THE APPLICATION OF INTELLECTUAL PROPERTY RIGHTS TO OUTER SPACE ACTIVITIES

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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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[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

[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
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> 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).