreement as from the day of the acceptance of the text of this Protocol or the date of notice by such Member to the Depositary of this Protocol.

6. No reservations to this Protocol are admissible.

Article 20

1. The Depositary of this Protocol, which shall be the Depositary of the Agreement, shall notify all the Members of the Organization of the date of each acceptance, deposition of any instruments of accession, this Protocol's entry into force or any other notices received.

2. This Protocol whose Russian, English, Spanish and French versions are equally authentic shall be deposited in the archives of the Depositary. Duly certified copies hereof shall be forwarded by the Depositary to the Members of the Organization.

OPERATING AGREEMENT

OF THE INTERSPUTNIK INTERNATIONAL ORGANIZATION OF SPACE COMMUNICATIONS

The Parties to this Agreement,

considering INTERSPUTNIK's transition to commercial operation of the satellite communications system managed by INTERSPUTNIK,

seeking further improvement and development of the activity of the INTERSPUTNIK International Organization of Space Communications,

in pursuance of the provisions of the Agreement on the Establishment of the INTERSPUTNIK International System and Organization of Space Communications of November 15, 1971 modified on the basis of the Protocol on amendments to that Agreement of November 4, 2002,

have agreed on the following:

ARTICLE I

DEFINITIONS

1. For the purpose of this Agreement:

   1) "Basic Agreement" means the Agreement on the Establishment of the INTERSPUTNIK International System and Organization of Space Communications signed on November 15, 1971 and amendments thereof;

   2) "Committee" means the Operations Committee of the INTERSPUTNIK International Organization of Space Communications established in accordance with the provisions of Article 11 of the Basic Agreement;

3) "Member of the Committee" means a Signatory to this Operating Agreement representing in the Committee one or several Members of the Organization or Signatories or a group of Signatories formed in accordance with Article 4 of this Agreement;

4) "Investment share" means the aggregate contribution of a Signatory paid to the Share Capital with Article 7 of this Agreement, which is expressed in per cent or as a certain amount;

5) "Voting share or weighted vote" means the vote expressed as a share corresponding to the value of the investment share in the Share Capital.

6) "duly licensed entity" - means a state or private entity which has a licence granted in accordance with national legislation and/or international agreements or the right to perform activities connected with the Organization's satellite capacity utilization; the national legislation means the legislation of a country in whose territory the above activity is performed or whose territory is the subject of this activity.

2. The definitions in Article 1 of the Basic Agreement shall apply to this Operating Agreement.

ARTICLE 2

RIGHTS AND OBLIGATIONS

1. Each Signatory acquires the rights provided for Signatories in the Basic Agreement and in this Operating Agreement and undertakes to fulfill the obligations placed upon it by those two documents.

2. Each Signatory shall act in accordance with all the provisions of the Basic Agreement and this Operating Agreement.

ARTICLE 3

OPERATIONS COMMITTEE

1. The Committee is the body of the Organization set up for the purpose of prompt consideration and decision making with regard to the Organization's activity within the terms of reference stipulated in Article 12 of the Basic Agreement.

2. Any Signatory as defined in paragraph 3 may be a Member of the Committee.

3. The Committee shall be composed of 17 members of the Committee including:

   a) 13 members of the Committee each one representing a Signatory or group of Signatories which have the greatest investment share in the Share Capital of the Organization; the group representation in the Committee shall be defined in the Committee's rules of procedure according to paragraph 9, Article 4 hereof.

   The initial composition of the Operations Committee shall be announced by the INTERSPUTNIK Board. To this end, the Signatories shall, prior to the effective date hereof but not later than 3 months before the next session of the Board, inform the Board of their shares in the Share Capital for the current year and, if applicable, of any group representation.

   Investment shares of the Signatories shall be revised annually and, if necessary, the membership of the Operations Committee shall be changed.

   b) 4 members of the Committee from those Signatories which are not represented in the Committee in any other way and elected by the Board irrespective of their investment share in order to observe the principle of fair geographic representation. Any Signatory elected

member of the Committee to represent a certain geographic region shall represent each Signatory of the given geographic region that is not represented in the Committee in any other manner and which agrees to this type of representation.

4. The Board shall determine geographic regions to be represented in the Committee according to paragraph 3 b).

5. Each member of the Committee shall have a weighted vote equal to the investment share or investment shares contributed to the Share Capital by the Signatory or group of Signatories represented by it. The voting share of a member of the Committee may not exceed 25 per cent of the total number of weighted votes. Should the voting share of a member of the Committee exceed 25 per cent of the total number of weighted votes, the surplus shall be distributed among the rest of the members of the Committee in proportion to their investment shares in the Share Capital.

6. The aggregate voting share of several Committee members appointed by a single Member of the Organization may not exceed 25 per cent of the total number of weighted votes. If the aggregate voting share of several Committee members appointed by a single Member of the Organization exceeds 25 per cent, the surplus shall be distributed among the rest of the Committee members in proportion to their investment shares in the Share Capital. If the aggregate voting share of several Committee members appointed by a single Member of the Organization exceeds 25 per cent, this Member of the Organization shall determine the proportion of voting share reduction for these Committee members.

7. Each Committee member shall appoint its representative and deputy representatives in the Committee and shall give written notice to that effect to the Director General of the Organization no later than before the next session of the Committee. In extraordinary cases the Committee member

shall appoint its provisional representative to participate in a single session.

Decisive votes at sessions of the Committee shall belong only to a given representative or, in his absence, to one of the deputy representatives.

8. The decisions of the Committee on the matters covered by its terms of reference in accordance with Article 12[bis] of the Basic Agreement shall be binding upon all the Signatories hereto.

9. The Director General shall submit to every session of the Committee a report on the current activity and financial status of the Organization.

10. The Committee shall seek consensus in its decision making. Should it be impossible to achieve consensus decisions shall be made as follows:

10.1. On matters of substance - by a qualified majority of votes as set forth in clause 6 of Article 4 of this Agreement.

10.2. On motions of order - by a simple majority of votes at set forth in clause 7 of Article 4 of this Agreement.

10.3. Decisions on the status of the matters under discussion shall be taken by a simple majority of votes as set forth in clause 7 of Article 4 of this Agreement.

ARTICLE 4

WORKING PRINCIPLES OF THE OPERATIONS COMMITTEE

1. The Committee shall hold at least two sessions per year, as a rule, in the host country of the Organization. Any Committee member may invite the Committee to conduct a session

in the territory of its country. In this case the Committee member shall bear expenses for the organization of the session.

An extraordinary session of the Committee may be convened at a Committee member's or the Director General's request provided that at least 4 Committee members are in favour of its convocation.

2. Any Signatory which is not a member of the Committee may participate in sessions of the Committee as an observer.

3. The Committee shall elect its Chairman and his Deputy from among its members for a term of 1 year. They may be re-elected for another term.

4. The quorum at the meeting of the Committee shall be made up of at least half plus one of its members appointed according to Article 4 of this Agreement with an aggregate voting share of at least 2/3 of the total number of weighted votes of all the members of the Committee.

5. The voting share of a member of the Committee shall be determined on the basis of the investment share of a single Signatory represented by it or investment shares of several Signatories or groups of Signatories represented by it contributed to the Share Capital as set forth in Article 6 of this Agreement.

6. A decision shall be considered to have been made by a qualified majority if voted for by at least 1/2 of the attending and voting members of the Operations Committee whose aggregate voting share is at least 2/3 of the total number of weighted votes of all the members of the Committee.

7. A decision shall be considered to have been made by a simple majority if voted for by a half plus one of the attending and voting members of the Committee. Each member of the Committee shall have one vote.

8. In extraordinary cases the Committee may take decisions without convening a session. In these cases the procedure of decision-making shall be fixed by the Committee in its Rules of Procedure.

9. The Operation Committee shall approve its Rules of Procedure.

ARTICLE 5

ESTABLISHMENT OF THE SHARE CAPITAL

1. The size of the Share Capital shall be fixed by the Committee.

2. If, in the course of the Organization's activities and improvement of the space communications system, it is deemed necessary to increase the Share Capital, it may be increased by the decision of the Committee in accordance with Article 6 of this Agreement. The size of the increase in the Share Capital shall be reflected in the finance plan and the balance sheet of the Organization. The debt to Share Capital ratio shall be determined by the Committee. Any debts receivable and credits related to the Share Capital shall be expressed in US$.

ARTICLE 6

FORMATION PROCEDURE OF THE SHARE CAPITAL

1. The Share Capital shall be made up of investment shares of the Signatories. The investment shares shall consist of:

   1) a mandatory minimum investment share;

   2) a mandatory investment share proportional to the extent to which the space segment is used;

   3) an additional mandatory investment share;

4) a voluntary investment share.

The proportion of the utilization of these sources shall be defined by the Committee.

2. The mandatory minimum investment share shall be equal to 1 per cent of the Share Capital and if necessary may be revised by the decision of the Committee whenever required by the Organization.

3. The mandatory investment shares of the Signatories shall be annually reviewed not later than on the 31st of December according to the extent to which they used the space segment within a year from November 1 of the preceding year under review to October 31 and also upon entry of new Signatories into or withdrawal from the Organization or termination of membership.

The fiscal year shall coincide with the calendar year.

The extent to which a Signatory uses the space segment is a percentage of the overall use of the space segment by all Signatories. The use of the space segment is measured by the value of receipts to be paid to the Organization according to the rates fixed for space segment utilization.

4. Should it be necessary to augment the Share Capital, an additional mandatory investment share shall be contributed according to the investment shares of the Signatories in the Share Capital in per cent.

5. In the case of entry of a new Signatory into or withdrawal from the Organization or termination of membership the investment shares of all other Signatories shall be changed in the proportion corresponding to their investment share before this change. The difference between the initial and the newly fixed investment share shall be reimbursed by the Organization to the Signatories or by the Signatories to the Organization.

ARTICLE 7

CONTRIBUTION OF INVESTMENT SHARES TO THE SHARE CAPITAL

1. Investment shares under clause 1, Article 6 hereof, may be contributed using:

   1) financial funds;

   2) if agreed by the Committee, material values, services and other resources stipulated by additional agreements between the Committee and the Signatories. The monetary value of contributed materials, services or other resources shall be determined on the basis of assessments by independent valuers.

   Shares shall be contributed to the Share Capital in a freely convertible currency to be selected by the Committee.

2. The size of the investment share, including contributed material values, services and other resources, shall be calculated as a certain amount in freely convertible currency which is selected by the Committee.

3. The mandatory investment share contributed to the Share Capital in proportion to which the space segment is used shall be paid by December 31 of the year preceding a fiscal year. All other investment shares shall be contributed according to a schedule fixed by the Committee.

4. Investment shares shall be contributed to the Share Capital only by the Signatories.

5. A penalty annually fixed by the Committee shall be charged for any overdue payment of shares taking into account internationally accepted rates.

ARTICLE 8

PROCEDURE OF TRANSFER OF INVESTMENT SHARES IN THE SHARE CAPITAL

1. The Committee may, at the request of a Signatory, reduce its investment share as compared with the share fixed for it in compliance with Article 6 of this Agreement provided that other Signatories which agree to increase their investment shares voluntarily and fully assume to recover the difference. In this case the voting share of the Signatory that buys a part of another Signatory's investment share in the Share Capital shall increase as set forth in Article 3 of this Agreement.

2. The procedure of the transfer of a part of an investment share shall be fixed by the Committee.

3. The minimum mandatory investment share shall not be subject to any transfer.

ARTICLE 9

TARIFFS

1. Space segment capacity shall be allocated for any telecommunications service according to tariffs fixed by the Committee in freely convertible currency. These tariffs should provide returns to the Organization sufficient to cover all costs resulting from its activities and to make profit.

2. The principles of the tariff policy shall be revised by the Committee at least once every two years depending on world telecommunications market fluctuations and according to the progress in upgrading the space and terrestrial segments.

3. Tariffs for each service shall normally be the same for all users of the space segment. However, in certain cases, the Committee may grant discounts.

4. Should there occur any default of or delay in payment due to the Organization for space segment utilization, the Committee shall, in accordance with recognized international practice, fix an interest rate to be charged for any overdue payment as well as apply other sanctions to be stipulated in each contract for the use of the Organization's space segment.

ARTICLE 10

USE OF RETURNS AND DISTRIBUTION OF PROFITS

1. Financial activities of the Organization shall be based on annual finance plans approved by the Committee. The financial results of the Organization's activities shall be determined on the basis of annual reports of accounts.

2. Any returns received by the Organization as a result of its activities shall, by the decision of the Committee, be used within the limits of their size for covering the expenses made to ensure the Organization's activities and provided for in the finance plan.

   They shall be used to cover the following priorities:

   a) charges for the lease, operation and maintenance of the space segment;

   b) any operation asks considered to be necessary by the Committee;

   c) dividends to the Signatories in proportion to their contributions to the Share Capital.

3. Any profits made by the Organization shall be distributed among the Signatories in proportion to their investment shares in the Share Capital.

4. If the returns received by the Organization do not cover the expenses under paragraph 2, the deficit may be offset using reserves of the Organization and/or additional mandatory investment shares and/or credits obtained according to Article 12 of this Agreement.

5. Financial activities of the Organization shall be audited by an Auditing Commission formed according to Article 13 of the Basic Agreement.

6. Account keeping in the Organization shall be performed according to the accounting standards approved by the International Accounting Standards Committee, London.

   The Committee shall use a recognized external auditor to inspect the financial activities of the Organization. The results of this audit shall be submitted to the Committee with a notification to each Signatory.

ARTICLE 11

UPGRADING OF SPACE SEGMENT

1. To develop the Organization's satellite system, the Committee shall stick to the policy of upgrading the space segment as defined in Article 4 of the Basic Agreement. Their modernization shall include the purchase or lease of necessary systems, subsystems, units, components, equipment, technologies and services with further utilization in relation to the space segment. The Committee shall announce open international tenders for this purchase or lease. The criterion to announce a specific tender and to determine the winner in this tender shall be defined by the Committee in a separate document on the basis of the principle of optimum combination of the offered quality, price and terms of delivery.

2. The Committee may decide to refrain from open international tenders for any purchase or lease aimed at any modernization whenever:

a) the estimated contract value is less than US$ 100,000;

b) any purchase or lease are caused by an urgent need in exceptional circumstances;

c) there is only one supplier who meets the specifications required by the Organization.

ARTICLE 12

USE OF EXTERNAL FINANCING

The Organization may, by the decision of the Committee, use external financing sources. These sources may be credits in relevant national or international banking institutions or other sources of external investments. The terms and conditions of external financing shall be subject to an individual agreement between the Organization and a banking instution or lender providing for the return, by the Organization, of externally invested funds and adequate dividends.

The Director General shall be authorized to conclude the above agreements unless their value is below the amount defined by the Committee; should this value exceed the amount defined by the Committee the Director General shall conclude appropriate agreements with the Committee's consent.

The reasons for using external financing and financial conditions shall be reported to the Board.

ARTICLE 13

INTERNATIONAL TELECOMMUNICATION UNION NOTIFICATION

1. The Committee may request any Member of the Organization to instruct the Telecommunications Administration under its jurisdiction to provide, jointly with the Organization, the international legal protection of the Organization's planned satellite networks.

2. In notifying the Organization's planned satellite networks with the International Telecommunication Union, the Telecommunications Administration shall be guided by the Procedures of International Telecommunication Union Notification of the Organization's Planned Satellite Networks and their International Legal Protection approved by the Committee.

3. The cooperation between the Organization and the notifying Telecommunications Administration shall be regulated by special agreements between the Organization and the Telecommunications Administration and/or an entity (entities) duly authorized by it.

ARTICLE 14

PERMISSION FOR EARTH STATIONS

1. To use the Organization's space segment, any earth station shall obtain permission from the Organization. The Committee shall determine the procedure of submitting applications to obtain permission, as well as the criteria and priorities in giving this permission.

2. A Signatory or any other duly licensed entity shall submit an application to obtain permission for the earth stations under their jurisdiction.

3. Each applicant, as defined in paragraph 2, shall be liable in relation to the earth stations covered by the request, observance by these stations of specifications determined according to paragraph 26 of Article 12[bis] of the Basic Agreement and other operating conditions approved by the Organization.

ARTICLE 15

UTILIZATION OF THE ORGANIZATION'S SPACE SEGMENT

1. Any request for the Organization's space segment capacity shall be submitted to the Organization by the Signatories or any other duly licensed entity.

2. The Committee shall determine the criteria to use the Organization's space segment and the order of priority in granting permission to use the space segment without rejecting the principle of direct access.

3. Each Signatory or duly licensed entity that have obtained permission to use the Organization's space segment shall bear responsibility for the observance of all the terms and conditions defined by the Organization in relation to this use.

ARTICLE 16

LIABILITIES

1. The liability of the Signatories related to the Organization's obligations shall be limited to the size of their investment shares in the Share Capital.

2. Should, as a result of settlement coordinated with or approved by the Committee or in accordance with a decision of a competent court, the Organization be required to pay a claim resulting from any action committed by the Organization or from any obligation assumed and implemented by the Organization in conformity or in connection with the Basic Agreement or this Operating Agreement, the Signatories shall, unless this claim is satisfied by payment, insurance or any other financial measures, pay to the Organization the uncovered amount of the claim in proportion to their investment shares as at the date of the claim.

3. Should any Signatory, as a result of settlement coordinated with or approved by the Committee or in accordance with a decision of a competent court, be required to pay a claim resulting from any action committed by the Organization or from any obligation assumed and implemented by the Organization in conformity or in connection with the Basic Agreement or this Operating Agreement, the Organization shall reimburse to it the amount paid under the claim.

4. If, in compliance with this Article, the Organization is to effect reimbursement in favour of its Signatory and if such reimbursement is not covered by payments, insurance or any other financial measures, the Signatories shall pay to the Organization the uncovered amount of the reimbursement in proportion to their investment shares as at the effective date of liability.

5. Neither the Organization nor any Signatory shall be liable to any Signatory or the Organization for any loss or damage occurred due to absence, delay in or bad quality of telecommunications which is provided or is to be provided according to the Basic Agreement and this Agreement.

6. Any contracts for or agreements on satellite communication services between the Organization and third parties should provide for a mechanism of responsibility of these parties for eventual losses that may appear in the process of doing business with the Organization.

ARTICLE 17

DISPUTES

1. Any disputes regarding interpretation or execution of this Agreement arising between Signatories or between Signatories and the Organization shall be settled by way of consultations between the disputing parties. Should a dispute remain unsettled within six months after any disputing party presents its request to settle it and should the disputing par-

ties fail to reach an agreement on any other procedure to settle the dispute, it may be submitted, by any party to the arbitration court according to the procedure provided for in the Annex to this Agreement which shall be an integral part hereof.

2. Any disputes between the Organization and any Signatory in relation to special agreements or contracts between them shall be settled according to the dispute settlement procedure provided for in these agreements and contracts. Should no procedure be provided for and should the Organization and any Signatory fail to settle a dispute relating to special agreements or contracts in any other way, it may be submitted, to the arbitration court according to the procedure provided for in the Annex to this Agreement.

3. Any Signatory that withdraws from the Organization shall continue to be bound by this Article with regard to the disputes concerning the rights and obligations resulting from the fact that it has been a Member of the Organization.

ARTICLE 18

AMENDMENTS

1. Any Member of the Organization or any Signatory may propose an amendment to this Agreement. The proposed amendments shall be submitted to the Directorate which shall enquire all the Signatories and circulate their opinions within 3 months upon receipt of the amendment. The Committee shall consider and approve the amendments at the next meeting but not earlier than 3 months upon their circulation. The amendments shall be deemed approved if voted for by a qualified majority of the Members of the Committee according to Article 4 of this Agreement.

2. After the amendment is approved by the Committee, it shall be considered at the next session of the Board of the Organization. If the Board confirms the decision of the Committee

to approve the amendment, it shall enter into force and shall be binding on all the Signatories.

ARTICLE 19

SUSPENSION OF RIGHTS AND TERMINATION OF MEMBERSHIP

1. Should any Signatory fail to fulfill any obligation under the Basic Agreement or this Operating Agreement other than the obligation provided for by paragraph 1 of Article 6 of this Operating Agreement and should this obligation remain unfulfilled within three months after the Committee notifies the Signatory on such default on obligations the Committee may suspend the rights of this Signatory. If the Committee confirms the fact of default on obligations after additional three months the Board may, by a recommendation of the Committee, make a decision to terminate the membership of the Signatory to the Operating Agreement which shall come into force as from the moment of its approval by the Board. In this case this Agreement shall cease to be valid for the Signatory.

2. Should any Signatory fail to pay a due amount according to para 1 of Article 6 of this Agreement within six months of the date of payment the rights of the Signatory under the Basic Agreement and this Operating Agreement shall be suspended. If the Signatory fails to pay a due amount within additional six months the Committee may take a decision to terminate the membership of the Signatory which comes into force as from the moment of its approval by the Committee. In this case this Agreement shall cease to be valid for the Signatory.

3. In the period of suspension of the Signatory's rights according to paragraphs 1 and 2 the Signatory shall continue to be under all its obligations under the Basic Agreement and this Operating Agreement.

4. A Signatory shall not assume any obligations after its membership is terminated. However, it shall not be released from the obligation to repay its debt to the Organization and from liabilities arising out of the actions taken before the termination of membership as well as obligations under Articles 16 and 17 of this Agreement.

ARTICLE 20

SETTLEMENT OF FINANCIAL MATTERS WHILE WITHDRAWING FROM THE ORGANIZATION OR TERMINATING MEMBERSHIP

1. The Committee shall, within three months upon the date of a Signatory's withdrawal from the Organization or termination of its membership according to Article 17 of the Basic Agreement and Article 19 of this Operating Agreement, notify the Signatory of the evaluation of the Signatory's financial status in respect of the Organization made by the Committee as at the date of the Signatory's withdrawal from the Organization or termination of its membership. This notification shall include the amount due by the Organization to the Signatory and the amount to be paid by the Signatory to the Organization as at the actual date of the withdrawal from the Organization or termination of membership including the amount being the Signatory's investment share in the Share Capital provided that the Committee took a decision that this amount should be paid before the notification concerning the Signatory's decision on the withdrawal from the Organization is received or before the date of terminating membership.

2. The Committee may decide to fully or partially release a Signatory from the obligation to contribute its investment share to the Share Capital if the decision to contribute it was taken by the Committee before the Signatory's notification to withdraw from the Organization is received or before the date of terminating its membership in the Organization as well as release it from the responsibility arising out of the

actions taken before the reception of the notification or date of terminating membership in the Organization.

ARTICLE 21

DEPOSITARY

1. The Director General of the INTERSPUTNIK International Organization of Space Communications shall be the Depositary of this Agreement.

2. The Depositary shall immediately inform the Members of the Organization and the Signatories of

   1) any signing of this Agreement;

   2) entry into force of this Agreement;

   3) the approval of any amendment to this Agreement and its entry into force;

   4) any notification of the withdrawal from the Organization;

   5) any suspension or termination of membership;

   6) any other notification or information relating to this Agreement.

3. Upon entry into force of this Agreement, the Depositary shall forward certified copies of the text of this Agreement to all the Members of the Organization and Signatories as well as send a certified copy to the Secretary General of the United Nations Organization for registration and publication according to Article 102 of the Charter of the United Nations Organization.

ARTICLE 22

ENTRY INTO FORCE

1. This Agreement shall be open for signing by the Signatories within three months after the Protocol on Amendments to the Basic Agreement takes effect. As soon as this three-month period expires provisions of paragraph 3, Article 21 shall become effective.

2. The provisions of this Agreement shall be applied provisionally by all the Signatories that signed it as from the date of signing this Agreement until it enters into force.

3. This Operating Agreement shall remain in force as long as the Basic Agreement is in force and shall cease to be in force simultaneously with it.

4. No reservations are admitted to this Agreement.

In WITNESS WHEREOF the undersigned, duly authorized representatives, have signed this Operating Agreement.

Done in one copy in the Russian, English, Spanish, German and French languages, all the texts being equally authentic. In the case of any descrepancies among the various language versions of this Agreement the Russian version shall prevail.

ANNEX

TO THE OPERATING AGREEMENT

Arbitration

1. Each Signatory shall, at least within 60 days after this Agreement is put into force, inform the Committee of two candidatures of legal experts who could act as arbitrators. On the basis of the proposed candidatures the Committee shall draw up a corresponding list and circulate it to each Signatory. In nominating the arbitrators according to paragraphs 3 and 4 the disputing parties shall be guided by this list. Should any expert included in the list be unable to act as an arbitrator for whatever reason another candidature from the list shall be proposed instead.

2. The party which applies to arbitration shall open the procedure by notifying another party hereof and the Directorate.

3. The arbitrators shall neither be citizens of the disputing countries, nor permanent residents of one of these countries, nor be contracted by them.

4. Either disputing party shall nominate an arbitrator within three months upon receipt of notifications regarding the requested arbitration.

5. Should there be more than two disputing parties either group of parties having common interests in the dispute shall nominate an arbitrator according to the procedure set forth in paragraphs 3 and 4.

6. The nominated two arbitrators shall agree upon the nomination of a third arbitrator who must meet the conditions stipulated in para 3 and besides be of a different nationality. Should the two arbitrators fail to come to an agreement in respect of the nomination of the third arbitrator either of the

former arbitrators shall nominate the third arbitrator who by no means will have any interest in the dispute. In this case the Director General shall choose the third arbitrator by drawing lots.

7. The arbitrators shall, at their own discretion, fix the procedure to stick to.

8. The decision of arbitration shall meet provisions of the Basic Agreement and this Operating Agreement as well as all other legal acts of the Organization which are approved as at the date when the dispute arises.

9. The decision taken by the majority of arbitrators' votes shall be final and binding upon the parties.

10. Either party shall pay its expenses connected with the investigation and arbitration. The arbitration costs in excess of those paid by the parties themselves shall be divided in equal shares between the disputing parties.

11. The Organization shall provide any data on the dispute that may be required by the arbitrators.

COMMENTARY

THE GENERATIONAL – TECHNOLOGICAL GAP IN AIR AND SPACE LAW - A COMMENTARY

Gbenga Oduntan[*]

I. INTRODUCTION

It has long been realised that much of western law, including international law, has developed in response to requirements of western business and civilisation.[2] Although there is generally a conspiracy of silence over this fact it occasionally receives recognition by eminent jurists and has even been expressed by judges on the bench of the of the International Court of Justice.[3] Any serious inquiry into this particular issue would

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[*] Ph.D (Law); Lecturer in Law, Canterbury Christ Church University College Canterbury; Sessional Lecturer, International Law, Constitutional and Administrative Law - Kent Law School, University of Kent at Canterbury; Legal Adviser to the Nigerian Government and Member, Nigerian/Cameroon Mixed Sub-Commission on the Demarcation of the Boundary between Nigeria and Cameroon. Address: Department of Applied Social Sciences, Canterbury Campus, Canterbury Christ Church University College, North Holmes Road, Canterbury, Kent CT1 1QU, United Kingdom Tel: (Secretary) +44 (0)1227 782406, Fax: +44 (0)1843 280700 (Thanet campus) E-mail: O.T.Oduntan@cant.ac.uk. This commentary sketches and reflects on the conclusions to the author's Ph.D. thesis titled *Sovereignty & Jurisdiction in the Airspace & Outer Space: Legal Criteria for Spatial Delimitation*, submitted at the University of Kent (2002).

[2] O.J.Lissitzyn, *International Law in a Divided World*, INT'L CONCILIATION (March 1963) at 37.

[3] Judge Amman in the *Barcelona Traction* Case noted that "...certain customs of wide scope became incorporated into positive law when in fact they were the work of five or six powers" Barcelona Traction (Belgium v. Spain), 1958 I.C.J. 308. For wider perspectives of this issue, *see* the following: WADE MANSELL ET AL., A CRITICAL INTRODUCTION TO LAW 1-27 *et passim* (1995); P. SINHA SURYA, LEGAL POLYCENTRICITY AND INTERNATIONAL LAW (1996); N'ZATIOULA GROVOGUSI SIBA, SOVEREIGNS, QUASI SOVEREIGNS AND AFRICANS: RACE SELF DETERMINATION IN INTERNATIONAL LAW (1996).

reveal certain indications that this is a reality even in the fields of air and space law. There are indeed numerous instances in the law and practice of airspace and outer space activities, which arguably constitute evidence of bias in legal development. Certain advantages have been secured and retained up till the present by the leading technological and political powers with respect to the contents of both bodies of law and it is envisaged that in the near future, some of these will inevitably constitute grounds for severe tensions as well as political and legal conflicts between the few space powers that exist and the newer generation of developing States. This article comments on some of the main areas of controversy that divide developed and developing States regarding the existing state and future direction of air and space law.

II. IDEOLOGICAL INTERESTS AND ACADEMIC OPINION IN AIR AND SPACE LAW

Probably the first issue to note is the vacillation of leading Western scholars on a number of issues that are of central importance in air and space law, presumably in response to perceived national or regional interests. A few examples will suffice here. Regarding the never-ending dispute as to boundary between airspace and outer space, the leading Western authors on the topics would appear to have supported two or more of the schools of thought and have indeed frequently changed their opinions presumably in line with nationalistic expectations. Thus, a writer like Bin Cheng wrote in 1960 that although spatial demarcation was hitherto unimportant in air law it had matured by that date into "one of the first and most important problems to be tackled in law".[4] Whereas, shortly afterwards in 1962 the same author stated that he would prefer that the mat-

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As one writer puts it, "a major research theme that unites this diverse anti-colonial intellectual tradition is its primary focus on arguing about the limits within which the newly independent nations of Africa would embrace an international law that was Eurocentric in its geographic origin." James Thuo Gathii, *Review Essay: International Law and Eurocentricity: Introduction*, 9 EUROPEAN JOURNAL OF INTERNATIONAL LAW 184, 187 (1997).

[4] Bin Cheng, *From Air law to Space Law*, 13 CURRENT LEGAL PROBLEMS 230 (1960).

ter be left to scientists to solve at a future date.[5] Similarly, Russian writers and legal representatives who, prior to the collapse of the Union of Soviet Socialist Republics, vehemently championed the cause of a speedy resolution of the boundary issue have very recently made a complete turn around on the matter.[6] The newly adopted Russian position is it that it would be prudent to continue to operate within the current framework until practical or legal problems arose that would demonstrate a need for such a definition and delimitation.[7] This arguably is a reflection of the close interests Russia now shares with a few other States in the exclusive club of space powers that have traditionally insisted that there is no need to address the issue in line with the wishes of many other States as it might needlessly affect outer space travel and commercial space exploration.

Another example of a learned authority rapidly changing intellectual direction, presumably in line with national or regional interest, is when Professor Cooper, one of the earliest legal commentators in this area of study, recanted quite significantly on positions he had held at the drafting stage of the Chicago Convention On International Civil Aviation (1944).[8] At the committee meetings and in an article in 1950, he considered that the definition of "State aircraft" is already contained in Article 3 (b) of the Chicago Convention (1944) and is based on a functional approach. In other words, the function for which the aircraft is designed is the crucial factor in determining its status as a military or police aircraft. Later in 1962 during a session of the ICAO legal committee that was held in relation to adoption

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[5] BIN CHENG, THE LAW OF INTERNATIONAL AIR TRANSPORT 121 (1962).

[6] The Union of Soviet Socialist Republics in 1987 suggested in a working paper to the United Nations Committee on Peaceful Uses of Outer Space (COPUOS) that 110 km above sea level should be the demarcation point between airspace and outer space. The reaction of the United Sates to this proposal was that that there is no real usefulness to the various proposals to establish a boundary. This is because the region is devoid of physically observable landmarks and most countries are not capable of accurately determining the altitude of space objects and, therefore, have no way to monitor any agreed altitude boundary. *See* COPUOS, UN Doc A/AC.105/C2/SR.316, paras. 1-7 (1987); *see also* COPUOS, UN Doc A/AC.105/C.2/7/Add.1, para.42, p.15 (1987).

[7] See Report of the 41st Session of the COPUOS Legal Subcommittee, Vienna, 2-12 April 2002 by Peter Van Fenema, *The Unidroit Space Protocol*, XXVII ANNALS OF AIR AND SPACE LAW 273-274 (2002).

[8] Also known as the Chicago Convention, 15 UNTS 295; UKTS 8 (1953).

of the Convention on Offences and Certain Other Acts Committed on Board Aircraft (1963), he denied that the definition in Article 3 (b) was restrictive and stated that other aircraft could also be State aircraft.[9] This shift in opinion may be explained as arising from the need of Western lawyers to reflect emerging threats from newer States that may not have clearly established air forces. Indeed many such States were perceived in that era to be already under the influence of the Soviet bloc and the prospect of allowing confusion to shroud certain aircraft that may be used for hostile operations even though they are not owned by regular forces was unpalatable to the Western States that already enjoyed military superiority in the air.

Ideological posturing of this nature may be said to account for much of the contribution of many authors in this area of legal studies. Writers from the Western developed States would appear to repudiate any position, which might impede the development of free market principles in air and space law. Therefore, their contributions are predominantly in favour of facilitating Western business in air and space activity. On the other hand, it is probably true to say that when it comes to matters of international resource control, writers from the developing States would also appear to instinctively adopt certain intellectual positions that favour common ownership and control. In this way it becomes difficult to conceptualise a consensus on many important issues in air and space law, just as was the case in respect of older legal regimes such as those governing the deep-sea bed and Antarctica. In fact, a closer inspection of some issues on which there appears to be consensus in all these areas would reveal that the prevailing position at any point in time is usually no more than the views of regional or ideological bedfellows who have successfully dominated international diplomacy on the issue.[10]

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[9] *See* J.C Cooper, *National Status of Aircraft* 17 J. AIR L. & COM. 292, 309 (1950). *Cf.* Coopers Comments at the session of the ICAO Legal Committee, which was held in relation to the subsequent adoption of the 1962 Tokyo Convention. 1 ICAO Doc. 8111/LC-146 at 36. *See further* Jiri Hornik, *Article 3 of the Chicago Convention*, XXVII ANNALS OF AIR AND SPACE LAW 173-174 (2002).

[10] The Antarctic Treaty 1959, for instance, was concluded before nearly half of the existing States attained independence, and the existing regime is quite exclusive. In

A second problem relates to the dearth of contribution from authors from developing States on most of the burning questions in air and space law. The bulk of their contributions are discernible only after combing through reports of various legal committees of ICAO or other relevant fora within the UN, such as the UN Committee on Peaceful Uses of Outer Space (COPUOS).[11] This may, however, prove an insufficient method of shaping air and space law considering the general suspicion in legal and political circles that many of the representatives who appear before such bodies are mere political appointees without the necessary legal expertise or experience on the highly technical matters dealt with by such bodies. This is a serious issue because most of the problems of air and space law are of such a nature that they concern all States and peoples. Additionally, no State can exist without airspace and an adjoining outer space. The fact that space law has so far developed based on respect for the "common heritage of mankind" and "province of mankind" principles also shows that there is much wisdom in collective adherence to the truth reflected in the Latin saying, "*Caveat humana dominandi, quod omnes tangit ab omnes ap-*

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order to become a consultative Party and, thus, acquire considerable decision-making powers under the treaty, a State must demonstrate an interest in Antarctica "by conducting substantial scientific research activity there" (Article IX Antarctic Treaty 1959 12 UST 794, 402 UNTS 71.). This is arguably a reflection of the intent of the early "discoverers", mostly European Nations, to establish hegemony over this important area of the world. Thus, developing States have long been challenging the Antarctic Treaty in the United Nations and other international fora. By the time of the completion of the third UN Convention on the Law of the Sea (UNCLOS III ILM 1245 (1982)) in 1982, the number of newly independent nations had increased dramatically. Not surprisingly, therefore, it was incorporated in Article 136 of the Law of the Sea Convention that, "the Area and its resources are the common heritage of mankind". However, due to massive diplomatic onslaught from many Western States, particularly the United States, which refused to ratify UNCLOS III, there have been drastic changes in the form of the Implementation Agreement of 1994 (*See* 33 ILM, 1994, p.1309) that amount to a complete turnaround on the initial regime for exploitation contained in the 1982 Convention.

[11] Set up by the General Assembly in 1959 (resolution 1472 (XIV)) to review the scope of international cooperation in peaceful uses of outer space, to devise programmes in this field to be undertaken under United Nations auspices, to encourage continued research and the dissemination of information on outer space matters, and to study legal problems arising from the exploration of outer space.

probatur." That is to say, what concerns all must be approved by all.[12]

III. CONCRETISING DOMINANCE IN THE FIELD OF AIR LAW

Those States which made the first steps towards developing the rules of air law since 1913[13] had a unique opportunity to consider at length the legal, security and political ramifications of the development of air flight at a time when most of today's States were no more than colonies and vassal States. The inclu-

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[12] Both the "common heritage" principle and the "province of all mankind" principle address space as a global commons and the rights of space actors within it. However, the "common heritage" principle is not contained in the Outer Space Treaty (Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies, Jan. 27, 1967, 18 U.S.T. 2410, T.I.A.S. 6347, 610 U.N.T.S. 205 (effective Oct. 10,1967)), it is only contained in the Moon Treaty (Agreement Governing the Activities of States on the Moon and Other Celestial Bodies, U.N. GAOR, 34th Sess. (1979), Supp. No. 20 (Doc. A/34/20)). In addition, only the "province of mankind" principle is contained in the Outer Space Treaty. The "common heritage" and "province of mankind" principles are two different, distinct legal principles and cannot be used interchangeably. Boris Maiorsky, *A Few Reflections on the Meaning and the Interrelation of 'Province of All Mankind' and 'Common Heritage of Mankind' Notions*, PROCEEDINGS OF THE 29TH COLLOQUIUM ON THE LAW OF OUTER SPACE, 1986, 58 - 61.

[13] In 1913, France and Germany signed the first treaty on air law in the form of the Franco-German exchange of notes of 1913, which established sovereignty over the airspace primarily between both countries. In 1784 when the Montgolfier Brothers succeeded in constructing a balloon, which could take human beings up into the air and bring them back again, the law responded swiftly. On the occasion of the first ascent, on 23 April 1784 a police order was issued in Paris defining in precise terms the conditions under which balloon flights could take place. The stated objective was the protection of the civil populace. In 1889, the first International Congress of Aeronautics was held in Paris on the occasion of the International Exposition with the participation of Brazil, the United States of America (USA), France, Mexico, The United Kingdom (UK) and Russia. The following year in 1890, there was another International Congress of Aeronautics. In 1900, Fauchille, in an address to the Institute of International Law recommended that an International Air Code should be drawn up, and in 1902, he presented a set of regulations consisting of thirty-two articles to the Institute of International Law which met in Brussels. Later developments include the 1911 and 1913 Aerial Navigation Acts of the U.K, which instituted prohibited security zones along the British coasts. In 1912, Russia hurriedly proclaimed an absolute prohibition to overfly its Western frontiers. Upon the commencement of the First World War in 1914, Switzerland swiftly prohibited flights into its airspace by foreign aircraft (4 April). By November 1914, the U.S forbade overflight of the Panama Canal. Sweden, in 1916, also prohibited entrance of foreign aircraft. *See* Wybo P. Heere, *Problems of Jurisdiction in Air and Outer Space*, XXIV ANNALS OF AIR AND SPACE LAW 70-71 (1999); *see also* MODESTO SEARA VAZQUEZ, COSMIC INTERNATIONAL LAW 29 (1965).

sion of colonies in the legal definition of national territory over which airspace sovereignty was granted in the major multilateral air treaties since the Convention relating to the Regulation of Air Navigation of October 13 1919[14] stands as one of the best testimonies of the role of public international law in the legitimisation of colonial spoils. As in 1943 when the grant of complete and exclusive jurisdiction in the airspace was included in the drafting of Article 1 of the Chicago Convention (1944),[15] only Liberia was an independent State in Africa. Thus, not surprisingly, Article 2 stated uncompromisingly that "the territory of a State shall be deemed to be the land areas and territorial waters adjacent thereto under the sovereignty, suzerainty, protection or mandate of such State". It is, therefore, arguable that the general provisions of that Convention and the privileges exchanged in the Chicago Air Transit and Air Transport Agreements of 1944 were designed to facilitate the business of airspace activities for the richer States that possessed the necessary political and economic independence, flight instrumentalities and navigational infrastructure.[16]

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[14] Also known as the Paris Convention of 1919. Article 1 states, "the territory of a State shall be understood as including the national territory, both that of the mother country and of the colonies, and the territorial waters adjacent thereto". 271 LNTS 174; *see also* HUDSON, INTERNATIONAL LEGISLATIONS 359 (1989).

[15] *Supra* note 8. Article 1 of the Chicago Convention 1944 reads, "The contracting States recognize that every State has complete and exclusive sovereignty over the airspace above its territory".

[16] The Chicago International Air Services Transit Agreement 1944 (171 UNTS 387; UKTS 8) (1953) and the Chicago International Air Transport Agreement 1944 (171 UNTS 387; 148 BFSP 1). Both contain important provisions regarding obligations towards civil aircraft. It is, however, possible to question the common sense of granting the freedoms of transit for private aircraft through national airspace when most States simply do not have the technological prowess or investment capabilities to benefit from this right. Obviously, those States that own and operate large fleet of aircraft and have higher numbers of private and corporate investment in aviation have obtained valuable benefits for free. An instance of the possible financial benefits to which a sovereign State might put the exclusive rights over its airspace is displayed in the way Russia recently allowed commercial airlines to make use of its airspace in order to shorten flight routes. In one demonstration, in July 1998, the first commercial passenger flight to land at the new Hong Kong airport was a Cathay Pacific 747, which had flown non-stop from New York over the Pole. The journey took 15 1/2 hours compared with the usual 21. During the Cold War, the Russian Arctic and Far East - frontline defensive areas spiked with missile sites, naval bases and nuclear early warning stations - were forbidden zones for foreign airlines, as Korean Airlines found to its detriment in 1983 when one of its jumbo jets, apparently off-course, was shot down by Soviet fighters, killing 269 people. Pres-

It may also be noted that the crime of hijacking, which apparently disproportionately affects certain Western States, has received excessive attention in air law in comparison with other serious problems faced predominantly by developing States in the airspace; such as aerial espionage, aerial trespass and the drastic increase in other common crimes or offences committed on board aircraft. Whereas an impressive web of treaties has been put in place to combat hijacking, other important questions, such as the legality of aerial espionage, which is nearly the exclusive preserve of technologically advanced States and the scourge of developing States, continue to remain a grey area of the law.[17] The rules governing the appropriate response to

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ently a less paranoid, much poorer Russia is anxious to open up new routes and derive as much economic benefit as possible from the ownership of its airspace. With each passenger plane paying about 60 pence a mile in transit fees, Russia hopes to earn 400 million pounds a year to invest in its air-traffic control system. As Leonid Shcherbakov, head of the country's airspace allocation organisation put it, "It's just Russia's good luck to be sitting right where all the airways happen to go." *See* James Meek, *Arctic Route Set To Shrink The World For Air Travellers*, THE GUARDIAN, July 9, 1998 at 2.

[17] The thesis, as expounded by Joyner and, later, Cheng, is that there is a demonstrable connection between hijackings suffered by a State and the willingness to become parties to international conventions dealing with the crime. It is no wonder then that close attention has been given to the problem of aerial hijacking by the developed Western States. Many of the treaties that exist to regulate the problem were initiated by concerted diplomacy spearheaded by these States. Leaders of the seven major industrialized States addressed this problem specially in the form of the Bonn Declaration of 1978 (17 ILM 1285). Three main multilateral Conventions regulate jurisdiction over criminal acts against civil aviation. They are: The Convention on Offences and Certain other Acts Committed on Board Aircraft of September 14, 1963 (The Tokyo Convention, 704 UNTS 219); The Convention for the Suppression of Unlawful Seizure of Aircraft of December 16, 1970 (The Hague Convention 860 UNTS 105); and The Convention for the Suppression of Unlawful Acts against the Safety of Civil Aviation of September 23, 1971 (the Montreal Convention 10 ILM 1151). Other multilateral instruments of importance include: The United Nations Convention against the Taking of Hostages of December 18, 1979 (18 ILM 1457) The United Nations Convention on the Prevention and Punishment of Crimes Against Internationally Protected Persons, including Diplomatic Agents (1973) (1035 UNTS 167); and Annex 17 of the Chicago Convention 1944, which prescribes standards for aviation security. There is also the Protocol for the Suppression of Unlawful Acts of Violence at Airports Serving International Civil Aviation Supplementary to the Convention for the Unlawful Acts Against The Safety of Civil Aviation (1971) (Done at Montreal on Sept. 23 1971; ICAO Doc 9518); Reprint also in XVIII-II ANNALS OF AIR AND SPACE LAW 245 (1993)); and the Convention On The Marking Of Explosives for the Purpose Of Detection (1991) (XVIII-II ANNALS OF AIR AND SPACE LAW 280 (1993)). *See Further* NANAY DOUGLAS JOYNER, AERIAL HIJACKING AS AN INTERNATIONAL CRIME 4 (1974); Bin Cheng. *Aviation, Criminal Jurisdiction and Terrorism: The Hague Extradition? Prosecution Formula and Attacks At Airports*, *in* CONTEMPORARY

deliberate incursion without permission into national airspace by military and civil aircraft also remain vague creating room for manoeuvre by erring air powers.[18]

Another relevant example may be found in the allowance made in air law for the operation of pilotless aircraft over national territory.[19] Although such flights can only be undertaken with the permission of the underlying State, it may be suggested that if the matter were to be decided upon today, it would be the natural inclination of the vast majority of States to discourage such flights on the ground of security considerations by

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PROBLEMS OF INTERNATIONAL LAW; ESSAYS IN HONOUR OF GEORG SCHWARZENBERGER ON HIS EIGHTIETH BIRTHDAY 33 (Bin Cheng and E.D. Brown eds., 1988).

[18] An example of such violation of airspace rights which was of great political significance occurred in the U-2 incident. On May 1, 1960 a U-2 aircraft, a U.S. high altitude reconnaissance aircraft, was shot down at a height of 20,000 metres above the territory of the erstwhile Soviet Union. The Soviets promptly protested the flight and the United States did not justify its action in terms of seeking a defence under any principle of international law. Neither was there protest at the shooting down or the subsequent trial of the pilot. Indeed, after some hesitation, the United States government and even President Eisenhower himself accepted responsibility for the flight. When the Soviet Union brought up the matter in the Security Council to seek redress, the only justification advanced by the United States was one totally unknown to law. Its defence was that it was necessary to conduct that flight for the "free world" to protect itself against a government "well known for its expansionist activities and armed to the teeth". *See* Statement by the U.S. Ambassador Lodgee cited in D.H.N. JOHNSON, RIGHTS IN AIR SPACE (1965) 74; *See also* D.J. HARRIS, CASES AND MATERIALS ON INTERNATIONAL LAW 241 (1998).

Note also the more recent events of April 1, 2001 when an electronic surveillance United States Navy EP-3 plane collided mid air with a Chinese fighter jet shadowing it just off the Chinese Coast. The two main issues involved here were whether there was a right of overflight by reconnaissance aircraft over Exclusive Economic Zones and whether the consequential landing in China by the United States aircraft without express permission was an intrusion. For a comprehensive report of the United States' version of the incident, *see Contemporary Practice of the United States Relating to International Law: Aerial Incident off the Coast of China*, 95 AJIL 633-635 (2001).

[19] Article 8 of the Chicago Convention (1944) states, "No aircraft capable of being flown without a pilot shall be flown without a pilot over the territory of a contracting State without special authorisation by that State and in accordance with the terms of such authorisation. Each contracting State undertakes to ensure that the flight of such aircraft without a pilot in regions open to civil aircraft shall be so controlled as to obviate danger to civil aircraft." It may however be noted, that operators in the developed States conduct the vast majority of pilotless flights, including Earth satellite launches. Probably because incidents of interference with civil aviation in this manner are not common and have not led to disputes, there is also an assumption which works in the favour of the developed States that in the case of Earth satellite launches, prior permission of the underlying States is a dispensable criterion. *See generally* Bin Cheng, *From Air Law to Space Law*, 13 CURRENT LEGAL PROBLEMS 504 (1960).

imposing a complete ban on pilotless flights over any national territory. The impending possibility for misunderstanding and abuse is reflected in the current use of American pilotless, spy planes in the prosecution of the so-called "war on terror" or "Operation Enduring Freedom".[20]

Wherever disputes arise as to rights and liabilities in air law, it appears that the more advanced the military and political clout a contending State possesses, the greater its chances of having the dispute resolved in its favour. This is typified by the diplomatic and political pressures successfully applied against Libya by the United Kingdom and the United States through the United Nations as a result of the *Lockerbie* incident. Despite the fact that the primary judicial organ of the United Nations remains seised of the matter, its jurisdiction and competence has been effectively sidelined and rendered nugatory in favour of other novel means of dispute resolution which produced predictably favourable results for the two leading Western nations. Whereas Judge Bola Ajibola in his dissenting judgement in the *Lockerbie* case persuasively argued that apart from the Court's power to adjudicate the matter according to the principles contained in the Hague Treaty of 1970, the right of a State, such as Libya, to try its citizens suspected of executing heinous crimes may correctly be located within the rules of *jus cogens*.[21]

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[20] Note is taken of the shooting of suspected *Al Qaeda* terrorist suspects in Yemen via a pilotless Predator American spy plane in November 2002. The remote-controlled spy plane can lurk in an area for up to 16 hours, undetected at 15,000 feet, its cameras transmitting live video, and infrared or radar pictures to military commanders or intelligence officials anywhere in the world. Although the particular overflight may have taken place with the knowledge of the Yemeni authorities, it is envisaged that the American Central Intelligence Agency will make expanded use of these contraptions in the months following this first attack in various States in the Middle–East and beyond.

[21] *See Questions Of Interpretation And Application Of The 1971 Montreal Convention Arising From The Aerial Incident At Lockerbie (Libyan Arab Jamahiriya v. United Kingdom)* 1992 I.C.J. 82, 187 (Ajibola Dissenting), available *at* <http://www.icj-cij.org/icjwww/idocket/iluk/iluk2frame.htm>. For the judgment eventually passed on the Libyan suspects by a Scottish Court *see, Her Majesty's Advocate v. Abdelbasset Ali Mohmed Al Megrahi and Al Amin KhalifaFhimah Prisoners in the Prison of ZeistCamp Zeist (Kamp van Zeist) The Netherlands* in the High Court of Justiciary at Camp Zeist Case 1475/99, *at* <http://www.pixunlimited.co.uk/guardian/pdf/0131lockerbieverdict.pdf> (visited Apr. 8, 2003). Note also that Libyan foreign minister, Abdel Rahman Shalgham, recently announced that Libya would accept civic responsibility for the 1988 atrocity and pay the family of the victims 10 million dollars each if certain conditions are fulfilled.

Not only is there a discernible double standard in the application of air law in the practice of the international institutions, but there is also an air of impunity surrounding the practice of certain militarily developed States in their aviation practice and in relation to their actions in the airspace. On the one hand, the United States claimed recently that its conduct of reconnaissance flights over China's Exclusive Economic Zone (EEZ) is legitimate; on the other hand, it continues to maintain its self-proclaimed Air Defence Identification Zones (ADIZ) over its own EEZ and even beyond that zone. In the past, militarily powerful States such as Israel have displayed even more egregious attitudes to the rules of air law. In 1973 Israel, in clear violation of Lebanese airspace sovereignty intercepted and forcibly diverted civil aircraft away from Lebanese airspace into Israeli territory and forced them to land for the purpose of arresting suspected militants on board.[22] Reports of such violations continue. Probably no instance supports the disregard for international consensus in the shaping of air law better than the creation and expansion of the practice of so-called "no fly zones" in Iraq by the United States, United Kingdom, and France.[23]

The conditions include the lifting of United Nations sanctions against Libya after payment of an initial 4 million dollars to each family, and U.S. sanctions being taken away after another 4 million dollars payment. After the final 2 million dollars payment, Tripoli hopes to be removed from the U.S. list of States sponsoring terrorism. *See* Mark Oliver, *Libya offers cash to quit axis of evil,* THE GUARDIAN, (London) Apr. 30, 2003 at 10.

[22] *See,* ICAO, *Diversion and Seizure by Israeli Military Aircraft of a Lebanese Civil Aircraft,* ICAO Assembly Res. A20-1 *at* <http://www.icao.int/icao/en/res/a20_1.htm> (visited Apr. 15, 2002). *See also* S/RES/332 (April 21, 1973) at <http://domino.un.org/unispal.nsf/vYears1973-1981!OpenView>.

[23] The concept is essentially a creation of the Western industrialised and military powers - USA, Britain, and France. The legality of the "no fly zones" has been questioned by many legal writers, particularly those from the developing States including those States which originally stood against the invasion of Kuwait by Iraq, the occurrence of which led to the Gulf War. What the Western allies relied upon was a UN Resolution, Resolution 688, which essentially demanded that Saddam Hussein must stop repressing his own people. The resolution itself, interestingly enough, never mentioned the creation of "no fly zones". The position advanced by the Western powers was that essentially the best way to implement this resolution was to deny the Iraqi government the ability to fly planes over large areas of its own country. The zones were delineated in the North in the spring of 1991 and in the South in the summer of 1992 and were maintained up until the outbreak of the war waged on Iraq in 2003. For criticisms of the "no fly zones" *see* Richard Haass, *No Fly Zones, at*

Selective inaction of ICAO and the Security Council has allowed a certain degree of permissiveness in areas of the law in which certainty and uniformity are required. When the USSR sponsored a draft resolution to condemn the incursion of United States U2 spy aircraft into Soviet airspace as aggressive, only Poland supported it. But when Cuba shot down two Cessna aircraft which made deliberate and orchestrated forays into its maritime airspace in February 1996, the Security Council was quick to point out (correctly) that States have an obligation to refrain from shooting down civil aircraft, but did not examine the legality or propriety of the continuous operation of the so-called "Brothers to the Rescue" flights emanating from United States' territory.[24]

It may be observed that wherever the developed technological powers are divided on issues of air law or where there are principled differences among them, then the particular issue involved would usually receive the most favourable and thorough consideration leading to the most equitable solution. Thus, for instance, because the strong shipping interests of the UK were opposed by the significant benefits of abundant natural claims to a continental shelf that the United States possesses,[25] this necessitated the curtailing of the continental shelf principle to the extent that the rights over the continental shelf do not affect the overlying airspace.[26] Such differences may be found on

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<http://www.pbs.org/newshour/bb/middle_east/july-dec98/iraq_12-31.html>. (Visited 12 May 2001.)

[24] *See* Cuban Ministry of Foreign Affairs, *Cuba Defends its Sovereignty*, GRANMA INTERNATIONAL Mar. 6, 1996, at 1. This situation is best typified by referring to the long-standing series of allegations of aerial incursions made by Cuban dissident groups based in the United States into Cuban territory with small civilian aircraft that are registered in the United States. There are allegations of at least 14 of these violations in the 1990s alone.

[25] The United States was a forerunner in the area of developing a special legal status for the continental shelf and issued the Truman Proclamation on the Continental Shelf (1945) by which it proclaimed, "the continental shelf beneath the high seas but contiguous to the coasts of the United States as appertaining to the United States, subject to its jurisdiction and control'. (*See Presidential Proclamation* No. 2667 28th September 1945; 4 Whiteman 756).

[26] *See* NICHOLAS GRIEF, PUBLIC INTERNATIONAL LAW IN THE AIRSPACE OF THE HIGH SEAS 12-13 (1994); *See also* 2 YBILC, 267 (1953) Annex to comments by the Government of the United Kingdom; Lord Asquith in the *Abu Dhabi Arbitration* (1951) noted the confusion that existed in this area and stated "...there are in this field so many ragged

other issues such as the initial suspicion of the European powers to the United States' *Open Skies* agenda and the present coolness shown by the United States to the proposed Single European Skies and the European Union's drive towards a common aviation policy.[27]

IV. THE SCRAMBLE FOR SPACE PROPERTY, VANTAGE POSITIONING AND THE PARTITIONING OF OUTER SPACE

With respect to space law, a clear line may also be established linking the wishes of the technologically advanced nations to the development of legal principles and, at any rate, the practice of space law. The pre-eminent position that the advanced technological powers have in international relations and, significantly, in air law, have made it possible for them to exhibit agenda-setting functions by which they influence the development of air law. At the forefront of this "outer space neo-imperialism" is the USA's domination of both the technological and legal policy directions of outer space activities.[28] Examples

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ends and unfilled blanks, so much that is merely tentative and exploratory, that in no form can the doctrine claim as yet to have assumed hitherto the hard lineaments or the definitive status of an established rule of law" 1951, 18 ILR 144.

[27] Starting in 1978 when its own internal aviation market was deregulated, the U.S. has offered very liberal bilateral agreements to other States in furtherance of the open skies agenda. It is worthy to note that presently the U.S. still aggressively promotes the principle of "open skies". This may, however, not be in the interest of the developing States who are not strategically placed, technologically capable or have failing national airlines. The airspace over national territories is becoming freer for the big players in the international aviation business; whereas, the possibilities for exploitation of outer space resources are becoming more than ever the exclusive preserve of those very States that benefit most from the predominance of "open skies". The current European Union drive towards a common international aviation policy is calculated to reduce even further the fragmentation of both industry and market within Europe so that EU Airlines and their customers will benefit from the full potential of the EU Single Market. This would, of course, reduce the dominance of their major international rivals, particularly American ones. *See generally* Wybo P. Heere, *Problems of Jurisdiction in Air and Outer Space*, XXIV ANNALS OF AIR AND SPACE LAW 72 (1999); *Cf.* Europa, *Air Transport: Why An EU Drive Towards a Common International Aviation Policy?*, *at* <http://europa.eu.int/comm/transport/air/international/index_en.htm>; N.A. Van Antwerp, *The Single European Sky*, XXVII ANNALS OF AIR AND SPACE LAW NO.1 April (Feb. 2001); N.A. Van Antwerp, *The Single European Sky (2)*, XXVII ANNALS OF AIR AND SPACE LAW NO.2 (April 2001).

[28] Of the top 50 list of the largest space corporations in the world with a global sales figure of about 56 billion United States Dollars (USD) (USD 35 billion in 1995) in 2000,

of the competing agenda between the developed and developing States include the incessant attacks on the "common heritage of mankind" (CHM) regime by those States willing and able to exert property claims on the Moon and other celestial bodies.

The championing of commercial rights in space property through occupation and appropriation represents a disturbing trend by certain scholars who are predominantly from very few States that have attained significant advancement in outer space activities. The case for the so-called right to commercial exploitation of outer space resources is derived only through the adoption of highly innovative interpretations of existing space treaties. In reality, however, the letter and spirit of the major space treaties do not permit such a conclusion. Instead, it is more plausible to argue that a regime of common heritage has been created for outer space. Where the provisions of one treaty are clear upon the point, that treaty is maligned as irrelevant and a permissive interpretation is sought from another treaty. The problem, however, is not in the law but in the desire to introduce a principle which is against the spirit of the law. The antecedents for the current attacks on the CHM regime in outer space are to be found in similar attacks launched against the CHM concept in the law of the sea (particularly Articles 132–146 UNCLOS III (1982)) leading to the near complete turnaround in relation to the regime of deep sea mining in the 1990s.[29] The resort to the mere freezing of claims to Antarctica instead of a bold dissolution of territorial claims in the 1959 Antarctic Treaty System also testifies to the potency of certain corporate vested interests in their struggle to dictate the regulation of resource control in international spaces.[30] Developing

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27 were American. This represents 78 percent of the accumulated "Top 50" sales figures (28 in 1995 for 70 percent of total sales), 12 were from Europe with 16 percent of total sales (10 in 1995 for 22 percent of total sales). This, according to Salin, suggests "an improvement of the market share of US space corporations, a reduction of the share of the European ones and an increase of those from emerging nations". Patrick Salin, *An Overview of US Commercial Space Legislation and Policies-Present and Future*, XXVII ANNALS OF AIR AND SPACE LAW 210 (2002). *See also* 10 SPACE NEWS 15-21 (July 1996) and 8 SPACE NEWS 30 (July 2001).

[29] *Supra* note 10.

[30] The freezing of claims was for the first time applied over an international space through the means of Article IV (2) of the 1959 Antarctic Treaty, Dec. 1, 1959, 12 UST

States, therefore, have a duty to prevent myopic interests from successfully subverting *lex lata* relating to the appropriation of resources in space law and to prevent space law from suffering the fate of the international deep-sea mining regime.

It may be noted that the consistent principle that cuts across the existing multilateral space treaties is one that precludes national appropriation of outer space by use or by any means whatsoever. Therefore, nothing short of a collectively determined overall policy change in the form of a multilateral treaty of universal importance would be sufficient to change this fundamental principle. In any event, it is unnecessary to make these changes in light of the unfolding evidence of irrevocable damage to the Earth's atmosphere as a result of economic and commercial exploitation of mineral and non-renewable resources. This is not, however, to suggest that all debate on the possible directions the law may take in the future should cease. It is desirable that such discussions should continue among scholars, as well as in the relevant international fora, particularly in the COPUOS.[31]

Other concrete instances of the acute differences between developing and developed States in space law abound. In 1983, all the Western governments voted against the General Assembly Resolution 37/92 titled *Principles Governing the Use by States of Artificial Earth Satellites for International Direct Tele-*

794, 402 UNTS 71. It states: "(1) Nothing contained in the present Treaty shall be interpreted as: (a) a renunciation by any contracting party of previously asserted rights of or claims to territorial sovereignty in Antarctica; (b) a renunciation or diminution by any contracting party of any basis of claim to territorial sovereignty in Antarctica which it may have whether as a result of its activities or those of its nationals in Antarctica, or otherwise; (c) prejudicing the position of any contracting party as regards its recognition or non recognition of any other State's right of or claim or basis of claim to territorial sovereignty in Antarctica. (2) No acts or activities taking place while the present Treaty is in force shall constitute a basis for asserting, supporting or denying a claim to territorial sovereignty in Antarctica or create any rights of sovereignty in Antarctica. No new claim, or enlargement of an existing claim, to territorial sovereignty in Antarctica shall be asserted while the present Treaty is in force." This provision is, however, far from unimpeachable and is definitely not free from controversy because it does not completely forbid national claims to one of the most fragile ecosystems upon which the health of the planet Earth rests. A similar norm was included much later in Article IV of the 1980 Convention on the Conservation of Antarctic Marine Living Resources, May 20, 1980, 19 I.L.M. 837, 841, TIAS No. 10,240, 1329 UNTS 47.

[31] *Supra* note 10.

vision Broadcasting, which calls for a notification to proposed receiving States before broadcasting may be directed therein.[32] The question of remote sensing has also remained a bone of contention between developing and developed States in the regulation of space law and is likely to remain so despite the adoption since 1986 of fifteen principles by the General Assembly, which notably do not even require prior consent of States that are sensed. Questions such as the control of material broadcast by telecommunication satellites, most of which are owned by a few developed States, and the much needed protection of minority cultures from "swamping" are not only unanswered presently, but there is little hope that the concerned developing States have the necessary capabilities to shape the law in their favour.

The *de facto* appropriation of the geostationary orbit by a few Western States and the obviously inequitable policy of "first come, first serve" that has been the practice of the ITU represents a continuing injustice in space law.[33] This is in the sense that it mortgages the interests of the majority of States to have access to that orbit and may particularly affect the inherent interests of the equatorial States to that orbit. The fact that eight

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[32] These include France, West Germany, the United Kingdom, United States and Japan. M.N. SHAW, INTERNATIONAL LAW 387 (1997).

[33] The geostationary orbit is a circular orbit on the Equatorial plane in which the period of sideral revolution of the satellite is equal to the period of sideral rotation of the Earth and the satellite moves in the same direction of the Earth's rotation. When a satellite describes this particular orbit, it is said to be geostationary; such a satellite appears to be stationary in the sky, when viewed from the Earth, and is fixed on the zenith of a given point of the Equator, whose longitude is by definition that of the satellite. This orbit is located at an approximate distance of 35,871 Kilometres over the Earth's Equator. The geostationary synchronous orbit is a physical fact linked to the reality of the Earth, its existence depends exclusively on its relation to gravitational phenomena generated by the Earth and, therefore, it is reasonable to question whether it should really be considered part of outer space, particularly since the geostationary satellites quite literarily hang above equatorial States. The geostationary orbit is also a finite resource that can be "clogged up" in the sense that there is, in reality, only a few "parking spaces" in that orbit in which satellites can be placed along the same plane for efficient coverage of the Earth and without interfering or crashing into other satellites. What makes matters worse is that after a number of years some satellites wander off course and can very easily crash into nearby functioning satellites, or indeed, descend back to Earth with the possibility of causing damage to the equatorial State below. *See further* MAURICE N. ANDEM, INTERNATIONAL LEGAL PROBLEMS IN THE PEACEFUL EXPLORATION AND USE OF OUTER SPACE 162 (1992).

equatorial States adopted the *Bogotá Declaration*[34] probably stands as good reason to suggest that enough attention has not been given to the requirement in the ITU Convention 1973, which stipulates, "Members shall bear in mind that radio frequencies and geostationary orbits are limited resources."[35]

The argument that by retention of signature to any of the major space treaties a State may retain its freedom to act in any way it chooses in relation to the principles of space law, is wholly unconvincing and, indeed, misleading, particularly when principles such as that prohibiting the appropriation of outer space and its celestial bodies are concerned. It is suggested that such central principles have transcended the scope of mere treaty rules and have crystallised into customary international law. The non-appropriation rule, for instance, is not only repeated in all the major multilateral space treaties along with other central principles such as the prohibition of militarization of outer space, but also represents a logical and factual continuation of a legal principle with roots in the law of the sea, the Antarctic Treaty system and even ancient concepts of *res communis*. By virtue of this reasoning, a developing State which is a party to the Bogotá Declaration, but is not a party to any or all of the space treaties, will find that it cannot derogate from the

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[34] The Bogotá Declaration of 3rd of December 1976; ITU Document WARC-BS (1977) 81 E of 17 Jan. 1977. Text available in JOURNAL OF SPACE LAW 193-196 (1978). The parties to the declaration are Brazil, Columbia, Congo, Ecuador, Indonesia, Kenya, Uganda and Zaire. Article 3 sub. D of the Bogotá Declaration 1976 stipulates that:
Devices to be placed permanently on the segment of a geostationary orbit of an equatorial state shall require previous and expressed authorization on the part of the concerned state, and the operation of the device should conform with the national law of that territorial country over which it is placed. The substance of the argument of the equatorial states, therefore, is that the segments of geostationary synchronous orbit are part of the territory over which Equatorial states exercise their national sovereignty.

The Equatorial countries in the declaration sought to proclaim and defend on behalf of their peoples, the existence of their sovereignty over this natural resource. In qualifying this orbit as a natural resource, Equatorial States reaffirm "the right of the peoples and of nations to permanent sovereignty over their wealth and natural resources that must be exercised in the interest of their national development and of the welfare of the people of the nation concerned," as it is set forth in Resolution 2692 (XXV) of the United Nations General Assembly entitled "permanent sovereignty over the natural resources of developing countries and expansion of internal accumulation sources for economic developments".

[35] ITU Malaga – Torremolinos Convention (1973) 28 UST 2495; TIAS No. 8572.

non-appropriation rule/CHM principle by exerting any form of territorial jurisdiction over the geostationary orbit. Equally, any developed State which is not a party to any of the space treaties, will have no opportunity to derogate from the non-appropriation rule or the CHM characterization of outer space.

V. IMPENDING CONFLICTS OVER THE HIGHER GROUNDS IN THE NEAR FUTURE

A great deal of legislation both multilateral and bilateral has been passed on many crucial areas in air and space law. There is also no shortage of scholarly literature in these fields. In the interest of certainty and steady application of the law, drastic changes should not be made to the existing multilateral space treaties. Although the opportunity has arisen in the last few years for the review of virtually all the major treaties, it is more important at this stage that emphasis should be directed towards getting more States to accede to the existing treaties and increase ratification, rather than attempt to make drastic changes to them.

There are, however, certain unresolved issues and grey areas in air and space law, which require urgent attention. Some of these areas require careful conceptual analysis and re-examination by writers in the field. One such area is the legal practice of determining the nationality of aircraft in accordance with the place of registration, as opposed to the nationality of its owners as found, for example, in British shipping practice.[36] Another area is the question of a conclusive definition of what constitutes an aircraft in legal terms, taking into consideration the various craft that may need to be regulated in air law, such as balloons, seaplanes, gliders, and the *sui generis* category of the

[36] It may be suggested that adopting the nationality of the owners as the true test of nationality presents the best means of establishing a "genuine link" between the craft and its owners, thereby banishing forever the troublesome issue of flags of convenience. Indeed, there appears to be no reason why the genuine link rule under international law as enunciated by the International Court of Justice (ICJ) in the *Nottebohm case* with regard to individuals and later on extended to ships cannot be further extended to aircraft and even spacecraft. *See* the *Nottebohm case*, Second Phase (1955), (Liechtenstein v. Guatemala) 1955 ICJ 4 at 23; Materials on all ICJ cases are available online *at* <http://www.icj-cij.org>.

X15 and space shuttles. Scholars still have to resolve the question of the scope of space law in view of the ambiguity introduced by the "within the solar system" formula adopted in the Moon Agreement (1979) and the impending scenario of technological advancement making travel to other universes a possibility. Does it mean that any State technologically advanced enough to discover a celestial body outside the solar system may place it under sovereign ownership and control? [37]

On other topics there may be a pressing need for international legislation in the form of specialist treaties and for which no single economic or hegemonic interest must be allowed to prevail. These areas include the following: legality of aerial reconnaissance and intelligence gathering at high altitudes and from areas coterminous with State territory, such as from the airspace above the non-sovereign maritime zones; the militarization of outer space as, for instance, heralded by the United States' "Son of Star Wars" and other programs[38]; the regulation of damage caused by debris to space stations and satellites; the regulation of manned space flights and space stations, including international space stations. It needs to be repeated that the

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[37] The Moon Treaty in Article 1 limits the treaty's provisions to celestial bodies "within the solar system". One possible interpretation of this unnecessary limitation is that any activity which takes place outside the Earth's solar system is outside the regime of space law, or at least that part enunciated in that instrument. This suggestion of outer space activity in other solar systems may not be as far fetched as it sounds, if we consider the fact that just 50 years ago it was largely held as impossible that man would engage in space flight or step on the Moon. Indeed, a mere one hundred years ago, the first aircraft was built. Thus, only the imagination limits the possibilities of exploration beyond the Earth's solar system and the discoveries that the next 50 years might bring. The preferred interpretation would be one which recognises that that space law, particularly the provisions enunciating the CHM principle, apply not only to the solar system we exist in, but also to the entire universe of galaxies. Probably the apparent reason for the reference to the solar system in the Moon Agreement 1979 is that, as the name of the treaty suggests, the principal aim is to make legislation for the Moon, which is Earth's natural satellite and which there is only one of in this solar system.

[38] Two programs – "Son of Star Wars" and the "Vision for 2020", both designed to give the United States military dominance in outer space, are in fact the cause of much consternation to writers from both the developed and developing divide. George P. Shultz, a former United States Secretary of State, notes the inevitable result of the planned programmes, "We see that conditional sovereignty applies even to European allies if they attempt to compete with U.S. corporations for economic resources in space, such as Helium-3 on the Moon and heavy metals on the asteroids'. *See* George P. Shultz, *Terror and The States*, WASHINGTON POST, Jan. 26, 2002 at A23.

boundary between airspace and outer space requires urgent attention in the form of a definitive international agreement. It has already been suggested above that perhaps one of the main reasons this issue remains unresolved in air and space law is that the absence of a delimitation and demarcation regime is advantageous to those States most closely related to intense aerospace activities. It is hoped that the demarcation point will shortly be resolved and determined in a manner that would be accepted by the generality of States and scholars.

VI. CONCLUSION

The bias that has been evident in the development of air and space law in recent decades deserves scholarly attention. Effort must be exerted to identify those areas that are most likely to be sources of discord among States in the future. Of particular significance is the need to carefully resolve the emerging controversy surrounding ownership and property rights over space-based property, particularly commercial exploitation. On the whole, the overall direction of air and space law ought to proceed upon the notion of the general interest of mankind. As one writer correctly puts it, "This notion of 'general interest' is not to be taken for granted and requires to be re-defined in reference to the fast development of modern technology that mostly benefits those (a few hundred million people) who control them while others (billions of people) still creep in the back, fighting for their essentials in life."[39] This is precisely why technological capability or superiority in any sector (aviation, Antarctica, deep-sea bed, or outer space) must never be allowed to secure hegemonic interests for any State(s) over and above the general international interest.

[39] Salin, *supra* note 17, at 209-210.

BOOK REVIEW

ORIGINS OF INTERNATIONAL SPACE LAW AND THE INTERNATIONAL INSTITUTE OF SPACE LAW OF THE INTERNATIONAL ASTRONAUTICAL FEDERATION

By Stephen E. Doyle,
published by Univelt Inc., San Diego, CA, 2002

Reviewed by Sylvia Ospina*

How, and when did space law develop? Many persons believe that space law began after the launch of the first Soviet artificial satellite, *Sputnik* in 1957; but professionals in several fields have been concerned with "aerial law and the law of space" since the very early 1900s. Doyle's book provides a very comprehensive and detailed account of the beginnings and development of space law, a little-known field of international law, with which few lawyers and law schools are familiar, but which needs to be made better known. This book should be required reading for practitioners and teachers of space law and others involved in space activities.

Doyle has done considerable research into early writings and publications of lawyers, scientists and engineers, many from countries that were part of the former Soviet Union, and whose writings were not accessible to the non-Communist world, for a variety of reasons, among them language barriers. What is evident from the sources he quotes is that, as the French say, "the more it changes, the more it's the same". In

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* Dr. Sylvia Ospina, International consultant on space law and satellite telecommunications.

other words, many of the issues and questions debated to-day were raised nearly 100 years ago, and are still unresolved.

The definition of "outer space" and the delimitation of air space from outer space were already being questioned at a time when aviation and the use of air space were in their infancy, while the use of outer space was merely conjectural then. Lacking any delimitation, some authors questioned whether outer space should be considered a "global commons", subject to a special legal regime. Some writers also questioned which laws should apply to activities in outer space, and whether they should be subject to special laws or regulations. Even issues regarding the use and ownership of the radio frequency spectrum, (whose potential for transatlantic communications had just been discovered by Enrico Marconi), were discussed in a variety of journals, and were the topics of lengthy monographs. Today, these issues are still being debated, and no definitive answers have been provided yet.

Doyle's book can be divided into two sections: the first deals at length with the origins and background of space law, the establishment of the International Astronautical Federation (IAF) and of the International Institute of Space Law (IISL). The second part of the book, which is much shorter, focuses on the organization and management of the IISL, and includes as annexes, the statutes of the IISL, as well as lists of the yearly IAF Congresses and IISL Colloquia.

Doyle intertwines references to the early attempts to formulate some basic tenets of space law, and to distinguish it from air law, with an account of the development and formal establishment of the International Astronautical Federation (IAF), which took place in 1949. The IAF could be seen as an outgrowth of several factors: meetings of organizations such as the British Interplanetary Society and the German Society for Space Research, whose members felt that there should be greater communication and collaboration at the international level. Other factors that led to the creation of the IAF were the development of rocketry prior to and during the Second World War, and writings by influential scientists and engineers, such as Sir Arthur Clarke.

While jurists and lawyers were invited to present papers at the early IAF Congresses, their contributions began gaining in importance with the launch of the Soviet satellite, *Sputnik*, in October 1957. This event aroused the world's interest in space activities, and the need to regulate them. Shortly after *Sputnik's* launch, the United Nations General Assembly passed several resolutions aimed at maintaining the use of outer space for peaceful purposes, and established the Ad Hoc Committee on the Peaceful Uses of Outer Space (COPUOS) in 1958. A few months later, the IAF voted to set up a Permanent Legal Committee, to study legal issues related to space activities.

The first Colloquium on Space Law was convened in 1958 at The Hague, with Andrew Haley, General Counsel of the IAF at the time, as Presiding Chairman. A year later, at the Second Colloquium, in 1959, a resolution was adopted, replacing the IAF's Permanent Legal Committee with the International Institute of Space Law. Since then, the IISL Colloquia are held concurrently with, and as part of, the IAF's annual congress. The fact that membership in both the IAF and the IISL has grown throughout the years, albeit at different rates, affirms the continued interest in space activities, and in issues related to their regulation.

The IAF served, and still serves, as a forum for discussion and exchange of viewpoints on the varied aspects of space activities, and of national and international policies in their regard. The IISL's mandate is slightly narrower: it provides legal opinions to the IAF, and cooperates with the appropriate national and international organizations in the area of space law. It also promotes the teaching of space law, in cooperation with the United Nations and various institutes of air and space law around the world.

Doyle's book on the origins of the IAF and IISL is the second on this subject. The first book written by Dr. Eugène Pépin, president of the IISL from 1963 to 1973, covers the history of the IISL from 1958 to 1982, the year it was published by the American Institute of Aeronautics and Astronautics. Pépin's book includes a list of the subjects covered in the IISL Proceedings of the International Colloquia from 1958 to 1982, and an IISL Membership list. This book is in English and French.

Doyle's book is broader in scope and content, and provides quotations and translations from authors of the early 1900s on issues that have become central to space law. He also provides quotes from papers presented at the early IISL Colloquia, which have fostered discussions on certain topics, leading to the subsequent growth of this legal specialty. The annexes include the IISL membership list by country; but unlike Pépin's book, it does not provide a subject index of the IISL Colloquia.

Practitioners and teachers of space law and others involved in space activities will find the history of the development of this field very informative, and worth having in their libraries. Doyle's book is available for US $30.00, plus shipping and handling (S&H), from Univelt Publishers, P.O. Box 28130, San Diego CA 92198 (http://univelt.com/univeltpubs/index.html); or directly from the author, S. E. Doyle, 3431 Bridget Brae Road, Shingle Springs CA 95682; (sedoyle@foothill.net). Priority Mail delivery in the US is at an S&H charge of $5.00. Payment by check or money order, if ordering from the author. It is available to members of the IISL at a discounted price of US$ 25.00, plus S&H.

SKY STATIC: THE SPACE DEBRIS CRISIS

By Antony Milne
published by
Praeger Publishers
88 Post Road West
Westport, CT 06881

Reviewed by John F. Graham*

The subject matter of *Sky Static: The Space Debris Crisis*, space debris, is an important one. However, the importance of the subject is obscured by the many errors in the author's work. There are two categories of errors: major errors that better research could have prevented and minor errors that closer editing might have discovered.

The major faults in *Sky Static* begin in the acknowledgements section. The author has compiled an impressive list of space experts including Mr. Phillip Clark, Molniya Space Consultancy; Mr. Donald Kessler, formerly the head of NASA's Space Debris Section at Johnson Space Center; Dr. Walter Flury, European Space Agency Operations; Mr. Jonathan Tate, United Kingdom Spaceguard; and, Dr. Alan D. Romig, Sandia National Laboratories. The author claims "...many of whom have read parts of the [book's] manuscript." This reviewer contacted all of these people and learned that none of them had read the manuscript, had never spoken to the author, and did not know him. Mr. Clark best summed up the views expressed by all the eminent scholars in this group:

> "I am trying to remember whether I have even heard of Antony Milne. I have certainly never received a manuscript – in part or in total – from him to review, and therefore the claim which he appears to be making in this book is completely false. Of course, I would have picked up the 'howlers' which you have listed in your email, and it worries me that I am being associ-

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* John F. Graham, Professor, Space Studies, American Military University.

ated with this book." (Email reprinted with Mr. Clark's permission).

Other major errors in the book are many and varied. For example, the author refers to NORAD, the North American Aerospace Defense Command, a vitally important organization of the Canadian and United States Armed Forces for the defense of North America, as the "North American Space Defense Command." This inaccuracy is compounded further when, on a single page, the author further identifies NORAD as both the "North American Air Defense Department" and the "North American Air Defense Agency." (Pg. 28)

Another major error is a reference to the payload on *Sputnik 1*, the world's first satellite, as having a "cosmonaut" aboard. *Sputnik 1* was a satellite and did not carry a human. (Pg. 12)

The author mixes up programs and names throughout the book. One example of this is the launch of the United States' first satellite, *Explorer 1*, which was launched aboard a modified U.S. Army Redstone rocket identified as the *Jupiter-C* or *Juno*. The author claims that *Explorer 1* was launched aboard a *Vanguard* rocket. The *Vanguard* rocket was actually used to launch the second U.S. satellite into space, the *Vanguard 2*, which was a totally different satellite program. (Pg. 12)

The author also confuses NASA's civilian *Skylab* Program, with the Department of Defense's military *Manned Orbiting Laboratory (MOL)* Program. The *MOL* was planned to be a military space station launched aboard a modified Titan-3M rocket from Vandenberg Air Force Base, California. President Nixon canceled the program on June 10, 1969, about four years before *Skylab* launched. The *MOL* never flew, *Skylab* did. (Pg. 16) Mr. Milne states it was the *MOL* that flew.

Facts again become confused when the author discusses the world's first space station, *Salyut 1*. Cosmonauts Georgi Dobrovolsky, Viktor Patsayev, and Vladislav Volkov occupied it in June 1971 for 23 days. They were tragically killed on June 29, 1971, when their *Soyuz* capsule leaked out its atmosphere during descent. The author states that the mission was accomplished in 1972 and lasted 230 days. (Pg. 17)

Rocket and satellite operations are confused when the author discusses the various fuel loads aboard an *Ariane* rocket. For example, an *Ariane-5* rocket has no connections between the rocket's fuel system and the satellite. Satellite fuel is loaded on the satellite prior to launch and is inside the rocket payload. It cannot be replenished by the booster rockets. However, the author claims " ... [d]uring launch onboard satellite fuel in Ariane's booster rockets has to be used sparingly." (Pg. 35)

One of the most egregious errors made by the author is a geographical one. He states that the Russian Cosmodrome, Plesetsk, is located in the Republic of Kazakhstan. Plesetsk is located in Russia. Kazakhstan, an arid land, is located on the southern Russian border many miles from the "Arctic tundra." (Pg. 42)

In addition to the many major errors, minor errors include:

- Describing the Soviet launch vehicle, R-7, which launched *Sputnik 1* as a modified German *V-2* rocket. (Pg. 12) The *V-2* was modified by seven generations of rockets before it became an R-7. This is a minor stretch of the rocket's lineage.

- Identifying the former NASA Administrator as "Daniel Golding." His correct name is Daniel C. Goldin. (Pg 19)

- Identifying a planned nuclear power craft as the *"Europer Orbiter,"* rather than the *"Europa Orbiter"* which will explore Jupiter's moon, Europa. (Pg. 46)

- Identifying one of the space shuttle's orbiters as "The *Orbiter*." (Pg. 75) The space shuttle orbiters were named *Columbia, Challenger, Atlantis, Discovery, Endeavor,* and *Enterprise*. "Orbiter" is a generic term for the part of the vehicle that returns to Earth with the crew.

In the first 100 pages of the book, the author has 67 major errors and numerous minor ones. So, this reviewer investigated the author's sources. The major sources in the bibliography include the *Sunday Times*, the *International Herald Tribune*, the *New Scientist*, and *UFO Magazine*. These are sources based on reporters' articles for general public consumption, not upon scientific reports or books written from space debris experts' research. To his credit, the author did rely upon one excellent

source, *The Proceedings of the Third Conference on Space Debris*, but other good scientific sources such as Nicholas Johnson and Darren McKnight's book *Space Debris* were conspicuously absent.

The errors made throughout *Sky Static: The Space Debris Crisis*, eliminate it as a source of information by anyone interested in the study of space debris.

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[*] Ms. Bowles is a third year law student at the University of Mississippi School of Law and is a Research Associate at the National Remote Sensing and Space Law Center.

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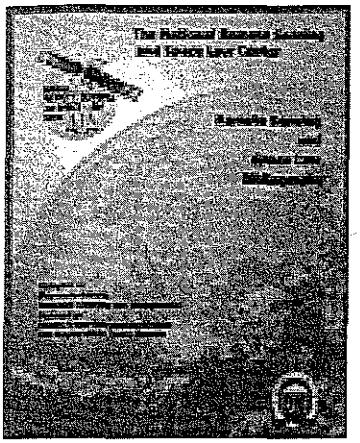

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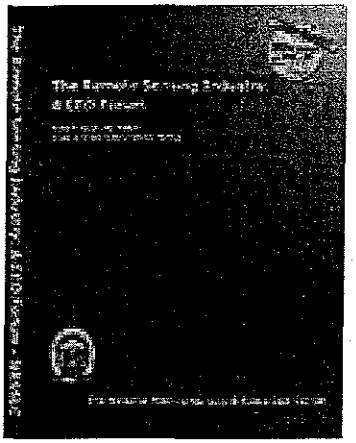

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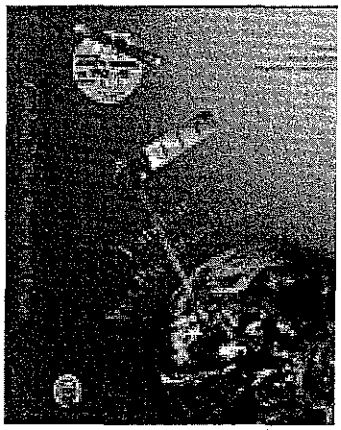

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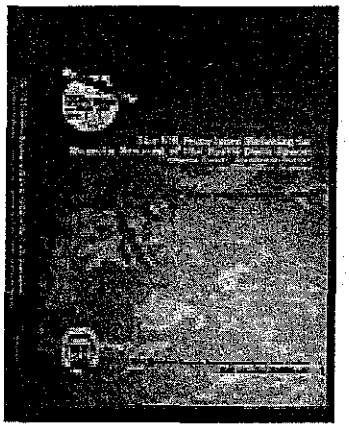

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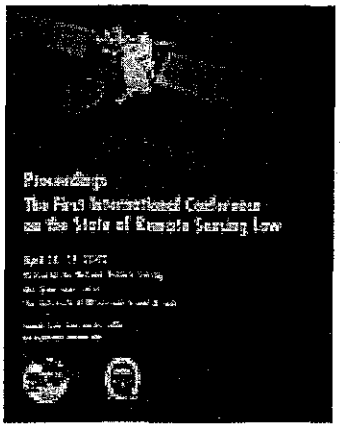

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