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INMARSAT USE BY ARMED FORCES: A QUESTION OF TREATY INTERPRETATION

Wolf D. von Noorden*

Introduction

Inmarsat¹ is at present the largest provider of space segment capacity for global mobile satellite communications for maritime, aeronautical and land-mobile civil applications. Article 3(3) of the Inmarsat Convention² provides that "the Organization shall act exclusively for peaceful purposes." Based on US Department of Defense and other publications, Morgan³ has recently reported about the extensive use of, *inter alia*, Inmarsat during the Persian Gulf War - including Inmarsat services to the Iraqis, the Falklands conflict, UN operations in Somalia, Bosnia and Croatia.⁴ While such uses have in most cases gone unnoticed by the Inmarsat Directorate⁵ which is only in charge of commissioning the

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1 The International Maritime Satellite Organization (INMARSAT), 3 September 1976, 31 U.S.T. 1, 1143 U.N.T.S. 105 (Convention) and 213 (Operating Agreement) [entered into force 16 July 1979]; See S. E. Doyle, *INMARSAT: The International Maritime Satellite Organization - Origins and Structure*, 5 J. SPACE L. 45 (1977); H.H.M. Sondaal, *The Current Situation in the Field of Maritime Satellite Communication Satellites: INMARSAT*, 8 J. SPACE L. 9 (1980); W. D. von Noorden, *Space Communications to Aircraft: A New Development in International Space Law*, 15 J. SPACE L. 25-34, 147-160 (1987); W. D. von Noorden and P. Dann, *Land Mobile Satellite Communications: A Further Development in International Space Law*, 17 J. SPACE L. 1-11, 103-113 (1989). As of 1 July 1994, Inmarsat had 75 Member States, each of which designated one telecommunications entity under its jurisdiction as Signatory to the Operating Agreement.

2 Hereafter "Convention."

3 R. A. Morgan, *Military Use of Commercial Communications Satellites: A New Look at the Outer Space Treaty & "Peaceful Purposes"*, Georgetown University Law Center, December 1993 (cleared for publication by the US Dep't of Def. on 12 Jan. 1994).

4 *Id.* at 28 *et seq.*

5 The organs of the Organization are: the Assembly of Inmarsat Member States; the Council, composed of 18 Signatories, with the largest utilization of the Inmarsat system which is determined annually, and 4 regional representatives appointed by the Assembly biannually; and the Directorate as executive organ,

mobile earth stations (MES) for access to the Inmarsat system but does not, of course, monitor the contents of communications, Inmarsat use in the Iraq-Kuwait conflict was widely publicized⁶ and, referring to Convention, Article 3(3), concern was expressed by Inmarsat in a letter to the US Department of State.⁷ The Department of State responded by assuring Inmarsat "that appropriate steps have been taken to avoid recurrence of such publicity,"⁸ avoiding the legal issue in a classical diplomatic response. The following analysis attempts to properly construe the peaceful purposes requirement in the light of an increasingly active UN Security Council, and to develop the framework within which armed forces may legitimately use the Inmarsat system while taking a critical look at Inmarsat's past policy and practice regarding military uses.

Inmarsat Past Policy and Practice

As a young international organization established during the cold war period and with a wide range of NATO, Warsaw Pact and Third World States among its members, Inmarsat's position relative to military use of its space segment has understandably been overly careful and conservative. Looking at the ordinary meaning of the words "exclusively for peaceful purposes," it took the view that "peaceful purposes" are those which do not relate to armed conflict, acknowledging that "military uses" *per se* are not incompatible with peaceful purposes, but excluding uses in armed conflict or for self-defense pursuant to the UN Charter, Article 51, even though such uses may be deemed "non-aggressive." However, communications made for recognized humanitarian purposes have been regarded as made for peaceful purposes even if they occur in the course of armed conflict. The word "exclusively" adds emphasis only and does not change the essential meaning of the word "peaceful" which it qualifies. In summary, Inmarsat's view has been that (i) it is consistent with Convention, Article 3(3), to commission ship earth stations (SES) on warships and naval auxiliary vessels; (ii) if such vessel becomes involved in armed conflict the SES may only be used for distress and safety communications and other purposes recognized by international humanitarian law.⁹ Inmarsat simultaneously suggested a procedure for commissioning SES's on board warships and naval auxiliary vessels making above conclusions a condition for Inmarsat use and a governmental undertaking by a competent authority of the flag State

headed by a Director General who is responsible to and under the control of the Council. See Convention, *supra* note 1, arts. 9, 12, 13, 15 and 16.

⁶ See 2 SPACENET 2 (21 Jan. 1991).

⁷ Letter from Inmarsat to US Dep't of State (28 Jan. 1991) (on file with Inmarsat).

⁸ *Sic!* Letter from US Dep't of State to Inmarsat (11 Feb. 1991), *ibid.*

⁹ These guidelines for Convention, Article 3(3), were laid down in a communication to all Inmarsat Signatories (29 March 1988) (filed with Inmarsat).

of the vessel to this effect a condition for commissioning.¹⁰ With the development by Inmarsat of aeronautical and land-mobile satellite services and its enhanced institutional competence, the policy was in practice extended accordingly for use by air and land forces.

Upon reconsideration and irrespective of the increasing demand for Inmarsat system use by UN and other naval, air and land forces, the past policy needs to be re-visited mainly for the following reasons: (i) in its *per se* proper focus on the ordinary meaning of the words "exclusively for peaceful purposes" emphasis is put solely on "peaceful" rather than on "purposes"; (ii) insufficient recourse has been had to the UN Charter and the Outer Space Treaty¹¹ to further determine the legal meaning of the words; consequently, the past policy is overly restrictive and does not allow for use of Inmarsat by UN peace forces acting under UN Security Council decisions if engaged in armed conflict for the maintenance or restitution of peace; (iii) the focus on armed conflict excludes use by other than UN forces acting individually or collectively in legitimate self-defense against unlawful aggression;¹² (iv) the recognition in the past policy of humanitarian purposes is progressive and consistent with international law but requires further legal substantiation.

Convention Article 3(3) Re-visited

The basic rules of interpretation applicable to Convention, Article 3(3), are Article 31 and Article 32 of the Vienna Convention on the Law of Treaties, 1969:¹³ any interpretation has to be made in good faith and has to focus first of all on the "ordinary meaning to be given to the terms of the treaty in their context and in the light of its object and purpose."¹⁴ The context comprises, *inter alia*, the preamble¹⁵ and subsequent State practice is to be taken into account.¹⁶ The *travaux préparatoires* are relevant for confirmation unless there is a case of ambiguity or no

¹⁰ *Id.*

¹¹ Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies, 27 January 1967, 18 U.S.T. 2410, 610 U.N.T.S. 20 (entered into force 10 October 1967) [hereinafter Outer Space Treaty].

¹² These points have also been raised by R. A. Morgan, *supra* note 3, at 89.

¹³ The Vienna Convention on the Law of Treaties, 23 May 1969, 8 I.L.M. 679 (entered into force on 27 January 1980) [hereinafter Vienna Treaty Convention] applies explicitly to the constituent instrument of an international organization, albeit "without prejudice to any relevant rules of the organization." See art. 5.

¹⁴ *Id.* at art. 31, para. 1; see also 1 OPPENHEIM'S INTERNATIONAL LAW, §632 (R. Jennings & A. Watts eds., 9th ed. 1992) [hereinafter "Oppenheim's"].

¹⁵ Vienna Treaty Convention, *supra* note 13, at art. 31, para. 2.

¹⁶ *Id.* at art. 31, para. 3.

reasonable conclusion can be drawn from the ordinary meaning in context.¹⁷

Technically, the application of the Vienna Treaty Convention, 1969, may be questionable because it entered into force after the Inmarsat Convention¹⁸ and Article 4 of the Vienna Treaty Convention states on the non-retroactivity that "the Convention applies only to such treaties concluded after" its entry into force. However, the Vienna Treaty Convention has been extensively applied in relation to treaties between States both by States and by the International Court of Justice and other tribunals before its entry into force, and it is widely regarded for the most part as declaratory of customary international law.¹⁹

(i) *Inmarsat Use by UN Peacekeeping and Peacemaking Forces*

Focusing thus on the ordinary meaning of Convention, Article 3(3), it is remarkable that the wording "exclusively for peaceful purposes" is ambiguous.

The ambiguity does not arise from the adjective "exclusively" which clarifies that the "peaceful purposes" requirement is unconditional, a qualification that first occurred in similar form in the Antarctic Treaty, 1959,²⁰ before it found its way into the Outer Space Treaty, Article IV,²¹ from which the Convention, Article 3(3), language was apparently taken.

It may be argued with respect to the explicit prohibition of military activities in Antarctic Treaty, Article 1, paragraph 1, and Outer Space Treaty, Article IV, subsequent to the words "only" and "exclusively" respectively, that "exclusively" in Convention, Article 3(3), means "non-military." While this interpretation may well apply to these and other treaties that contain such "non-military" qualification in their respective texts, there is no conclusive justification for or even evidence of the formation of a *communis opinio* to the effect that the qualification "exclusively" in Convention, Article 3(3), would rule out military applications. Not only were military uses of outer space State practice of the USA and USSR already at the time of the conclusion of the Outer Space

¹⁷ *Id.* at art. 32; see Oppenheim's, *supra* note 14, at §633.

¹⁸ Compare Inmarsat Convention, *supra* note 1 with Vienna Treaty Convention, *supra* note 13 (the Inmarsat Convention entered into force on 16 July 1979).

¹⁹ See Oppenheim's, *supra* note 14, §581.

²⁰ Antarctic Treaty, 1 December 1959, 12 U.S.T. 794, T.I.A.S. 4780, 402 UNTS 71 (entered into force on 23 June 1963), art. 1, para. 1 states: "Antarctica shall be used for peaceful purposes only. There shall be prohibited, *inter alia*, any measures of a military nature...".

²¹ Outer Space Treaty, *supra* note 11, art. IV states: "...The moon and other celestial bodies shall be used by all States Parties to the Treaty exclusively for peaceful purposes. The establishment of military bases ... the conduct of military maneuvers shall be forbidden ...".

Treaty, 1967, followed by other States;²² the Inmarsat preceding INTELSAT Agreement,²³ Article III(d), explicitly prohibits military uses of INTELSAT space segment for "specialized telecommunications services," by using the wording "other than for military purposes."²⁴ Such language was before the drafters of the Inmarsat Convention which has been modeled after the INTELSAT Agreement.²⁵ Thus, military use of Inmarsat is not *prima facie* inconsistent with the Convention, Article 3(3).

The ambiguity arises from the qualifying adjective "peaceful" as attribution to the neutral noun "purposes:" a purely - but legally required - grammatical interpretation could construe this to mean either "Inmarsat shall act peacefully only" or "Inmarsat shall act only for purposes of peace." The former meaning would principally prohibit Inmarsat use in armed conflict or any form of threat or use of force irrespective of purpose; the latter meaning would principally permit such use to the extent that its purpose is peace. It is obvious that Inmarsat's past policy elected the former interpretation, thus emphasizing means over purpose, while the alternative interpretation has not been properly considered. It is precisely at this juncture that Vienna Treaty Convention, Article 31, requires to look at the context of Convention, Article 3(3), and the object and purpose of the Convention so as to acquire further guidance.

Regarding the context of Convention, Article 3(3), such guidance may be had, in particular, from Convention, Article 12(1)(b), which obliges the Inmarsat Assembly of Parties to ensure that the Organization's activities are consistent with, *inter alia*, the purposes and principles of the UN Charter; further from Convention, Preamble, 1st recital, referring to UN General Assembly Resolution 1721(XVI) which, *inter alia*, commends to States the principle that international law, including the UN Charter, apply to outer space and its use; and Convention, Preamble, 2nd recital, referring to the Outer Space Treaty "and in particular Article 1, which states that outer space shall be used for the benefit and in the interests of all countries". Finally, Convention, Article 27, obliges the Organization, *inter alia*, to cooperate with the UN and its bodies dealing with the peaceful uses of outer space and ocean area. These references need to be considered more closely.

UN General Assembly Resolution 1721(XVI) of 20 December 1961 contains the recognition of the "common interest of mankind in furthering

²² E.g., reconnaissance satellites for military intelligence which are deemed to be not forbidden by Outer Space Treaty, article IV. See Oppenheim's, *supra* note 14, §363.

²³ Agreement Relating to the International Telecommunications Satellite Organization "INTELSAT," 20 August 1971, 22 U.S.T. 3813, T.I.A.S. 7532 (entered into force on 12 February 1973).

²⁴ The same language is used in INTELSAT Agreement, art. III(e)(iii), for "separate space segment facilities." *Id.*

²⁵ The Final Act of the International Conference on the Establishment of an International Maritime Satellite System, 1975-1976, creating Inmarsat, was done at London on 3 September 1976.

the peaceful uses of outer space and the urgent need to strengthen international co-operation in this important field." "Believing that the exploration and use of outer space should be only for the betterment of mankind and to the benefit of States...", it refers for the use of outer space to international law and the UN Charter.

The "common interest of all mankind" element and "use of outer space for peaceful purposes" and "for the benefit of all peoples" are also contained in the Preamble to the Outer Space Treaty. The Preamble further discourages any "threat to peace, breach of the peace or act of aggression" and, most relevant here, expresses the conviction that the Outer Space Treaty "will further the Purposes and Principles of the Charter of the United Nations." These preambular principles are then reflected in more detail in various provisions of the treaty, *i.e.*, use of outer space for the "benefit and in the interests of all countries" and "in accordance with international law" in Article I; to carry out activities "in accordance with international law, including the Charter of the United Nations, in the interest of maintaining international peace and security" in Article III; prohibition of activities for military purposes on the moon and other celestial bodies in Article IV (*sic!* and not in other areas of outer space);²⁶ principle of State co-operation to these ends in Article IX.

The UN Charter has as its primary purpose "To maintain international peace and security, and to that end: to take effective collective measures for the prevention and removal of threats to the peace, and for the suppression of acts of aggression or other breaches of the peace...", UN Charter, Article 1, paragraph 1. In pursuit of this and its other purposes, the Charter establishes in Article 2 certain Principles, in particular, the principle in paragraph 3 that "All Members shall settle their international disputes by peaceful means in such a manner that international peace and security, and justice, are not endangered;" and in paragraph 4 that "All Members shall refrain in their international relations from the threat or use of force against the territorial integrity or political independence of any state, or in any manner inconsistent with the Purposes of the United Nations" (all Chapter I). Chapter VII deals with action by the UN with respect to threats to the peace, breaches of the peace and acts of aggression, providing in Article 39 for the UN Security Council to "determine the existence of any threat to the peace, breach of the peace, or act of aggression" and to "make recommendations, or decide what measures shall be taken in accordance with Articles 41 and 42, to maintain or restore international peace and security." Article 41 contains the measures not involving the use of armed force. Article 42, following the

²⁶ See also Agreement Governing the Activities of States on the Moon and Other Celestial Bodies, adopted by the UN General Assembly Resolution 34168 on 5 December 1979, Article 3(4). For a broader discussion of military uses of outer space and the Outer Space Treaty, article IV, see N. Jasentuliyana, *The Moon Treaty, in MAINTAINING OUTER SPACE FOR PEACEFUL USES*, at 125-132 (N. Jasentuliyana ed. March 1984); S. Gorove, *Article IV Of The 1967 Outer Space Treaty And Some Alternatives For Further Arms Control, id.*, at 80-83.

principle of proportionality, provides as follows: "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."

After having reviewed the relevant context to Convention, Article 3(3), the following can be summarized: the Convention is governed by international law, in particular the Outer Space Treaty and the UN Charter; outer space shall be used for the benefit and interests of all countries; except for the explicitly de-militarized moon and other celestial bodies, military use of outer space *per se* is not prohibited; any use establishing a threat to peace, breach of peace or act of aggression is prohibited; activities in outer space must be carried out in accordance with the UN Charter in the common interest of maintaining international peace and security; in order to maintain international peace and security, the UN shall take collective measures for the prevention and removal of threats to peace, and for the suppression of acts of aggression or other breaches of the peace; to this end, the UN Security Council determines the existence of any threat to the peace, breach of the peace, or act of aggression and decides upon the measures to be taken by air, sea or land forces to maintain or restore international peace and security.

The following can thus be inferred from the relevant legal context of Convention, Article 3(3), to the alternative results of the grammatical interpretation referred to above: it does not appear inconsistent with the meaning of "exclusively for peaceful purposes" if the Inmarsat system is used consistent with the UN Charter and Outer Space Treaty for purposes of maintaining or restoring international peace and security for the benefit and in the interests of all countries.²⁷

The next question to be examined is the compatibility of the above result with the overall object and purposes of the Inmarsat Convention.²⁸ It is evident from the text, history and practice of the Convention that Inmarsat has been set up as a civil space communications organization. Its provision of space segment is primarily for merchant shipping and, as a permissive competence, for aircraft and land-mobiles.²⁹ Consequently,

²⁷ For a similar conclusion, see also, R. A. Morgan, *supra* note 3, at 62-74, 88-94.

²⁸ See *supra* text at 3 *et seq.*

²⁹ See Convention, *supra* note 1, art. 3(1); Convention, Preamble, 3rd recital, referring to world trade; the history of the Organization as a creation of IMCO (now the International Maritime Organization (IMO), 9 U.S.T. 621, T.I.A.S. 4044, 289 U.N.T.S. 48, amendment T.I.A.S. 10374; the composition of Inmarsat's Signatories as civil telecommunications entities; the practice of Inmarsat since its inception to serve primarily merchant shipping, and later civil aviation and commercial land transport, to list some indicators; ditto R. A. Morgan, *op. cit.*, *supra* note 3, at 47 (with reference to the IMCO Panel of Experts).

Inmarsat's main purpose is the provision of space segment for civil sea, air and land transport. Military applications have been the exception rather than the rule and have been dealt with by Inmarsat on a case by case basis, requiring an explicit governmental undertaking in each case.³⁰ In summary, Inmarsat has not been set up as a military organization and does not have military applications as its main purpose. However, its treaty linkages to international law, the Outer Space Treaty and the UN Charter make its military UN applications clearly not inconsistent with its wider civil object and purposes.

Thus, the following first conclusion may be drawn: Use of Inmarsat by armed forces (military use) not involved in armed conflict or any threat to or breach of the peace is consistent with Convention, Article 3(3). Use of Inmarsat by UN peacekeeping or peacemaking forces acting under the auspices of the UN in implementation of UN Security Council decisions in order to maintain or restore international peace and security may be construed as consistent with Convention, Article 3(3), irrespective of such UN forces becoming involved in armed conflict in the accomplishment of their UN mission. Involvement in armed conflict is a possibility implicit in the maintenance or restoration of international peace and security by UN forces.

(ii) *Inmarsat Use by Other Armed Forces*

The question remains whether and to what extent Inmarsat use in armed conflict by forces other than UN forces acting in implementation of UN Security Council decisions would be compatible with the Convention, Article 3(3), requirement. The response would have to be based on and be consistent with the considerations and conclusions set forth above, in particular, the requirement for Inmarsat to act for peaceful purposes in compliance with international law, the Outer Space Treaty and the UN Charter.

Considering the UN Charter as the key point of reference for the Convention and the Outer Space Treaty, the point of departure must be the general prohibition of any threat or use of force (UN Charter, Article 2, paragraph 4) on which the UN system of collective security is based. The legitimate use of force under the UN Charter is concentrated in the UN Security Council and measures decided by it pursuant to UN Charter, Articles 39, 41 and 42. There are, however, two major exceptions under the UN Charter where force may be used other than by the UN Security Council or where the use of force may be acquiesced to by the UN Security Council, *i.e.*, (i) the case of individual or collective self-defense under UN Charter, Article 51; (ii) the case of non-international armed conflict (what is in general parlance referred to as "civil war") and which may qualify as a

³⁰ See *supra* text at 2 *et seq.* Such requirement is fully justified, *inter alia*, on the basis of Convention, article 12(1)(b), and Outer Space Treaty, article VI, establishing responsibility by both, parties to the Outer Space Treaty and the international organization, for activities carried out in outer space.

matter "essentially within the domestic jurisdiction of any state" pursuant to UN Charter, Article 2, paragraph 7, and into which the UN may elect not to intervene. The question to be considered here is whether and to what extent use of Inmarsat by armed forces under these circumstances may be construed as legitimate under the Convention, Article 3(3), requirement.

By reserving the right of individual and collective self-defense UN Charter, Article 51, provides a major exception to the prohibition of use of force outside the UN collective security system: "Nothing in the present Charter shall impair the inherent right of individual or collective self-defense 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" The exceptional character of Article 51 is underlined by strict limitations: self-defense is permissible only in the case of an "armed attack" and as a preliminary measure "until the UN Security Council has taken measures" pursuant to Article 39.³¹

The use of force in self-defense pending action by the UN Security Council is *prima facie* not consistent with "exclusive peaceful purposes" in the meaning established for Convention, Article 3(3), above because it occurs *ex definitione* outside the UN collective security system which prohibits any use of force other than authorized by the UN Security Council for the maintenance or restoration of international peace and security. On the other hand, in respecting the competence and responsibility of the UN Security Council for the restoration of international peace and security and being restricted to remedial measures pending action by the UN Security Council, the exercise of self-defense within the limitations of UN Charter, Article 51, must be considered as directly serving the restoration of international peace and security just as any subsequent action taken by the UN Security Council.

Further, "the inherent right" of self-defense, individually or collectively, established by UN Charter, Article 51, has been recognized as a legitimate remedy of last resort which is part of customary international law and not having been created by the UN Charter. In fact, the customary right of self-defense and self-defense under UN Charter, Article 51, have been identical from the outset.³² Therefore, as the general prohibition of the use of force in UN Charter, Article 2, paragraph 4, is without prejudice to the customary right of self-defense within the limitations of Article 51, and in the absence of any indication to the contrary other than the existence of Convention, Article 3(3), it may be inferred from the strong and explicit linkages of the Convention to the UN Charter and international law that Convention, Article 3(3), does not intend to prohibit Inmarsat uses

³¹ See B.-O. Bryde, *Self-Defence*, in 4 ENCYCLOPEDIA OF PUBLIC INTERNATIONAL LAW, at 212-213 (Bernhardt ed.) [hereinafter ENCYCLOPEDIA]; J. Delbruck, *Collective Self-Defence* in 3 ENCYCLOPEDIA, at 115-116.

³² See B.-O. Bryde, *supra* note 31, at 214 (with reference to Brownly).

within the narrow limitations of legitimate self-defense as established in customary international law and reflected in UN Charter, Article 51.³³

Some clarification may be appropriate regarding the meaning of "armed attack" as one of the main requirements for legitimate self-defense. Following UN General Assembly Resolution 3314(XXIX) of 14 December 1974 (by *consensus*) and its long history,³⁴ the terms "armed attack" and "aggression" may be assumed to be identical.³⁵ UN General Assembly defines the identical "aggression" in Article 1 of the Resolution as "the use of armed force by a State against the sovereignty, territorial integrity or political independence of another State, or in any other manner inconsistent with" the UN Charter. The following examples are, *inter alia*, given in Article 3 of the Resolution: the invasion or attack by the armed forces of a State of the territory of another State, any military occupation, any annexation, bombardment, the blockade of the ports or coasts of a State by the armed forces of another State, an attack by the armed forces of a State on the land, sea or air forces, the use of armed forces within the territory of another State in contravention of the conditions agreed by the receiving State. Article 4 of the Resolution determines that the enumerated acts are not exhaustive and that the UN Security Council may determine that other acts constitute aggression. Article 5 of the Resolution states that no consideration whatsoever may serve as justification for aggression, that a war of aggression is a crime against international peace and gives rise to international responsibility.³⁶

While UN General Assembly Resolution 3314(XXIX) may not cover all cases of armed attack, it certainly establishes for UN Charter, Article 51, that the right of self-defense may not legitimately be invoked against violation of rights other than by use of armed force; in particular, it rules out self-help involving the use of force³⁷ and preventive use of armed force

³³ Marginally, it may be observed that in actual practice Inmarsat has hardly any means to cut off access to its system by mobiles of an attacked state taking recourse to legitimate armed self-defense other than by decommissioning all its governmental MES, maritime, aeronautical and land-mobile, irrespective of their intended or actual use because such use will not be known to Inmarsat at the time of its occurrence; further, UN Charter, art. 51, requires immediate reporting to the UN Security Council of measures taken in self-defense so as to enable the Council to pronounce without delay a case of legitimate self-defense and initiate collective measures under UN Charter, articles 39 *et seq.*

³⁴ The initiatives of the UN General Assembly to formulate "aggression" began in 1952. See B. B. Ferencz, *Aggression*, in 3 *ENCYCLOPEDIA*, *supra* note 31, at 2-3.

³⁵ In the official French text of UN Charter, art. 51, the language "agression armée" is used for the English "armed attack"; See also B.-O. Bryde, *supra* note 31, at 213.

³⁶ See B.B. Ferencz, *supra* note 34, at 3.

³⁷ See B.-O. Bryde, *supra* note 31, at 214; see also *Self-Help*, 4 *ENCYCLOPEDIA*, *supra* note 31, at 216: "an unavoidable conclusion."

in the absence of armed attack.³⁸ Such use of force would not be covered by customary international law and UN Charter, Article 51, and would be in breach of the prohibition of the use of force in UN Charter, Article 2, paragraph 4. Consistent with the legal considerations set forth in paragraphs 21 and 22 above, Inmarsat uses would be prohibited in such cases.

The illegitimacy of armed force for self-help and preventive action are, of course, contentious³⁹ and the view here taken is based on the exceptionality of UN Charter, Article 51, and the prohibition, in principle, of the use of force outside the UN system of collective security. There may be exceptional cases where the UN Charter, Chapter VII, mechanism fails and where, taking into account the always prevailing principle of proportionality in the laws of war, self-help and preventive action remain as the very last resort available to preserve or restore the *status quo ante*.⁴⁰ However, there does not appear to exist a *communis opinio* to establish a right to such interventions as customary international law in the *post*-UN Charter period. The relevant debates that took place in the UN Security Council subsequent to such interventions point rather to the direction that they remain incompatible with international law. So what remains is a "tacit political approval"⁴¹ short of a rule of law and, therefore, not a suitable basis to establish an exception to the Convention, Article 3(3), requirement.

The second problem complex to be resolved is the use of Inmarsat by government or rebel forces or both engaged in civil war. Since 1945 civil wars have been more numerous than international armed conflicts and the latter have frequently developed as an escalation of the former.⁴² UN Charter, Article 2, paragraph 4, refers to use of force by States "in international relations", thus not prohibiting civil war *per se*, and the UN may elect not to intervene because the civil war is considered by the UN

³⁸ *Id.* at 213.

³⁹ See W. Meng, *The Caroline*, 3 *ENCYCLOPEDIA*, *supra* note 31, at 81 (with reference to the *Caroline* case (1842)): preventive self-defense in the form of self-preservation limited by narrowly defined necessity; the danger is "instant, overwhelming, leaving no choice of means and no moment for deliberation" and the act is limited to and "kept clearly within" the necessity of self-defense (cited from the 1837-42 USA/GB governmental correspondence regarding the destruction of the *Caroline*).

⁴⁰ See J. Delbruck, *id.* at 116. For cases of armed intervention to protect nationals abroad (so called "humanitarian intervention"), see U. Beyerlin, *Humanitarian Intervention*, 4 *ENCYCLOPEDIA*, *supra* note 31, at 213-214.

⁴¹ See U. Beyerlin, *supra* note 40.

⁴² "In the modern world, States seldom try to enlarge their territory by sending their armies to overrun the territory of other States; instead they increase their influence by encouraging factions sharing their own ideology to seize or retain power in other States." M. B. Akehurst, *Civil War*, 3 *ENCYCLOPEDIA*, *supra* note 31, at 88.

Security Council as essentially domestic pursuant to UN Charter, Article 2, paragraph 7.

As a general rule, Inmarsat use by government or rebel forces in civil war is incompatible with Convention, Article 3(3). As has been summarily concluded above, use of Inmarsat must be carried out in accordance with the UN Charter in the common interest of maintaining international peace and security. This relevant purpose for the interpretation of Convention, Article 3(3), has been confirmed to persist within the limitations given in UN Charter, Article 51. The fact that UN Charter, Article 2, paragraph 7, establishes a principle of non-intervention by the UN Security Council in matters that it perceives as essentially domestic, does not *per se* justify use of Inmarsat by armed forces in circumstances of civil war, simply because such use may, other than self-defense under UN Charter, Article 51, not be construed as serving the restoration of international peace and security. If, however, the civil war assumes an international dimension, prompting the UN Security Council to invoke the UN collective security system under Chapter VII of the UN Charter, legitimate Inmarsat use would be by UN forces as summarized above.

Another issue in this context is the invocation of self-defense pursuant to UN Charter, Article 51, in non-international armed conflicts. There are the cases where the rebel forces have previously received help from a foreign State so that the revolt within the territory of a State against the government of that State represents - at least in part - an indirect armed attack by another State (so called "subversion").⁴³ In such cases of subversion and pending action by the UN Security Council, the "attacked" and defending government forces must be entitled to invoke legitimate self-defense under UN Charter, Article 51, and may, consistent with the considerations set forth above, therefore also use Inmarsat. Under the same conditions, foreign States are entitled to help a government fighting a civil war as a measure of collective self-defense consistent with UN Charter, Article 51. While State practice has demonstrated that it is easier to allege subversion than to prove it, the possible political manipulation of individual or collective self-defense against subversion is without prejudice to the purely legal solution that is here to be concluded.⁴⁴

Thus, the following second conclusion may be drawn: Use of Inmarsat by armed forces - other than UN armed forces acting under the auspices of the UN Security Council - involved in international or non-international armed conflict (civil war) is, in principle, not permitted under Convention, Article 3(3), without prejudice to the exceptional case of legitimate individual or collective self-defense against armed attack and within the limitations established by UN Charter, Article 51. The latter exclude preventive action and self-help involving armed force in the

⁴³ *Id.* at 91-92.

⁴⁴ For cases of subversion in recent State practice, *see id.*

absence of armed attack but include self-defense of government against rebel forces involving subversion of a foreign State.

In the absence of ambiguity left after interpretation of Convention, Article 3(3), in accordance with Vienna Treaty Convention, Article 31, with respect to the cases here in question (use of Inmarsat by UN forces and other armed forces), the *travaux préparatoires* may be consulted for purposes of confirmation: Vienna Treaty Convention, Article 32.⁴⁵ From a consultation of the *travaux* it appears that the present text of Convention, Article 3(3), originates from a US proposal which was retained throughout the negotiation of the Convention, while an earlier USSR proposal adding to the "exclusively for peaceful purposes" requirement the language "It should not permit the military use either directly or indirectly of the technical means which will be at its disposal," was not included in the first draft of the Convention submitted by the IMCO Panel of Experts.⁴⁶ There are no other traces indicative of the meaning of Convention, Article 3(3), which would be of relevance here.

(iii) *Inmarsat Use in Armed Conflict for D&S and Other Humanitarian Purposes*

Distress & safety (D&S) communications via Inmarsat by sea, air and land forces have been permitted from the beginning of Inmarsat operations, irrespective of such forces becoming involved in armed conflict. Such communications are not directly related to the purposes of maintaining or restoring peace and therefore do not fall within the immediate purview of Convention, Article 3(3), although distress communications are more likely to occur with mobiles being involved in armed conflict than during peace times. The main legal basis for Inmarsat providing D&S communications indiscriminately is to be found, *inter alia*, in Convention, Articles 3(1) and 7(1), which determine the improvement of distress and safety of life communications to ships, aircraft and mobile earth stations on land, of all nations as one of the main purposes of Inmarsat. These provisions are complemented by Convention, Article 27, requiring Inmarsat to observe relevant provisions of the International Telecommunication Convention (now Constitution)⁴⁷ which provides for "absolute priority" to be given "to all telecommunications concerning safety of life at sea, on land, in the air or in outer space," ITU Constitution, Article 40. Consequently, D&S communications have explicitly been

⁴⁵ See *supra* text at 3 *et seq.*

⁴⁶ A well documented overview of the negotiations leading to the present text of Convention, Article 3(3), is given by R. A. Morgan, *supra* note 3, at 47-51. "The 'peaceful purposes' language persisted unscathed throughout the entire negotiation as did the reference to the Outer Space Treaty, and UN General Assembly Resolution 1721(XVI)," *id.* at 49.

⁴⁷ See Final Acts of the Additional Plenipotentiary Conference, Geneva, 1992.

allowed under Inmarsat's past policy and practice relative to Convention, Article 3(3).⁴⁸

Some legal clarification is needed as to the other exemption for "purposes recognised by international humanitarian law" which Inmarsat also accepted in its past policy and practice as legitimate use in armed conflict.⁴⁹ The term "humanitarian law" in the context of armed conflict relates to the body of international customary and treaty law dealing with such matters as the use of weapons and other means of warfare in combat and the treatment of war victims by the enemy, *i.e.*, "the direct impact of war on the life, personal integrity and liberty of human beings."⁵⁰ The core provisions of this international law are today contained in the four Conventions done at Geneva on 12 August 1949 (the "Geneva Red Cross Conventions")⁵¹ and their supplementation in form of the two Protocols Additional to the Geneva Conventions done at Geneva on 10 June 1977 and relating to the Protection of Victims of International Armed Conflicts ("Protocol I") and Non-International Armed Conflicts ("Protocol II") respectively; to this body of law are also counted earlier Geneva Conventions of 1864, 1906 and 1929 and part of the Hague Conventions of 1899 and 1907 to the extent that they are not superseded by the *lex posterior* of Geneva.⁵²

The Hague and Geneva Conventions are regarded widely as customary international law "applicable even if a State has failed to ratify them or if it has denounced them."⁵³ They are applicable in international armed conflicts and, in regard of their fundamental principles, in conflicts not of an international character;⁵⁴ in Protocol II, "non-international armed conflicts" are defined as taking place between the armed forces of a

⁴⁸ See *supra* text at 2.

⁴⁹ *Id.*

⁵⁰ See K. J. Partsch, *Humanitarian Law and Armed Conflict*, in 3 *ENCYCLOPEDIA*, *supra* note 31, at 216.

⁵¹ See Geneva Convention for the Amelioration of the Condition of the Wounded and Sick in Armed Forces in the Field (First Geneva Convention (Wounded and Sick)); Geneva Convention for the Amelioration of the Condition of Wounded, Sick and Shipwrecked Members of Armed Forces at Sea (Second Geneva Convention (Maritime)); Geneva Convention Relative to the Treatment of Prisoners of War (Third Geneva Convention (Prisoners of War)); Geneva Convention Relative to the Protection of Civilian Persons in Time of War (Fourth Geneva Convention (Civilians)). The Geneva Red Cross Conventions and the Protocols additional to them each contain a provision whereby the respective instrument enters into force six months after the deposit of two instruments of ratification.

⁵² See C. J. Partsch, *supra* note 50, at 217-218.

⁵³ *Id.*, *Armed Conflict, Fundamental Rules*, 1 *ENCYCLOPEDIA*, *supra* note 31, at 29. The concept of "Total War" as practised widely during the Second World War and in many subsequent armed conflicts both, international and non-international, is clearly totally incompatible with international law.

⁵⁴ See First, Second, Third and Fourth Geneva Conventions, art. 2.

State and dissident armed forces which, under responsible command, exercise such control over a part of the territory of the State concerned as to enable them to carry out sustained and concerted military operations and to implement the Protocol.⁵⁵ This scope of applicability is relevant here for example with regard to the ongoing armed conflict among the Republics of the former State of Yugoslavia, an Inmarsat member, prior to their international recognition as independent States.

The provisions of the Geneva law relevant here are those that relate to communications in connection with (i) the protection of wounded, sick and shipwrecked persons; (ii) the treatment of prisoners of war; and (iii) the protection of civilian persons. They provide for "disinterested aid to all victims of war without discrimination - to all those who, whether through wounds, capture or shipwreck, are no longer enemies but merely suffering and defenceless human beings."⁵⁶ Considering the linkage of the Convention to international law and the lack of any conflict of "humanitarian" with "peaceful" purposes to the extent that they relate to the protection of the wounded, sick, shipwrecked, prisoners of war and civilians, communications via Inmarsat by belligerent forces engaged in armed conflict in order to abide by the Geneva Conventions are consistent with the Convention.

Communications of such kind may relate to, e.g., medical personnel of the belligerent armed forces who are engaged in the search for or the collection, transport or treatment of the wounded, sick or shipwrecked, including communications to and from medical land transport, medical aircraft and hospital ships of the armed forces; communications between armed forces and civilian hospitals and the civilian personnel engaged in the search for, removal and transporting of and caring for the wounded and sick civilians, convoys of medical vehicles, hospital trains; communications relating to prisoners of war, including members of militias and other volunteer corps that enjoy combatant status, members of crews of the merchant navy and persons who accompany the armed forces without being members thereof.

A selective consideration of this body of law in view of Convention, Article 3(3), is necessary because as stated above, "humanitarian law" as understood today comprises the Hague and Geneva law and thus extends to methods and means of warfare.⁵⁷ Use of Inmarsat in armed conflict that complies with the Hague and Geneva law regarding methods and means of warfare is certainly not *per se* sufficient to create consistency with the

⁵⁵ See Protocol II, art 1.

⁵⁶ See The Geneva Conventions of August 12, 1949 edited by the International Committee of the Red Cross (ICRC), Prelim. Remarks, at 1.

⁵⁷ See The Compilation of INTERNATIONAL LAW CONCERNING THE CONDUCT OF HOSTILITIES (ICRC ed., 1989); Additional Protocol I, pt. III, sec. I, Methods and Means of Warfare, *id.*, at arts. 35-42,

Convention, Article 3(3), requirement if such warfare is carried out by non-UN forces and outside the limitations of UN Charter, Article 51.

Finally, there are, of course, the countless other peaceful purposes for which use of the Inmarsat system may be made by armed forces and that, although such forces may be engaged in armed conflict, are not related to or in support of the war effort. Thus, *e.g.*, totally personal and private communications by members of the armed forces with their families are clearly not inconsistent with Convention, Article 3(3). On the other hand, non-tactical governmental communications, such as news broadcasts and troop entertainment à la Marlene Dietrich or likewise, need to be deemed inconsistent with Convention, Article 3(3), to the extent that they occur outside armed conflict activities sanctioned by the UN Security Council, because the purpose of such communications is clearly to maintain, support and stimulate the war effort and they can, therefore, not legally be treated different from the use of Inmarsat for tactical communications, *i.e.*, for purposes of war.

Thus, the following third conclusion may be drawn: Use of Inmarsat by armed forces engaged in armed conflict is permitted for D&S communications, and for communications relating to the protection of the wounded, sick, shipwrecked, prisoners of war and civilians, pursuant to the Geneva Red Cross Conventions, 1949, and the Protocols Additional to the Geneva Conventions, 1977. The same applies to personal and private, non-tactical communications by members of the armed forces that are not related to or in support of the war effort. Inmarsat use for non-tactical governmental communications that directly or indirectly maintain, support or stimulate the war effort and that do not originate from governments of, and are directed to, armed forces engaged in activities sanctioned by the UN Security Council, or legitimate self-defense pursuant to UN Charter, Article 51, is not consistent with Convention, Article 3(3).

Conclusion

The foregoing analysis set out to establish the proper legal regime and parameters for use of the Inmarsat system by armed forces in view of the peaceful purposes requirement in the Inmarsat Convention, Article 3(3). The main conclusions drawn are summarized here as follows:

- (i) use of Inmarsat by armed forces (military use) not involved in armed conflict or any threat to or breach of the peace is permitted;
- (ii) use of Inmarsat by UN peacekeeping or peacemaking forces acting under the auspices of the UN Security Council is permitted, even if engaged in armed conflict to accomplish their mission;
- (iii) use of Inmarsat by armed forces not acting under the auspices of the UN Security Council involved in international or

non-international armed conflict (civil war) is not permitted, except in the case of legitimate individual or collective self-defense within the limitations established by UN Charter, Article 51; the latter exclude preventive action and self-help involving armed force in the absence of armed attack but include self-defense of government against rebel forces involving subversion of a foreign State;

(iv) use of Inmarsat by armed forces engaged in armed conflict is permitted for D&S communications, and for communications relating to the protection of the wounded, sick, shipwrecked, prisoners of war and civilians; also permitted are personal and private, non-tactical communications by members of the armed forces; however, use of Inmarsat for non-tactical governmental communications related to or in support of the war effort that do not originate from governments of, and are directed to, armed forces engaged in activities sanctioned by the UN Security Council, or self-defense pursuant to UN Charter, Article 51, is not permitted.

For practical purposes, these conclusions only provide a general and incomplete framework. The analysis did not attempt to exhaustively enumerate and evaluate all possible Inmarsat applications by armed forces. Further, the focus in the analysis on military use of the Inmarsat system must not de-focus from the fact that, as pointed out above, Inmarsat has been conceived and developed, under the continuing institutional control of its Member States, as a civil space communications organization with the main purpose of making its system available for the benefit of civil maritime, air and land transport; military applications will have to continue to be exceptional and will need to be assessed on a case by case basis in the light of the peaceful purposes requirement of the Inmarsat Convention, as here interpreted.

Finally, the analysis provided an example of legal methodology applicable to treaty interpretation. The institutional requirement for Inmarsat to act exclusively for peaceful purposes may, at first glance, appear irreconcilable with the use of its system by, e.g., armed forces engaged in armed conflict. That such use may be construed as fully consistent with the peaceful purposes requirement is the result of proper legal methodology. It demonstrates the dimension of interdependence of the Inmarsat Convention, like any other treaty, from the body of international law that surrounds it and becomes activated as a consequence of legal rather than only philological methodology which latter has often dominated approaches to the problematic meaning of "peaceful purposes" in space law.

GOING PRIVATE WITH THE JUDICIAL SYSTEM: MAKING CREATIVE USE OF ADR PROCEDURES TO RESOLVE COMMERCIAL SPACE DISPUTES

Phillip D. Bostwick*

INTRODUCTION

According to recent statistics¹ 250,000 civil cases are filed in federal district courts in the United States every year and one million in state courts. The total cost of the U.S. legal system is presently estimated at \$300 billion per year, with \$80 billion of that being spent on litigation. A plaintiff filing a civil suit today in state court in New York City can expect to wait five to six years for a trial, and another two to three years for a final appellate decision, making the total period for the resolution of his dispute nearly a decade. In federal courts, where district judges face heavy calendars of criminal, employment discrimination, civil rights and similar cases, the wait for a trial in a civil case can easily be in excess of three years. In California state courts the new "three strikes and you're out" law means that plea bargaining is a thing of the past in criminal cases involving two-time felony offenders, who must now go to trial in all such cases in an attempt to avoid being mandatorily sentenced to life imprisonment without parole. The resulting impact on the docket is that a complex civil case can be substantially delayed before a jury trial can be commenced, and when it does begin the trial may be conducted half days only, three to four days per week, while the trial judge attempts to juggle his criminal cases in order to comply with speedy trial requirements.

These realities of the public judicial system in the United States today have caused many adversaries to turn to alternatives to that system

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¹ These statistics were given at an American Law Institute - American Bar Association (ALI-ABA) continuing education of the bar course on Civil Practice and Litigation in Federal and State Courts presented in Boston, Massachusetts on October 13-15, 1994.

for a resolution of their civil disputes in a more timely and inexpensive manner. This phenomenon, known generally as "alternative dispute resolution," or "ADR," has grown significantly since its official birth in 1976. In that year Chief Justice Burger of the United States Supreme Court, speaking at a seminar sponsored by the Judicial Conference of the United States and the American Bar Association,² urged judges, legal scholars and the Bar to find new ways to cope with the mounting crisis in the courts. Since that date there has been a significant increase in the use of ADR procedures by private litigants, a substantial growth in the number of organizations that administer or promote such procedures, and a revolution in the use of ADR procedures by the courts themselves through both voluntary and mandatory court-administered ADR programs. Entire industries have developed ADR procedures designed to resolve quickly and inexpensively disputes which typically arise in those industries, and which are best resolved by experts in them.

The purpose of this article is to suggest the creative use of some ADR procedures to resolve some of the disputes arising in the commercial space industry. Not all disputes in that or any other industry will be suitable for ADR procedures, and even where the dispute is a likely candidate for ADR there is no "one size fits all" ADR procedure which makes sense for every disputant and every dispute. Creative and intelligent use of ADR procedures when devising private judicial systems requires a thorough knowledge of both the public judicial system that one is rejecting, including its advantages as well as its highly-publicized disadvantages, and the types of ADR procedures available and their advantages and disadvantages. Thus, both litigation and the alternatives to it are discussed in this article in the context of disputes that have arisen and are likely to arise in the future in the commercial space industry.

A. LITIGATION

As the word "alternative" in the phrase alternative dispute resolution suggests, ADR procedures are alternatives to the public judicial system found in the United States at the state and federal levels. Because private disputants are free to agree on variations to basic ADR procedures, including adoption of those procedures and rules found in the public judicial system that can be used in ADR, a brief review of the advantages and disadvantages of the public judicial system is the logical starting point when considering the creation of a private dispute resolution system.

The two most widely-publicized disadvantages of the public judicial system are expense and delay. Those twin evils have been assaulted by legislators and court administrators in the past few years in

² See Keynote Address by Chief Justice Warren Burger to the National Conference on the Cause of Popular Dissatisfaction with the Administration of Justice ("the Pound Conference"), April 7-9, 1976, *Agenda for 2000 A.D. -- A Need For Systematic Anticipation*, reprinted in 70 F.R.D. 83, 92 (1976).

an effort to have the public judicial system serve society better. On December 1, 1990 Congress enacted the Civil Justice Reform Act of 1990 ("CJRA").³ The CJRA required each United States district court to implement by December 1, 1993 a civil justice expense and delay reduction plan ("EDRP") in order "to facilitate deliberate adjudication of civil cases on the merits, monitor discovery, improve litigation management, and ensure just, speedy and inexpensive resolution of civil disputes."⁴ The Act set forth six principles and guidelines which the district courts were required to consider in the development of their EDRPs: (1) systematic, differential treatment of civil cases; (2) early ongoing judicial control of the trial process; (3) discovery and case management conferences; (4) encouragement of voluntary exchange of information among litigants and other cooperative discovery devices; (5) prohibition of discovery motions absent a certification of a good faith effort to reach agreement with opposing counsel; and (6) authorization to refer cases to ADR programs.⁵ The CJRA set forth a number of litigation management techniques, such as the availability of referral to a neutral evaluation program early in the litigation, that district courts were required to consider in their EDRPs.⁶

All district courts completed their EDRPs by December 1, 1993.⁷ Typical of these plans is the one adopted by the United States District Court for the District of Columbia.⁸ That plan calls for, among other things, the adoption of the concept of "case tracking." Under that concept all civil cases are differentiated into three categories for case management purposes: (1) the Fast Track, which includes all cases that can be disposed of promptly; (2) the Standard Track, which includes all cases that are relatively routine; and (3) the Complex Track, which includes cases that are complex because of their subject matter, the number of parties or for other reasons.⁹ The District of Columbia EDRP also contains a section pertaining to ADR which gives litigants options for choosing an ADR specialist from the court's roster of volunteer mediators, a magistrate judge or a person agreed upon and paid by the parties.¹⁰

On the same date that these EDRPs were due -- December 1, 1993 -- some of the most sweeping amendments to the Federal Rules of Civil Procedure since their adoption in 1938 went into effect. Among other

³ Pub. L. No. 101-650, 28 U.S.C. §§ 471-482 (1990).

⁴ 28 U.S.C. § 471.

⁵ 28 U.S.C. § 473(a).

⁶ 28 U.S.C. § 473(b).

⁷ These EDRPs are printed in a pamphlet published by Lawyers Cooperative Publishing, *CIVIL JUSTICE EXPENSE AND DELAY REDUCTION PLANS OF THE UNITED STATES DISTRICT COURTS* (1994).

⁸ Civil Justice Expense and Delay Reduction Plan for the United States District Court for the District of Columbia, Adopted November 30, 1993; Effective March 1, 1994.

⁹ *Id.* § 2.

¹⁰ *Id.* § 11.

things these changes call for a stay of all discovery from the time the action is filed until the parties have met and conferred¹¹ to discuss the nature and basis of their claims and defenses, the possibilities for a prompt settlement or resolution of the case and to develop a proposed discovery plan to submit in writing to the court within ten days of the meeting.¹²

The new rules also require the voluntary disclosure, at the time of the meeting of counsel or within ten days thereafter, of certain information without waiting for a request for information from the opposing party.¹³ This information includes the identity of each individual likely to have discoverable information relevant to the disputed facts alleged in the pleadings; a copy of, or a description of, all documents in the party's possession that are relevant to such facts; a computation of any category of damages claimed; and a copy of any insurance agreement which may indemnify payments made to satisfy the judgment.¹⁴

These amended rules also require the voluntary disclosure, without waiting for a discovery demand, of the identity of any persons who may be called at trial to testify as an expert, together with a copy of that expert's report covering the opinions to be expressed by him at trial and the basis for those opinions.¹⁵ Furthermore, the new rules greatly limit the amount of discovery the parties may conduct before trial. Depositions on oral or written examination are now limited to ten per side, regardless of the number of plaintiffs, defendants or third-party defendants, unless leave of court is obtained.¹⁶ Written interrogatories are limited to 25 per party.¹⁷

Because of the controversial nature of these new amendments -- particularly the "voluntary disclosure" requirements -- individual district courts were given the option of adopting local rules which could vary from the Federal Rules of Civil Procedure where those rules provided for such an option. The new local rules for most district courts became effective on or before June 1, 1994, completing the process started by the CJRA in 1990. A survey of the local rules of all district courts shows that about half of them opted out of the voluntary disclosure requirements, while the other half adopted the new amendments or something like them. The United States District Court for the District of Columbia, for example, adopted the voluntary disclosure requirements in all cases except those assigned to the Complex Track.¹⁸

Have these efforts at reducing expense and delay in the resolution of civil cases in the public judicial system been successful? There is no

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- 11 FED. R. CIV. P. 26(d).
 - 12 FED. R. CIV. P. 26(f).
 - 13 FED. R. CIV. P. 26(a).
 - 14 *Id.*
 - 15 FED. R. CIV. P. 26(a)(2).
 - 16 FED. R. CIV. P. 30, 31.
 - 17 FED. R. CIV. P. 33.
 - 18 LOCAL RULES D.D.C. 207.

doubt that many of these procedural innovations have helped the problems. It is still too early to tell exactly how well the newly-amended Federal Rules of Civil Procedure will work in practice, particularly in large, complex, multiparty cases involving large sums in dispute. Such cases will probably still bog down in the public judicial system. The courts' use of ADR procedures -- particularly mediation and early neutral evaluation of cases by experts -- has unquestionably helped reduce the number of civil cases going to trial. However, if expense and delay were the only two matters to be considered by a disputant, the decision to create a private judicial system would be relatively easy because those two disadvantages still prevail.¹⁹ Other aspects of the public judicial system must also be considered.

One of the major differences between the public judicial system and ADR procedures is the parties' right to discovery, as limited by state and federal court rules, which is available in the former but not in the latter absent agreement of the parties. Whether discovery is important to a party's success in resolving a dispute often depends on which side of the dispute the party is on and the nature of the dispute. For example, the buyer of a product or services, such as a satellite owner who contracts for the launch of his satellite on a manufacturer's expendable launch vehicle (ELV), may find himself in a dispute with that manufacturer after a failure of the ELV during launch. The buyer's contract may require him to prove the manufacturer's gross negligence to recover. Presumably, that buyer will be benefited by the public judicial system's right to discovery.

Thus, in *Martin Marietta Corp. v. INTELSAT*²⁰ the buyer of the launch vehicle and services, INTELSAT, would have needed to take depositions of a number of the ELV manufacturer's engineers if it hoped to prove at trial its allegations of gross negligence by that manufacturer, Martin Marietta.²¹ Conversely, Martin Marietta needed no discovery to file its motion to dismiss INTELSAT's counterclaim²² on the ground that it was barred by the cross-waiver provisions in the Commercial Space Launch Act ("CSLA").²³ Whether the right to discovery as provided in the public

¹⁹ Following the November 8, 1994 elections in the United States the 104th Congress with its Republican majority has introduced legislation in both the House and the Senate designed to reform further the public civil justice system. These reform proposals include adoption of the "loser pays" approach to civil litigation, barring or limiting lawyers' contingent fees, capping punitive damages, etc. See S. 243, 104th Cong., 1st Sess. (1995); S. 300, 104th Cong., 1st Sess. (1995); H.R. 10, 104th Cong., 1st Sess. (1995). While these legislative efforts have not been successful in the past, the issue of civil justice reform has undoubtedly taken on new life in the 104th Congress.

²⁰ 991 F.2d 94 (4th Cir. 1993). For a discussion of this and other cases cited in this article, see Bostwick, *Liability of Aerospace Manufacturers: MacPherson v. Buick Sputters Into the Space Age*, 22 J. SPACE L. 75 (1994).

²¹ This case was settled before trial following remand from the United States Court of Appeals for the Fourth Circuit.

²² *Martin Marietta Corp. v. INTELSAT*, 763 F. Supp. 1327 (D. Md. 1991).

²³ Pub. L. No. 98-575, 98 Stat. 3055 (1984) (codified as amended at 49 U.S.C.

judicial system is an advantage or disadvantage to a party to a commercial space dispute thus often depends on whether that party is the buyer or the seller of goods or services. Even where the disputant needs discovery to prove his case it can be safely assumed that he does not want that process to so prolong resolution of the dispute, or to so greatly increase his costs that he will obtain only a Pyrrhic victory at the end of his efforts.

The right to a trial by jury found in the public judicial system in most, but not all civil cases,²⁴ may also be an advantage or a disadvantage depending on the nature of the commercial space dispute and the party's involvement in the dispute. A satellite manufacturer being charged by a buyer with negligent misrepresentation may prefer a bench trial where the judge decides the disputed issues of fact as well as the legal issues, while the aggrieved buyer may prefer to have the factual issues decided by a jury. That was the case in *Public Broadcasting Service v. Hughes Aircraft Co.*²⁵ The seller-defendant often has no choice in this matter if the buyer-plaintiff requests a jury trial in his complaint. But the right to trial by jury found in the public judicial system is not available to a disputant who agrees to resolve his dispute by using adjudicatory ADR procedures, such as arbitration.

Another feature of the public judicial system not available in ADR which may be an advantage to a disputant is the right of a party to file an action seeking a declaration of his rights by the court under the Declaratory Judgments Act.²⁶ This was important to some space insurers in a case where the insured satellite owner, Western Union Corporation, filed a notice of claim with its in-orbit satellite insurers alleging that two of its orbiting satellites would experience early end of life ("EOL") at some unknown time in the future because of excessive use of station-keeping fuel. The insured took the position that there would be a covered loss under the policy when the early EOLs occurred, but said it was under no obligation to provide its insurers with information until there had been a loss. Some of the space insurers chose to file an action²⁷ for declaratory relief in order to make a motion for summary judgment to have the court declare under the Declaratory Judgments Act that there would be no coverage at the time of the alleged early EOLs of these satellites, or in the alternative to commence discovery to obtain the facts necessary to defeat the claims in the event the motion for summary judgment was denied. Such an action is permitted under the Declaratory Judgments Act even though the insured has not suffered a loss at the time the action is filed.²⁸

Some disputants may opt to file a case in the public judicial system

§§ 2601-2623) (1990).

²⁴ For example, a claimant seeking the equitable relief of injunction has no right to a jury trial. *See, e.g.,* FED. R. CIV. P. 38.

²⁵ C.A. No. 90-0736 WDK (Bx) (C.D. Cal.).

²⁶ 28 U.S.C. § 2201. All states have similar declaratory judgment acts.

²⁷ *Western Union Corp. v. Lexington Ins. Co.*, C.A. No. 91-193 (JWB) (D.N.J.).

²⁸ *See Aetna Life Ins. of Hartford v. Haworth*, 300 U.S. 227 (1937).

because they want the courts to construe a new statute or make some decisional law in their favor in order to take advantage of the precedential value of such rulings in future dealings. Unless a trial or appellate court stamps an opinion "not for publication" its ruling becomes part of the public record and in many cases is printed in the official reporters for the federal and state court systems. These rulings become legal precedent for future cases involving the same or similar legal issues. Under the doctrine of stare decisis a court in the public judicial system considers a decision on a question of law arising in a case made after due deliberation and argument to be authority, or binding precedent in the same court or in other courts of equal or lower rank in subsequent cases where the same point is again in controversy.

In *Martin Marietta v. INTELSAT*, for example, the ELV manufacturer filed a declaratory relief action in federal court in Baltimore, Maryland,²⁹ when threatened with contractual and tort claims by INTELSAT after the launch failure of Martin Marietta's Titan III ELV. The manufacturer sought a declaration from that court that any such claims were barred by the cross-waiver provision in the Commercial Space Launch Act.³⁰ That Act had not been construed by the courts and Martin Marietta alleged in its complaint that it needed to know, in connection with making future decisions about whether or not to remain in the commercial space launch business, whether it was protected from liability for such claims by the CSLA. Although the district court rejected Martin Marietta's argument that the cross-waiver provision of the CSLA preempted all state law tort claims brought in connection with a launch service contract,³¹ it agreed with the manufacturer that the legislative history of the CSLA indicated that Congress intended the mandatory waiver to bar recovery in all instances, including cases where parties were grossly negligent.³² On appeal, the United States Court of Appeals for the Fourth Circuit disagreed.³³ The Fourth Circuit found "absolutely no support" in the Act's legislative history for the trial court's conclusion that there was "a Congressional intent to protect parties from liability for their own gross negligence."³⁴ Only the courts can provide binding authority for future cases in connection with unconstrued statutes such as the CSLA. ADR procedures are not public, written opinions are not always required, many decisions are confidential by agreement of the parties and no official reports of ADR proceedings are published to constitute binding precedent for future disputes. If legal precedent is important to a disputant for future business reasons, the public judicial process may be preferred over ADR proceedings.

29 *Martin Marietta Corp. v. INTELSAT*, C.A. No. MJG-90-1840 (D. Md.).

30 49 U.S.C. § 2615(a)(1)(C).

31 *Martin Marietta Corp. v. INTELSAT*, 763 F. Supp. 1327, 1330 (D. Md. 1991).

32 *Id.* at 1333.

33 *Martin Marietta Corp. v. INTELSAT*, 991 F.2d 94 (4th Cir. 1993).

34 *Id.* at 100.

In addition to knowledge of these and other features of the public judicial system, a disputant considering the creation of a private judicial system for the resolution of his disputes must be aware of the types of ADR procedures available and the advantages and disadvantages of each.

B. ADR PROCEDURES

ADR, the acronym that has been adopted to describe any manner of resolving a dispute short of a full courtroom trial,³⁵ has been defined as:

[A] set of practices and techniques that aim (1) to permit legal disputes to be resolved outside the courts for the benefit of all disputants; (2) to reduce the cost of conventional litigation and the delays to which it is ordinarily subject; or (3) to prevent legal disputes that would otherwise likely be brought to the courts.³⁶

ADR methodologies and procedures include arbitration, mediation, conciliation, negotiation, dispute prevention, mini-trials, special masters, neutral experts (appointed by the court or chosen by the parties), ombudsmen, private judges and summary jury trials.³⁷ Each of these procedures is designed to resolve disputes through different approaches. Three of these procedures -- negotiation, mediation and arbitration, are discussed more fully below.³⁸

1. Negotiation

Negotiation is one of the world's oldest ADR methodologies. It involves only the people enmeshed in the dispute, which may be two

³⁵ See L. SINGER, *SETTLING DISPUTES: CONFLICT RESOLUTION IN BUSINESS, FAMILIES, AND THE LEGAL SYSTEM* 57 (1990) (hereafter "SINGER").

³⁶ Lieberman & Henry, *Lessons from the Alternative Dispute Resolution Movement*, 53 U. CHI. L. REV. 424 (1986).

³⁷ McLaughlin & Crupi, *Alternative Dispute Resolution*, ALI-ABA RESOURCE MATERIALS CIVIL PRACTICE AND LITIGATION IN FEDERAL AND STATE COURTS 1 (6th ed. 1994) (hereafter "McLaughlin").

³⁸ For a discussion of the other ADR procedures, see McLaughlin at 12-17. Mini-trials are not trials at all but highly structured settlement processes in which attorneys for each side, under specific time limits, present their best case to one senior executive from each company and one mutually agreed-upon neutral advisor. *Id.* at 12. Summary jury trials are what the name implies. In a case pending in court a jury is impaneled for one day and each lawyer gives the jurors a concise summary of their trial preparation, usually without witnesses or exhibits. The jury deliberates and delivers a non-binding verdict. *Id.* The use of private judges under California's Reference Procedure, Cal. Code Civ. P. § 638, commonly known as "rent-a-judge," allows parties to have their case heard privately and quickly by a third party of their choosing -- usually a retired state court judge -- in an informal or formal proceeding. At the end of the proceeding the referee submits a written decision to the court which becomes a binding judgment. *Id.* at 17.

persons or many, but the disputants communicate directly with each other without the benefit of intermediaries in an effort to reach agreement.³⁹

In his book Getting to Yes Roger Fisher, Professor Emeritus at the Harvard Law School and director of the Harvard Negotiation Project, describes a method of negotiation developed at that Project which he calls principled negotiation.⁴⁰ The method is designed to decide issues on their merits rather than through a haggling process focused on what each side says it will and won't do.⁴¹ There are four principles to the method:

1. Separate the people from the problem;
2. Focus on the interests of the parties, not their positions.
3. Invent options for mutual gain; and
4. Insist on using objective criteria.⁴²

With regard to the first principle Professor Fisher notes that negotiators are, first and foremost, human beings who have emotions, deeply held values and different backgrounds and viewpoints.⁴³ The basic approach is to deal with the people as human beings and with the problem on its merits. While understanding another's point of view is not the same as agreeing with it, Professor Fisher notes that, "The ability to see the situation as the other side sees it, as difficult as it may be, is one of the most important skills a negotiator can possess."⁴⁴ He advocates putting oneself in the other side's shoes, listening actively, allowing the other side to let off steam and understanding the importance of "face-saving" during the negotiation.⁴⁵

Professor Fisher's second principle calls for the successful negotiator to focus on the interests of the other disputant, not his position. He notes that one's position is something a person has decided upon; while one's interests, desires and concerns are what motivated that person to come to that decision.⁴⁶ He gives as an example the Egyptian-Israeli peace treaty blocked out at Camp David in 1978 concerning the Egyptian Sinai Peninsula that the Israelis had occupied since the Six Day War of 1967. When the parties sat down to negotiate a peace their positions were completely incompatible. Israel insisted on keeping some of the Sinai and

39 SINGER at 17.

40 R. FISHER AND W. URY, GETTING TO YES xviii (2d ed. 1991) (hereafter "FISHER & URY").

41 *Id.*

42 *Id.* at 10.

43 *Id.* at 19.

44 *Id.* at 23.

45 *Id.* at 23-34.

46 *Id.* at 41.

Egypt insisted that every inch of soil be returned to Egyptian sovereignty. When the parties' interests were explored it developed that Israel's interest lay in security, while Egypt's interests lay in sovereignty; the Sinai having been part of Egypt since the time of the Pharaohs. A plan was ultimately agreed upon by the parties whereby the entire Sinai would be returned to Egyptian sovereignty but large areas of it would be demilitarized, guaranteeing Israeli security.⁴⁷

The third principle -- invent options for mutual gain -- is Professor Fisher's answer to overcoming the four major obstacles that inhibit most negotiations: (1) premature judgment; 2) searching for the single answer; (3) the assumption of a fixed pie; and (4) each side's concern with only its own immediate interests.⁴⁸ Identifying shared interests helps produce agreement.

The fourth principle of Professor Fisher's method -- insisting that the result be based on some objective standard -- prevents parties to a negotiation from trying to resolve conflicts using positional bargaining; that is, by talking about what they are willing and unwilling to accept.⁴⁹ The more standards of fairness, efficiency or scientific merit can be brought to bear on a particular problem, the more the parties to a negotiation are likely to produce a final package that is wise and fair.⁵⁰ For example, if an insured is negotiating with his insurance company over the amount that should be paid on a claim for the total loss of a used car, the standard "blue book" value for a car of that year and model is at least one objective criterion available as a basis for agreement.⁵¹

One of the disadvantages of negotiation is the fact that people embroiled in disputes are often too emotionally involved to think as clearly, rationally and imaginatively as Professor Fisher does when conducting his negotiation workshop at the Harvard Law School. As a result, agreement may elude the parties to the dispute. The ancient admonition, "The lawyer who represents himself has a fool for a client," pays tribute to this human trait. Fortunately, another ADR procedure is available which can overcome this disadvantage. Professor Fisher's four principles can also be applied to this procedure, which has been used with great success in the past and is gaining steadily in favor with ADR advocates. That procedure is mediation.

2. Mediation

Mediation, another ADR technique of ancient origin, differs from negotiation in that it is a process in which a neutral party assists two or more disputants to reach a voluntary, negotiated settlement of their

⁴⁷ *Id.*

⁴⁸ *Id.* at 57.

⁴⁹ *Id.* at 81.

⁵⁰ *Id.* at 83.

⁵¹ *Id.* at 85.

differences.⁵² Unlike a judge or arbitrator, the mediator has no power to adjudicate a decision, to render a judgment or to make an award. He has no power to impose a settlement on the parties and no responsibility to counsel them. He does not act as an advocate for either side, but is a neutral third party who helps the parties talk out prior problems. His effectiveness depends on the parties' trust, his imagination, his good sense and his power of persuasion.⁵³ Listening is one of his most important tools.

Mediation has been called the "sleeping giant" of business dispute resolution, the ADR procedure with potentially the most powerful means of bringing the parties to terms.⁵⁴ Mediation puts business managers in control of resolving their own disputes because lawyers generally participate as advisors and only occasionally as spokespersons. In the hands of a skilled mediator business representatives can be helped to focus on their future relationships as well as on resolving the present disruption.⁵⁵ Most mediators are trained to utilize the four principles of Professor Fisher's principled negotiation method during mediation sessions.

All mediations should involve at least the following steps: (1) introduction; (2) initial joint session; (3) initial private sessions; (4) mediator breaks; (5) subsequent sessions; and (6) a final joint session.⁵⁶ During the introduction phase the mediator explains the role of a mediator to the parties and describes the mediation process to them. He stresses that he has no power to render a decision, that the entire process is voluntary and that he will keep confidential all that is told to him, revealing to each side only that which the other side agrees can be divulged.

At the initial joint session the mediator meets with all parties and their counsel to gather information as to the general facts and to obtain the positions of the parties. In keeping with Professor Fisher's first principle, he uses this initial joint session to let each party, not just the party's lawyer, explain how he sees the dispute, what his position is and what he would like to see happen as a result of the mediation. The parties may be emotional and the process of recounting their grievances in front of the other side -- perhaps for the first time -- allows them to let off steam by describing their anger, frustration and other negative emotions. The mediator and the parties can then begin to deal with the problem on its merits.

Following the initial joint session the mediator meets in private with each side to elicit sensitive facts and to identify the parties'

⁵² See *MEDIATION FOR THE PROFESSIONAL*, CENTER FOR DISPUTE SETTLEMENT, WASHINGTON, D.C. 1 (1993) (hereafter "CDS MEDIATION").

⁵³ *Id.*

⁵⁴ SINGER at 72.

⁵⁵ *Id.* at 73.

⁵⁶ CDS MEDIATION at 7-9.

interests. During these initial private sessions the mediator seeks, pursuant to Professor Fisher's second principle, to gain the parties' trust so that each side will confide in him concerning the parties' real interests, as opposed to their positions. When doing this the mediator will seek to learn if there are any constraints acting upon either or both sides such as time, money or other factors. These constraints may be causing the parties to take the positions they have taken. At the end of each private session the mediator will ask the party whether there is anything that has been divulged to him during that session that the party does not want him to discuss with the other side.

Following these private sessions the mediator should break to review his notes (which are always kept confidential) and begin to meet the challenge of Professor Fisher's third principle -- developing options for mutual gain that may resolve the dispute. To prevent being inhibited from inventing an abundance of options, the mediator should not make premature judgments and should not reach for a single answer.

In subsequent sessions, joint or private, the mediator attempts to move the parties towards agreement. He attempts to transmit the information he has gathered in a fashion that builds areas of agreement and narrows the areas of disagreement.⁵⁷ He does not express value judgments or attempt to "sell" his ideas about how to resolve the dispute. Instead, he asks open-ended and hypothetical questions such as, "What if. . .?" and "Would it be possible to. . .?"⁵⁸

In his efforts to get the parties to reach an agreement the mediator uses the fourth principle of Professor Fisher's method -- he insists that the result be based on some objective standard. This prevents parties from trying to resolve conflicts using positional bargaining --that is, by talking about what they are willing and unwilling to accept.⁵⁹ The mediator insists that the agreement must reflect some fair standard independent of the naked will of either side. By discussing such criteria rather than what the parties are willing or unwilling to do, neither party has to give in to the other; both can defer to a fair solution.⁶⁰

If agreement is reached the mediator reduces it to writing and presents it to each side, first in private session to be sure that it is acceptable, and then in a final joint session where all parties and the mediator sign the agreement. If negotiation and mediation fail to resolve the dispute, the disputants may prefer to have it adjudicated by binding arbitration rather than litigation.

3. Arbitration

Arbitration is an ADR procedure that differs from both negotiation

⁵⁷ *Id.* at 20.

⁵⁸ *Id.* at 21.

⁵⁹ FISHER & URY at 81.

⁶⁰ *Id.* at 12.

and mediation in that it is an adjudicatory process. That is, the disputants, through their counsel, present their dispute to one or more arbitrators for a decision pursuant to a written agreement. The arbitration can be binding or non-binding, but the objective is to have someone decide the dispute for the parties. Congress and the federal courts are experimenting with the use of mandatory arbitration in certain types of civil cases in some district courts,⁶¹ but this article will focus on private arbitration proceedings, both administered and non-administered.

In 1925 Congress passed the Federal Arbitration Act⁶² ("FAA"). The Supreme Court said in *Moses H. Cone Memorial Hosp. v. Mercury Const. Corp.*⁶³ that the FAA indicates "a liberal federal policy favoring arbitration agreements, notwithstanding any state substantive or procedural problems to the contrary." The Court also stated that as "a matter of federal law, any doubts concerning the scope of arbitrable issues should be resolved in favor of arbitration. . . ."⁶⁴ In recent years a series of Supreme Court cases have held that claims brought under various statutes must be arbitrated in accordance with the terms of pre-dispute arbitration agreements.⁶⁵

Several organizations have developed to administer private arbitration proceedings. The oldest in the United States is the American Arbitration Association ("AAA"), founded in 1926. With more than thirty offices in the United States the AAA administers for a fee arbitration proceedings in those cases filed with it. The AAA has developed a set of Commercial Arbitration Rules which can be adopted by the parties if they so desire. These rules were supplemented in 1993 with the AAA's Supplementary Procedures for Large, Complex Disputes. The AAA also provides a Standard Arbitration Clause⁶⁶ which contracting parties can

⁶¹ Section 901 of the Judicial Improvements and Access to Justice Act, Pub.L.No. 100-702 (1988) creates an experimental arbitration program in the federal courts codified at 28 U.S.C. §651-58. The Act authorizes pilot arbitration programs in ten judicial districts which may require the parties to a civil action to submit to arbitration if the complaint seeks only money damages and the amount in controversy is \$100,000 or less. 28 U.S.C. § 652(a). Relief from an arbitrator's award is limited to requesting a trial *de novo* by filing a written demand within 30 days after the award. See generally McLaughlin at 5-7.

⁶² 9 U.S.C. § 1 *et seq.*

⁶³ 460 U.S. 1 (1983).

⁶⁴ *Id.* at 24-25.

⁶⁵ See *Shearson/American Exp., Inc. v. McMahon*, 482 U.S. 220 (1987); *Rodriguez De Quijas v. Shearson/American Exp., Inc.*, 490 U.S. 477 (1989); *Volt Information Sciences, Inc. v. Bd. of Trustees of Leland Stanford Junior University*, 489 U.S. 468 (1989).

⁶⁶ The AAA's Standard Arbitration clause reads:

Any controversy or claim arising out of or relating to this contract, or the breach thereof, shall be settled by arbitration administered by the American Arbitration Association under its Commercial Arbitration Rules, and judgment on the award

insert in their contracts when they choose to have disputes resolved through arbitration administered by the AAA.

A more recent entrant into the field of private arbitration and other ADR procedures is the Center for Public Resources ("CPR") in New York. CPR is a non-profit alliance of more than 500 global corporations and leading law firms⁶⁷ organized to develop alternatives to the high cost of litigation for business and public institutions. Its mission is to integrate ADR procedures into the mainstream of public and private law practice. It operates on two premises: (1) that the in-house counsel of the major corporations in the United States must assume the lead in advocating the cost-effective methods of ADR; and (2) that the legal practice itself must be the predominant counselors and providers if ADR is to realize its potential. CPR corporate and law firm members sign an ADR pledge,⁶⁸ which provides that any time the corporate entity becomes involved in a dispute with another pledgee, it will explore alternative means of settling the dispute before initiating litigation. The pledge is a corporate policy statement. It is not an enforceable contract and the corporation can choose to go directly to court to resolve the dispute.⁶⁹ Written pre-dispute arbitration agreements are enforceable in the courts, but whether pre-dispute agreements to mediate are specifically enforceable remains an open question.⁷⁰ One way of avoiding the problem is to draft a pre-dispute agreement that requires resort to arbitration after mediation fails to resolve the dispute.

CPR does not administer arbitration proceedings although it has established procedures and rules for use in arbitration, mediation and other ADR procedures which can be utilized by the disputants if they wish to do so. CPR has also developed a standard pre-dispute clause which the parties may use in their contracts.⁷¹ CPR also advocates that these pre-

rendered by the arbitrator(s) may be entered in any court having jurisdiction thereof.

⁶⁷ Shaw, Pittman, Potts and Trowbridge is a member of CPR.

⁶⁸ The CPR pledge reads:

In the event of a business dispute between our company and another company which has made or will then make a similar statement, we are prepared to explore with that other party resolution of the dispute through negotiation or ADR techniques before pursuing full-scale litigation.

⁶⁹ McLaughlin at 24.

⁷⁰ *Id.* at 26. In *AMF Inc. v. Brunswick Corp.*, 621 F. Supp. 456 (E.D.N.Y. 1985), Judge Weinstein held that a written agreement to refer future disputes to a third party for an advisory opinion was enforceable either as an agreement to arbitrate subject to the FAA or as an agreement that could be enforced in equity through specific performance.

⁷¹ CPR's pre-dispute clause reads:

Any controversy or claim arising out of or relating to this contract, or the breach, termination or validity thereof, shall be settled by

dispute clauses state that the governing law for the arbitration shall be the FAA, and that the arbitrators are precluded from awarding punitive damages.⁷²

Parties to international contracts often opt for arbitration administered by the International Chamber of Commerce ("ICC") in Paris. The ICC's Court of Arbitration was created after World War I by businessmen who were struggling with the practical difficulties of designing a dispute resolution process acceptable to merchants of different national backgrounds.⁷³ The ICC began as a European institution and its rules and procedures still show the influence of adjudication in the European, rather than the U.S., tradition. Hearings tend to involve much more written than oral testimony, and the European arbitrators rely more on expert reports prepared for the arbitration tribunal than upon oral testimony of experts for each side who appear at the hearing.

One of the drawbacks of ICC arbitration is that of expense. Arbitrators' fees, which are based on a percentage of the amount in dispute, routinely run into tens of thousands of dollars, and hundreds of thousands in large cases.⁷⁴ In response to that growing complaint new organizations have developed to administer international arbitration and other ADR procedures. One such organization is the International Court of Aviation and Space Arbitration ("Aviation & Space Court") in Paris. This court, like the ICC, is also oriented in the European tradition; but it is tailored to meet the needs of the international aviation and space industries. The Aviation & Space Court's Rules of Arbitration call for a binding, non-appealable award to be rendered by the arbitrators within one year after the commencement of the arbitration. Fees of arbitrators

arbitration in accordance with the Center for Public Resources's Rules for Non-Administered Arbitration of Business Disputes, by (a sole arbitrator) (three arbitrators, of whom each party shall appoint one) (three arbitrators, none of whom shall be appointed by either party). The arbitration shall be governed by the United States Arbitration Act, 9 U.S.C. §§ 1-16, and judgment upon the award rendered by the Arbitrator(s) may be entered by any court having jurisdiction thereof. The place of arbitration shall be (city, state).

⁷² The authority of arbitrators to award punitive damages has been, at best, uncertain. In *Barbier v. Shearson Lehman Hutton, Inc.*, 948 F.2d 117 (2d Cir. 1991); and *Fahnestock & Co., Inc. v. Waltman*, 935 F.2d 512 (2d Cir.) *cert. denied* 112 S.Ct. 380 (1991), the Second Circuit, reviewing New York law, concluded that arbitrators awarding punitive damages in a diversity case exceeded their authority. In *Todd Shipyards Corp. v. Cunard Line, Ltd.*, 943 F.2d 1056 (9th Cir. 1991), the Ninth Circuit reached the opposite conclusion and found that the award of punitive damages was within the authority of the arbitrators because it was federal, not New York law, which governed the issue. See generally *McLaughlin* at 42-44.

⁷³ See W. CRAIG, W. PARK & J. PAULSSON, *INTERNATIONAL CHAMBER OF COMMERCE ARBITRATION* xxi (2d ed. 1990).

⁷⁴ *Id.* at xxii. For example, arbitrators' fees where the sum in dispute is from \$10 million to \$50 million range from a minimum of 0.05 percent to a maximum of 0.15 percent of the sum in dispute.

and experts are set on the basis of a per diem lump sum, rather than calculated as a percentage of the sum in dispute.⁷⁵ All aspects of the Aviation & Space Court's handling of an arbitration proceeding are kept strictly confidential, including the award. This is in response to a recent modification to the French Penal Code which can result in a corporation being held criminally liable in case of an accident or of violations of safety standards where the error committed is attributable more to the employee's activity within the company or to the company's general policy than to the employee's personal negligence.⁷⁶

C. *RESOLUTION OF A HYPOTHETICAL COMMERCIAL
SPACE DISPUTE IN 1999*

How a commercial space dispute arising in the future might be resolved through the use of a privately-created judicial system is illustrated by the hypothetical set of facts described below.

In early 1996 WORLDSAT, the international consortium located in Washington, D.C. engaged in the business of operating telecommunications satellites for the benefit of its member nations, issued a request for proposal (RFP) to all launch vehicle manufacturers in connection with its planned launches of five WORLDSAT VIII geostationary satellites being built for WORLDSAT by Ludine Systems in California. The RFP indicated that the bidders should be prepared (1) to warrant expressly the quality control of their work; (2) to agree to predetermined damages in the event the express warranty was breached; (3) to agree that one WORLDSAT representative could serve as a member of any Failure Review Board (FRB) established to determine probable cause of the failure of any launch vehicle resulting in the loss of one or more of the five WORLDSAT VIII satellites; and (4) to agree to resolve any disputes arising between the Buyer, WORLDSAT, and the Seller of the launch vehicle and services in accordance with an ADR plan attached to the RFP.

Lister Morris, a large aerospace conglomerate located in Bethesda, Maryland, manufacturing the Taurus IV ELV, was anxious to get a contract with WORLDSAT to launch its next generation of satellites. Lister Morris's ELV was an old design and quality control problems had plagued the aerospace giant since the 1995 merger of Lister and Morris, two of the largest aerospace manufacturers in the United States. Lister Morris was facing stiff competition in the ELV market from European, Chinese and Japanese ELV manufacturers, each of whom enjoyed a better reputation for reliability than Lister Morris based on excellent quality control procedures and more modern ELV designs.

Contract negotiations between WORLDSAT and Lister Morris

⁷⁵ The current rate for arbitrators and experts is \$2,000 per day for each day of arbitral hearing or meeting held. Arbitrators are not paid for the time they spend reviewing documents before the hearing.

⁷⁶ F. Garnaut, *A New International Court of Aviation and Space Arbitration*, DYP LONDON SPACE INS. CONFERENCE 223 (1994).

involved hard bargaining between the parties. Several times WORLDSAT threatened to break off negotiations and sign a contract with one of Lister Morris's competitors if Lister Morris refused to agree to the matters stated in WORLDSAT's RFP. On November 15, 1996 Lister Morris and WORLDSAT signed a contract for five WORLDSAT VIII satellite launches on Taurus IV ELVs to take place between 1997 and 1999 ("the Contract"). The Contract provided, among other things, for most of the matters stated in WORLDSAT's RFP. The Seller agreed to warrant expressly that the quality control procedures used in the manufacture of its Taurus IV ELVs would be "as good or better than the generally-accepted standards of quality control used in the aerospace industry." The Seller also agreed that in the event one of the five WORLDSAT VIII satellites was lost because of the launch failure of a Taurus IV ELV found to be caused by below-standard quality control procedures, Lister Morris would pay to WORLDSAT as agreed damages for the breach of the express warranty the sum of \$100 million and provide one free relaunch, estimated at a value of \$35 million. The Seller further agreed that WORLDSAT could appoint one member to any FRB established by the Seller to determine the probable cause of such a failure. Both parties agreed to resolve any disputes arising under the Contract, and all determinations concerning alleged breach of the express warranty, by following the private dispute resolution system set forth in Schedule A to the Contract.

Schedule A to the Contract required the parties to do certain things in the event of a dispute arising between them following the failure of a Taurus IV ELV during launch. Lister Morris agreed that within five days of any failure it would establish an FRB to determine the probable cause of the failure, and that it would permit WORLDSAT to appoint one member to that FRB. The parties agreed that at any time during the FRB review or after issuance of its Final Report on probable cause, WORLDSAT could advise Lister Morris in writing that in its view the launch failure was probably caused by quality control procedures not in accordance with generally-accepted industry standards. The parties further agreed that upon receipt of such a written notice each party would select three of its officers to meet in an attempt to reach a resolution of the dispute through negotiations.

If these negotiations failed to resolve the dispute within thirty days either party could serve the other with a written Notice of Mediation. Schedule A stated that upon receipt of such a notice they would agree on a neutral mediator to assist them in their efforts to resolve the dispute prior to conducting any discovery using CPR's Model Procedure for Mediation of Business Disputes. If these efforts at mediation failed to resolve the problem within thirty days of receipt of the written Notice of Mediation, either side could serve the other with a written Notice of Arbitration. The parties agreed that this notice would not automatically terminate their efforts at mediation, which would continue during the discovery period and the arbitration hearing, if necessary. Schedule A called for the use of CPR's Rules for Non-Administered Arbitration of Business Disputes as amended and supplemented by the rules and procedures set forth in

Schedule A or as agreed upon by the parties.

The parties agreed in Schedule A to conduct limited discovery prior to submitting the dispute to final and binding arbitration before three arbitrators. The discovery was to be conducted in accordance with the Federal Rules of Civil Procedure (10 depositions per side, 25 interrogatories per side, voluntary production of relevant documents and experts' reports, etc.), with a two-day limit for each deposition. The parties agreed to complete all discovery within four months of the issuance of the FRB's Final Report. They further agreed to commence the arbitration hearing no later than six months after issuance of that report.

Schedule A to the Contract called for each party to select, within ten days of receipt of a written Notice of Arbitration, an arbitrator of its choice. These two arbitrators did not have to be lawyers; they could be engineers, professors or other experts in the aerospace or telecommunications industries. These two arbitrators would, within 30 days, select a Chairman arbitrator, who had to be either a lawyer or a retired judge. Schedule A called for the final arbitration hearing to be conducted in Washington, D.C. and required the arbitrators to hold a scheduling and planning conference in accordance with Fed. R. Civ. P. 16(b) within two weeks of the selection of a Chairman arbitrator, which conference was to be preceded by a meeting of the parties and their counsel in accordance with Fed. R. Civ. P. 26(f) to develop a discovery plan. A final pretrial conference in accordance with Fed. R. Civ. P. 16 was to be held by the arbitrators after the completion of all discovery and at least two weeks prior to the date set for the arbitration hearing.

The parties agreed in Schedule A that the arbitrators should rule promptly on all discovery disputes without oral argument after receiving written memoranda (limited to ten pages) from the parties setting forth their positions. They further agreed that the final arbitration hearing should last no longer than two weeks, with each side having up to five working days to present its case. Schedule A called for the arbitrators to issue a written opinion and decision within 30 days of the close of the arbitration hearings. The parties agreed that the arbitrators could not award punitive damages and that the Contract specified the agreed-upon damages for breach of express warranty. The law of the District of Columbia and the Uniform Commercial Code (UCC) as adopted in that jurisdiction were designated to be the applicable law. Schedule A called upon each side to bear its own attorney's fees, experts' fees and other costs of the ADR proceedings, with the parties dividing equally all fees of mediators and arbitrators. Both sides agreed that all aspects of the negotiations, the mediation and the arbitration would be confidential and that all documents produced would be shown only to those required to conduct the ADR proceedings.

Prior to the launch of the first WORLDSAT VIII satellite, scheduled for June 1, 1997, WORLDSAT's space insurance brokers prepared a presentation to make to space insurers worldwide in an effort to obtain launch insurance coverage for all five satellites. A series of satellite losses in 1994 and 1995 had "hardened" the space insurance market and

increased insurance rates substantially. One of those losses was caused by the failure of a Taurus IV ELV. The FRB for that failure had concluded that poor quality control procedures at Lister Morris were responsible for it. At the outset of negotiations between WORLDSAT and the leading space insurers, insurance rates of 19% to 21% of the value of the property to be insured were being quoted to WORLDSAT's brokers. These figures exceeded the amount that WORLDSAT had budgeted for its launch insurance, which would provide coverage only for the few minutes between lift off of the ELV ("clamps off") to separation of the satellite from the ELV's third stage booster.

In an effort to reduce these rates WORLDSAT's brokers approached a leading space insurer and discussed the express warranty WORLDSAT had obtained in its launch services Contract with Lister Morris. WORLDSAT and its brokers proposed to the insurers that in the event of a loss caused by a launch failure resulting from sub-standard quality control at Lister Morris, WORLDSAT would assist the insurers if they attempted to recover under subrogation principles the \$100 million agreed-upon damages for breach of warranty, and would share with the insurers some portion of the value of the free relaunch, estimated at \$35 million.

Reluctant at first to discuss any possible subrogation litigation in the United States, a leading space insurer reviewed with WORLDSAT and its brokers the express warranty, the agreed-upon damages for breach and the ADR system set forth in Schedule A to the Contract. An agreement was eventually reached between WORLDSAT and several leading space insurers whereby the five launches would be covered for \$170 million per launch at a rate of 13% in exchange for WORLDSAT's promise to give full assistance to the insurers in the event of any efforts by them to recover \$100 million in damages for breach of warranty plus the value of a relaunch from Lister Morris. WORLDSAT and its insurers agreed that the insurers would keep all sums recovered by way of settlement and/or arbitration of the \$100 million agreed-upon damages, and one-half of all sums recovered for the value of a relaunch. It was further agreed that the insurers and WORLDSAT would jointly agree on the selection of arbitration counsel, the arbitrator and the mediator; that the insurers would bear the cost of attorney's fees, experts' fees, arbitrators' fees, mediator's fees and other costs of the ADR procedures; that WORLDSAT would assist the insurers in the ADR negotiations, mediation, discovery and arbitration hearings by providing experts, engineers and other employees from WORLDSAT at no cost to the insurers; and would in all respects cooperate fully and otherwise assist the insurers in their attempts to recover damages for breach of warranty through the ADR program set forth in Schedule A. The Contract and Schedule A thereto were incorporated by reference into the policy of launch insurance issued by the space insurers on May 15, 1997 ("the Policy").

On June 20, 1997, the first of WORLDSAT's five WORLDSAT VIII satellites was launched at Cape Kennedy on a Lister Morris Taurus IV ELV. The launch vehicle performed normally, the satellite was successfully

placed in geosynchronous orbit and later put into commercial service. The second launch of a WORLDSAT VIII satellite was scheduled for January 15, 1998. On that date the Taurus IV ELV and its payload of a WORLDSAT VIII satellite were destroyed when the launch vehicle experienced a drop in fuel pressure during the firing of its second stage booster, causing the ELV to veer off course and crash into the waters off Cape Kennedy. Lister Morris immediately named a seven-person FRB to investigate the cause of the failure and invited WORLDSAT to nominate one member to join the FRB. WORLDSAT nominated its vice president in charge of engineering.

Early reviews of data and records of the failed ELV disclosed no reason for the mysterious drop in fuel pressure. Lister Morris focused its attention on one of the second stage fuel pumps, which it believed had malfunctioned. WORLDSAT's member on the FRB urged continued attempts by divers at recovery of parts from the ELV from the waters off Cape Kennedy. That effort was continued as the FRB began to draft a final report listing several recommended changes to be made to the second stage fuel pumps. On May 5, 1998, shortly before the FRB's final report was due to be issued, additional parts of the ELV were recovered from the sea and laid out in the investigation area. One investigator noticed a small rag blocking one of the fuel pipes leading to a second stage fuel pump.

On May 23, 1998 WORLDSAT sent a written Notice of Negotiation to Lister Morris pursuant to Schedule A of the Contract and advised it that WORLDSAT's member on the FRB would not be signing the FRB's Final Report as drafted. WORLDSAT stated in its Notice of Negotiation that it appeared to it that the probable cause of the launch failure was Lister Morris's failure to discover a rag in the second stage fuel line, which failure amounted to a breach of the express warranty concerning quality control given by the Seller in the Contract. WORLDSAT notified its space insurers when it sent this Notice of Negotiation, WORLDSAT having been paid the agreed sum of \$170 million on April 10, 1998 by those insurers following their receipt of a proof of loss from WORLDSAT concerning the loss of its second WORLDSAT VIII satellite. WORLDSAT advised its space insurers that they should begin preparing for the ADR procedures set forth in Schedule A to the Contract in the event negotiations between WORLDSAT and Lister Morris did not result in a resolution of the dispute.

Each side nominated three company negotiators, who met several times over a two-week period. Lister Morris took the position that the evidence supporting lack of quality control as the probable cause of the ELV's failure was not persuasive. It advised WORLDSAT that it was going to issue its FRB Final Report recommending changes to the second stage fuel pump, and it denied any breach of the express warranty stated in the Contract. On June 20, 1998, at the end of the second week of negotiations, WORLDSAT served Lister Morris with a written Notice of Mediation and advised its space insurers to take charge of future ADR efforts to recover damages for breach of express warranty. Thereafter, WORLDSAT's general counsel and the attorneys agreed upon by WORLDSAT and the space insurers to recover damages worked in concert (hereafter "WORLDSAT/INSURERS").

WORLDSAT/INSURERS and Lister Morris agreed to appoint as mediator a lawyer with experience both as a litigator and a mediator in large, complex cases who was also familiar with the commercial space industry and space insurance matters. Two mediation sessions were held but all parties agreed that the probabilities of resolving the dispute before the commencement of any discovery were very low. On August 15, 1998, at the end of the second mediation session, WORLDSAT/INSURERS served Lister Morris with a written Notice of Arbitration, together with a cover letter to Lister Morris and the mediator expressing WORLDSAT's willingness to continue attending periodic mediation sessions during discovery and the arbitration proceedings in an effort to resolve the dispute short of an arbitration hearing.

Lister Morris's FRB issued its Final Report on August 20, 1998. The FRB found that the "most likely" cause of the drop in fuel pressure was a malfunction of one of the ELV's second stage fuel pumps. The report recommended several modifications to those pumps. WORLDSAT's vice president in charge of engineering dissented from the FRB's findings, conclusions and recommendations and wrote a short minority report stating that the probable cause of the drop in fuel pressure was a blockage of the fuel line caused by a rag which had presumably been inserted during the manufacturing process and never discovered during pre-launch testing. He recommended certain improvements to Lister Morris's quality control and pre-launch test procedures.

Following Lister Morris's receipt of WORLDSAT/INSURERS' written Notice of Arbitration both sides selected arbitrators. Lister Morris selected a propulsion engineer who was a professor at M.I.T. WORLDSAT/INSURERS selected an attorney who was experienced in trying large, complex commercial cases in court and also experienced in conducting arbitration proceedings. Those two arbitrators selected a retired federal district judge to act as Chairman of the arbitration panel.

An initial scheduling conference was set by the arbitrators for September 15, 1998. Prior to that conference the attorneys for the parties conferred and prepared an agreed-upon written discovery plan to submit to the arbitrators. The parties agreed to exchange "voluntarily-produced" documents ten days after the scheduling conference and to commence depositions within twenty days after receipt of those documents. Reports of each party's experts were to be exchanged within three months of the date of the FRB's Final Report. Depositions of those experts would be taken within two weeks of receipt of the experts' reports. Both sides agreed to make their engineers, inspectors and other employees available for these depositions, which were scheduled to be taken in the Washington, D.C.-Bethesda, Maryland area. Written interrogatories were to be exchanged at the time documents were voluntarily produced, and sworn answers to those interrogatories were to be exchanged within thirty days thereafter. Additional requests for documents and requests for admissions could be served at any time with responses due within twenty days of receipt.

At the scheduling conference the arbitrators approved the parties' discovery plan, set a discovery cut-off date of January 15, 1999, a final

pre-hearing conference for February 25, 1999, and scheduled the two-week arbitration hearing to commence in Washington, D.C. on March 15, 1999. The parties were advised that no extensions of these dates would be permitted unless both sides agreed to the amended dates.

During WORLDSAT/INSURERS' depositions of Lister Morris engineers and inspectors the employee in charge of the work done on the fuel line that had been found to contain a rag testified that the rag found was of the type he used in his work. He had no recollection of leaving one of these rags in the fuel line, but said that the written records of his work showed an inspector's stamp and a date, indicating that his work had been inspected by one of Lister Morris's quality control inspectors. Records revealed that the inspector in question no longer worked at Lister Morris. A deposition of his supervisor revealed that the inspector had been discharged because it had come to the company's attention that he was placing his inspector's stamp on some records even though he had not actually inspected the work physically.

Lister Morris's expert presented a written report concluding that the probable cause of the drop in fuel pressure was a malfunctioning fuel pump. That expert was deposed by WORLDSAT/INSURERS' attorneys, who concluded that he would make an excellent expert witness at the arbitration hearing and that his opinions would probably be given considerable weight by the arbitrators, particularly the professor from M.I.T. WORLDSAT/INSURERS decided to use WORLDSAT's vice president of engineering who had served on the FRB as their expert.

Another mediation session was scheduled by the mediator for January 25, 1999, ten days after the completion of all discovery. At the private sessions with the parties the mediator learned some additional facts that he considered useful. Lister Morris's general counsel admitted to the mediator that it would be difficult to keep the information about the discharged inspector from being discussed in the industry once the arbitration hearings began, despite the confidentiality agreement of the parties. This information was something Lister Morris did not want to surface at this time because it was presently in negotiations with an association of Pacific Rim countries in an attempt to sign a contract to launch four to six of their satellites over the next three years. In addition, Lister Morris was interested in resolving this dispute with WORLDSAT because that consortium had just sent out an RFP to satellite manufacturers concerning its WORLDSAT IX satellites and Lister Morris's satellite manufacturing division was very anxious to bid on that business. Privately, Lister Morris's general counsel admitted to the mediator that he was not sanguine that the arbitrators would accept Lister Morris's theory that a malfunctioning fuel pump caused the launch failure. He also indicated that Lister Morris would consider paying WORLDSAT/INSURERS some money and giving WORLDSAT a free relaunch and a discount on future satellite business if that would settle this matter.

In his private sessions with WORLDSAT/INSURERS the mediator learned that WORLDSAT, although not interested in future launches on Lister Morris's ELVs unless its quality control procedures were greatly

improved, did have an interest in having Lister Morris's satellite manufacturing division respond to its RFP concerning the WORLDSAT IX satellites. That division enjoyed a good reputation for design, quality control and reliability. However, so long as Lister Morris took what WORLDSAT considered to be an irresponsible position about the probable cause of this launch failure, WORLDSAT's Director General had decreed that WORLDSAT would put all future business dealings with Lister Morris on hold. The mediator also learned that WORLDSAT's insurers were concerned about the arbitrators being persuaded by Lister Morris's expert, and they were interested in a settlement of the matter, if possible, prior to spending additional fees and costs for the two-week arbitration hearing.

The mediator suggested several options for settlement to each side in private sessions. The parties continued to prepare for the arbitration hearing on March 15, 1999, but met with the mediator again on March 10, 1999. At that time both sides signed a written settlement agreement resolving the dispute which had been drafted by the mediator. Lister Morris agreed to amend its FRB Final Report to conclude that the probable cause of the launch failure was blockage of a fuel line by a rag, and to change its recommendations to focus on improved quality control and inspection procedures. Lister Morris also agreed (1) to pay WORLDSAT the sum of \$25 million in cash, (2) to provide WORLDSAT with one free relaunch (valued at \$35 million), and (3) to give WORLDSAT a discount on the price of four WORLDSAT IX satellites valued at \$35 million. WORLDSAT and its INSURERS agreed to release Lister Morris from all claims arising out of the launch failure, to seal all documents, deposition transcripts and records developed during discovery and take all necessary steps to insure that WORLDSAT employees and insurers did not discuss the matter of Lister Morris's discharged employee to others in the industry. WORLDSAT agreed to give its insurers the \$25 million cash received from Lister Morris, and in addition to give its insurers a check from WORLDSAT in the amount of \$52 million (the sum of the \$35 million discount and one-half the value of the free relaunch). Thus, space insurers would receive a total of \$77 million for their efforts to recover for breach of warranty, less their costs of prosecuting the case. The mediator advised the arbitrators of the settlement agreement five days before the arbitration hearings were to commence and ten months after discovery of the rag in the fuel pipe.

CONCLUSION

The commercial space industry would seem to be well suited to the future use of creatively-structured ADR procedures for the private resolution of disputes arising among businesses and nations involved in that industry. Substantial disputes have arisen in that industry in the past and will undoubtedly continue to arise in the future. The sums in dispute are often very large and warrant pursuit of claims by the parties, particularly the buyers of goods and services. The disputants usually are engaged in business with each other during the pendency of the dispute and will often have mutual interests and constraints which will allow the

invention of options by the parties and/or the neutrals who are attempting to assist them in resolving the dispute. If resolution cannot be achieved it will often be the case that it will be advantageous to have the dispute decided by arbitrators pursuant to a specially-tailored private judicial system rather than by a judge and jury in the public system. Confidentiality is usually desired by both sides to the dispute. Experts and lawyers familiar with the industry are usually better suited to serve as arbitrators than busy federal or state court judges and juries. Discovery, while important to many of the disputants, can be kept to a minimum and structured to achieve the highest return for the amount of money spent. Mediators using the method of principled negotiation can work with the parties up to and through the pendency of any arbitration hearings.

As Professor Fisher has said:

Litigation is perhaps more desirable than dueling, but human imagination can certainly produce better ways of dealing with conflicting interests.

We are seeking ways to improve the skills of cooperation, not those of battle.⁷⁷

The suggestion here is that many commercial space disputes should lend themselves nicely to the creative use of ADR techniques, and it is expected that in the years to come many such disputes will be resolved through those methods as businessmen and their lawyers go private with the judicial system.

⁷⁷ R. Fisher, *Coping with Conflict: What Kind of Theory Might Help?*, 167 NOTRE DAME L.REV. 1335, 1341 (1992).

EVENTS OF INTEREST

A. Past Events

Reports

Prevention of an Arms Race in Outer Space - Developments in the Conference on Disarmament in 1994

During 1994, the Conference on Disarmament (CD) continued to consider the issue of prevention of an arms race in outer space. On 25 January 1994, the CD reestablished an *Ad Hoc* Committee on this agenda item with the same mandate (CD/1125) as over the last few years.

The Committee adopted the same Programme of Work as before which embraced the following main three areas: examination and identification of issues relevant to the prevention of an arms race in outer space; review and evaluation of existing agreements relevant to the prevention of an arms race in outer space; and deliberations of the existing proposals and future initiatives on the prevention of an arms race in outer space.

The Committee continued its substantive work on legal and terminological issues and on confidence-building measures during the consultations held by the Friends of the Chair. On legal and terminological issues various legal techniques besides drafting new instruments were explored, such as Treaty revision, the conclusion of additional protocols, the establishment of CBMs complementing existing Agreements, and the conclusion of a new international agreement or agreements. Delegations found the question of terminological issues important, even though it was generally held that the completion of work on terminology was not a *conditio sine qua non* for negotiating new instruments or measures for the prevention of an arms race in outer space. At the suggestion of the Friend of the Chair on confidence-building measures, the delegations considered individually the three main clusters of CBMs: measures to improve the transparency of pre-launch activities; rules-of-the-road measures; and measures required for monitoring purposes in connection with the proposed code of conduct. Following these discussions, the Friend of the Chair presented, at his own discretion, a résumé of the discussions and existing proposals and also drafted a working paper entitled "Draft Guidelines regarding measures on confidence-building and predictability in outer space activities." With regard to the Draft Guidelines, some delegations indicated that they could serve as a possible basis for further work on CBMs.

The attention of the Committee was drawn to the issues of the adequacy of the current legal régime, confidence-building measures in outer space activities, and terminological aspects of the work of the Committee.

Members of the Group of 21 and China maintained that the existing legal instruments relating to outer space were far from effective in

preventing an arms race in outer space and did not prevent launching into space and testing in space of conventional weapons as well as weapons based on new physical principles. Delegations of the Group of 21 and China expressed concern that given the similarities of requisite technology, the unrestrained development of ballistic missile defenses could lead to development of ASAT weapons. These delegations further shared the views expressed by, *inter-alia*, the delegations of Indonesia and China that certain space powers were still engaged in activities which may lead to an arms race in outer space. In this respect, they felt that States with advanced technology and capabilities had special responsibilities for the discontinuance of all weapon-related activities adversely affecting the peaceful uses of outer space. They were of the view that the Ad Hoc Committee had also to address the question of the demilitarization of outer space as they believed that the international political situation was now conducive to the conclusion of a treaty banning an arms race in outer space which should be universal, comprehensive, legally-binding, multilateral and effectively verifiable. Some members of the Group of 21 suggested that the Committee should examine, *inter alia*, the proposals which had been made over the years to amend Article IV of the Outer Space Treaty of 1967 to include the prohibition of all types of space weapons. Some of them specifically referred to the idea of a ban on the testing, development and deployment of ASATs. In this regard, this group of delegations stressed that the *Ad Hoc* Committee should also examine the reinforcement of existing legal instruments by more effective implementation and broader participation of States. Germany and Algeria felt that the time was right to put into practice the concrete proposals made by France, the former USSR, and Canada, with regard to the setting up of international agencies under the auspices of the UN, entrusting them with monitoring functions in outer space.

Some delegations of the Western Group considered that the UN Charter, the existing multilateral treaties relating to outer space, and the outer space related arms control provisions of other multilateral and bilateral treaties together with customary international law, as well as the domestic law of individual nations, interacted and complemented each other in such a way, that together they provided an equitable, practical, balanced and extensive legal system for ensuring the use of outer space for peaceful purposes. Those delegations maintained that there was no arms race in outer space, nor was there any indication of significant ongoing development by any State with respect to arms in space. Therefore, in their view, there was no need for new legally-binding instruments, or a need to revise existing agreements in this respect. They considered that instead, wider adherence to existing agreements should be encouraged.

Various members of different regional groups viewed CBMs primarily as an important step on the way to the prevention of an arms race in outer space; others viewed CBMs, as such and independently, as useful measures which could increase confidence in relation to activities of States in outer space. In this regard, some delegations addressed anew, or further developed, proposals aimed at increasing the transparency of space

operations generally, the range of information concerning satellites in orbit, as well as those that would establish rules of behavior governing space operations. Some delegations suggested that the Committee should take advantage of the commonly shared view on the stabilizing role of CBMs and should start developing concrete CBMs, once their relevance and feasibility for arms control purposes would be agreed upon. In this connection, some delegations furthermore proposed that the Committee start developing a régime of notification of launches of space objects and ballistic missiles which would supplement the 1975 Registration Convention, as well as CBMs on "rules of the road" relating to space debris, manoeuvres in outer space, or the establishment of keep-out zones. Some delegations also noted that the growing convergence of views on the elaboration of measures designed to strengthen transparency, confidence and security, could facilitate developing concrete CBMs.

During the debates on CBMs, delegations of the Group of 21 and China emphasized that because of their supplementary and interim nature, work in the *Ad Hoc* Committee should not be devoted solely to the formulation of CBMs and should in no way detract, retard or negatively affect, the attainment of its primary objective, namely, the conclusion of an international agreement, or agreements, on the prevention of an arms race in outer space, with a view to reinforcing the existing legal régime. Those delegations believed that any CBMs agreed to should be ones which could form part of a legally-binding, multilaterally negotiated instrument on the prevention of an arms race in outer space. Egypt suggested that the countries with space activities could also voluntarily implement CBMs which they may agree to amongst themselves. Some delegations of the Group of 21 proposed that transparency and CBMs in outer space should be comprehensive and notification of space objects should extend to those objects launched in the past, even prior to 1975, and not limited only to the objects to be launched in the future. However, some space powers were of the opinion that this latter proposal was neither useful nor realistic.

The *Ad Hoc* Committee once again benefited from the scientific and technical contributions of experts from the delegations of France (*Mr. F. Alby*), Italy (*Professor P. Farinella*) and Germany (*Dr. W. von Kries*), who addressed the specific issues and initiatives under consideration in the Committee.

In his presentation *Mr. F. Alby*, the Chief of the Orbital Infrastructure Department at the French National Space Agency (CNES), discussed the feasibility in technical, financial and other terms of various measures relating to a possible "code of conduct" for space activities. His statement was deliberately limited to the various proposals for confidence-building measures already submitted to the *Ad Hoc* Committee by certain delegations for incorporation into a "code of conduct". The following measures were thus considered in turn from the standpoint of their feasibility: (1) Notification of changes of orbit, involving stationing manoeuvres or station-keeping manoeuvres; (2) Control of space debris; (3) Inspections in orbit; (4) Keep-out zones in space; (5) Establishment of a system of consultation between operators; (6) Procedures for application of

a code of conduct (control of traffic in space).

The expert of the Italian delegation, *Dr. Paolo Farinella*, introduced a paper on the "Runaway proliferation of orbital debris: security implications and possible cooperative measures". He pointed out that the collisional break-up of orbiting objects can give rise to a sort of a chain reaction, with an increase of the probability of new catastrophic collisions in the near future and a subsequent exponential growth of orbiting fragments. *Dr. Farinella* also reminded the Committee that the issue of proliferation of space debris is of particular relevance to the Conference on Disarmament: a few operational satellites have in fact been already affected by damaging impacts. As a consequence, if such an accidental collision involved a sensitive military satellite at a time of international crisis, it may be easily misinterpreted as an ASAT attack and could lead to a dangerous crisis escalation. *Dr. Farinella* emphasized the need for substantial actions to preserve the circumterrestrial space for peaceful activities in the future. He mentioned the following possible steps: the establishment of an international data base on the Earth-orbiting population, building upon the 1975 United Nations Registration Convention; the publicity of the available observational data on satellite break-up events; the agreement on a set of international standards to strengthen and/or shield satellites against impact break-up; and the plan for international cooperation in "cleaning-up" the circumterrestrial shells, where the debris proliferation hazard is already acute, by deorbiting potential targets at the corresponding altitudes.

Dr. Wulf von Kreis of Germany, in his presentation entitled "Outer Space and Modern Conflict - Some Reflections on Military and Security-Related Space Uses and Associated Legal Policy Issues" said that the presentation's objective was to draw attention to the security applications potential of military space devices, and to suggest the establishment of a "space of security" regime. The two essential advantages offered by near-Earth space, namely its potential to serve as a vantage and as a relay point, could also be - and had already been - put to use for a wide spectrum of broader security purposes related, for instance, to counter-proliferation measures, to crisis monitoring, and to peacekeeping actions. The space law régime in place, being a largely permissive one, allowed for practically all relevant military and security oriented space uses. It did not, however, commit nations to actively pursue and contribute to the use of outer space in the common interest of international security. Given the growing demand for space support, especially in the context of United Nations peacekeeping, it seemed appropriate to reach general agreement on the normative basis of a "space for security" régime, and to initiate specific regulatory actions, *e.g.* in the field of security applications of remotely sensed data.

A positive development of the 1994 session was a decision to favor closer coordination between this Committee and COPUOS on the issues of mutual concern.

The Conference on Disarmament recognized that in 1995 it would have a number of urgent and important areas for negotiation, which would

be likely to draw heavily on its time and resources. Therefore, it recommended that the balance of future work be considered more fully by the Conference before it decides which *Ad Hoc* Committees, besides the *Ad Hoc* Committee on a Nuclear Test Ban, should be established in 1995. For this reason, the Report of the Committee does not contain a specific recommendation on its reestablishment next year.

Vladimir Bogomolov
Secretary

Ad Hoc Committee on
Prevention of an Arms Race in Outer Space

The ILA Finalizes its International Instrument on Space Debris in Buenos Aires, August 1994

I

Introduction - Historical Background

The 66th Conference of the International Law Association (ILA) was held in Buenos Aires on 14-20 August 1994. Around three hundred delegates representing thirty seven branches all over the world brought their efforts together to conclude several international texts on matters of high priority.

The Space Law Committee produced its Final Report and Draft Instrument on Space Debris which was adopted without dissent at the end of the Conference. From now on, it will be known as "The Buenos Aires International Instrument for the Protection of the Environment from Damage Caused by Space Debris."¹ The Committee, after the retirement of Professor *Goedhuis* in 1988, is chaired by Professor *Karl-Heinz Böckstiegel*. The present writer is the permanent Rapporteur.

The work of this Committee was ably assisted by three scientific experts, namely Professors *L. Perek* (Czech Republic), *D. Rex* (Germany) and *H. Ricciardi* (Argentina) who, together with the members of the ILA Space Law Committee, put their expertise at the disposal of the Chairman and Rapporteur throughout the various readings of the Draft.

The legal problems arising from damage caused by space debris demanded an urgent treatment. This was even more so at the moment of the Buenos Aires Conference, considering that the Legal Subcommittee of COPUOS had recently included this topic on its agenda for 1995. When closing the Conference, the President of Argentina, Dr. *Carlos S. Menem*, laid a special emphasis on the need to protect the environment and expressed satisfaction on the adoption of the Buenos Aires International Instrument on Space Debris.

Let us briefly have a look at some of the main steps in the treatment of this subject which led to the elaboration of the ILA Reports on Space Debris to the Queensland and Cairo Conferences and the Final Text of the

1 For a text, see CURRENT DOCUMENTS section in this issue..

Buenos Aires Agreement.

When the International Law Association met in Seoul in August 1988 for the 62nd Conference, Professor *Böckstiegel* raised the possibility of the Space Law Committee taking up the question of pollution and debris originating from activities in outer space. This proposal, which gained wide support at that Conference, prompted international lawyers to begin discussions on the different aspects involved.

The matter was dealt with in Brighton in October 1987, on the occasion of the XXX Colloquium on the Law of Outer Space organized by the International Institute of Space Law. Shortly afterwards, in December of that same year, an ILA Regional Seminar took place in Buenos Aires where, among the different Working Groups reporting to this Meeting, the Space Law Committee produced some preliminary conclusions concerning environmental risks arising from space activities.

In May 1988, the Institute of Air and Space Law of the University of Cologne hosted an International Colloquium on "Environmental Aspects of Activities in Outer Space - State of the Law and Measures of Protection." The meeting was chaired by Professor *Böckstiegel*, and many well-known experts such as Professors *Christol*, *Gorove*, *Diederiks-Verschoor*, *Cocca*, *Jennings*, *Jasentuliyana*, *Kopal*, *Danilenko* and others provided plenty of food for thought on the matter. The Cologne Colloquium marked the beginning of a truly interdisciplinary approach to this question.

The following ILA Conference which was held in Warsaw in August 1988 entrusted its Space Law Committee with the task of studying and preparing principles and guidelines applicable to space debris and pollution.

Two months later the Instituto Iberoamericano de Derecho Aeronautico y del Espacio (Madrid) met in Asuncion del Paraguay for its Annual Conference. One of the conclusions adopted by consensus stated that an obligation should be imposed on states, whenever they launched a satellite into the geostationary orbit, to remove such satellite when its active life had ended.

These were one of the first, perhaps ambitious, steps leading to the elaboration of the International Instrument adopted in Buenos Aires in August 1994.

From then on the question began to appear, with increased frequency, on the program of national and international institutions. And, as pointed out earlier, the Legal Subcommittee of COPUOS, albeit reluctant for some time, has finally listed the topic on its agenda for the 1995 Session.

II

The Drafting of the International Instrument

Some aspects surrounding space debris became particularly controversial over the span of six years which elapsed between the drafting and acceptance of the Principles and Guidelines and the adoption of the

final Instrument.

Work began shortly after the 1988 Warsaw ILA Conference when a Questionnaire was circulated among the Committee members concerning the Present State of the Law (Part I) and Suggestions for the Future (Part II), all of which was debated at the Queensland ILA Conference (August 1990). A Resolution followed requesting the Space law Committee to start work on the elaboration of an international instrument based on the work carried out so far. Among the questions debated in Queensland was the scope and implications of terms such as "contamination," "debris," and "pollution," as well as "adverse changes," "appropriate measures" and so forth. A general conclusion, which had already been suggested during the various meetings held during 1987-8, was that Article IX of the 1967 Space Treaty was highly inadequate today to cover the many assumptions involving damage caused by space debris.

The ILA Cairo Conference (1992) adopted the Principles and Guidelines which provided the pillars for the proposed instrument. The Cairo Space Law Report had suggested a few definitions, which were subsequently adopted. In addition, it spoke of a general obligation to cooperate (following the wording of Principle II of the 1989 Ottawa Declaration on the Protection of the Atmosphere) and referred to the existence of obligations to negotiate in good faith, to inform and exchange information, to consult, and to prevent/control/reduce contamination, pollution and debris. States and international organizations were made responsible for the compliance with these obligations. The Cairo Report (and ensuing ILA Resolution) underlines the need of having an effective system for dispute settlement - where the possibility of a compulsory third party mechanism were envisaged - and the inclusion of provisions on responsibility and liability in line with the Space Treaties in force.

III

The Buenos Aires ILA Conference

It appears pertinent, in the first place, to redress some misinformation. A contemporary writer recently observed that the "... ILA has no expertise in matters of activities in space from the natural sciences point of view, a fact which was of some influence in the formulation of the 1992 ILA Draft legal instrument..." and that "[t]he Draft ILA proposal of 1992, if finalized and concluded, would be a pivotal support from the public international law side."² Yet, this is not quite the case: In fact, the 1992 ILA Draft was NOT the legal instrument but, rather, it embodied the Principles and Guidelines upon which the future Legal instrument would be constructed. This was made sufficiently clear during the Cairo Session.

² See G. Reijnen, *Some Observations on Legal and Policy Issues in Regard to Space Debris*, Proceedings of the First European Conference on Space Debris, Darmstadt, 5-7 April 1993, ESA, Doc. SD 01.

Secondly, the interdisciplinary approach to space debris has permanently been the rule within the framework of the ILA Space Law Committee ever since Professor *Böckstiegel* organized the first interdisciplinary Colloquium on the matter in 1988 which was mentioned earlier. Not a few members of the ILA Committee were involved in that meeting. Furthermore, mention has been made already of the three scientific experts who generously put their experience at the service of the Committee and worked hand in hand with the international lawyers. This is clearly reflected in the Queensland and Cairo Reports and, even more so, in the Buenos Aires text which, in fact, has been "finalized and concluded". In the various readings of the Instrument, which was widely circulated at all stages (and not only to ILA Committee members), reference to the views of the scientific consultants is rather frequent. Moreover, a sharp confrontation between the lawyers and the scientists became the *leit motiv* in the discussion of responsibility and liability rules to which we shall come back later.

Despite the absence of some top space law experts in Buenos Aires, such as Professors *Christol*, *Gorove*, *Matte*, *Jasentulyana*, *Bin Cheng*, *Kopal*, *Leanza* and others, their views in writing were made available at all times. The Space Law Session of the 66th Conference took place on Tuesday, 16 August 1994, under the skilful chairmanship of Justice *Purvis* from Australia. Professor *Böckstiegel* drew attention to the many developments in the exploration and use of outer space such as the Hubble telescope and the growing use of communication satellites. These achievements, he remarked, made the Committee's work on space debris increasingly relevant.

When introducing the Report and Final Text of the International Instrument, the Rapporteur highlighted a few issues over which opinions diverged during the various readings of the draft. In so doing, attention was focused on the definitive title of the Instrument, on questions relating to definitions, rules on responsibility and liability, obligations incumbent on states and international organizations involved in space activities and dispute settlement.

1. Definitive title of the Buenos Aires Instrument

The final title of the Instrument was changed from "International Instrument on the Protection of the Environment from Damage caused by Space Activities" (Cairo text) to *International Instrument on the Protection of the Environment from Damage caused by Space Debris*.

One of the Committee's Scientific Consultants, Professor *Ricciardi*, had suggested that the words "protection of the environment" be replaced by "protection of space vehicles". The view of the members, however, was that the wider formula should prevail. Professor *Christol*, for his part, proposed the deletion of the term "environment". Yet, as the Rapporteur indicated, this word appeared defined in Article 1(d) of the instrument as inclusive of both the outer space and earth environments. This view was, in

the end, accepted by the Committee.

2. Definitions

The question of definitions was, by and large, the thorniest. Opinions were received from Professor *Perek* (Scientific Consultant), and from Professors *Gorove*, *Christol* and *Malanczuk*, *Dr. Reijnen*, *Ms. Marion Kroes* and *Mr. D. Vestduk*, although not members of the ILA Space Law Committee, kindly contributed with their thoughts. Slight drafting amendments were proposed by Professors *Perek*, *Gorove*, *Christol* and *Kopal*, which are reflected in the Final Text. The work of Professors *Baker*, *Diederiks-Verschoor*, *Jasentuliyana*, *He Qizhi* and other noteworthy experts was repeatedly cited on this issue.

One area of disagreement concerned the consideration of the terms "contamination" and "pollution" as synonyms. On this point the Rapporteur observed that, for the very reason these terms sometime differ (it is not possible to unify the two concepts at the moment), we should agree, for the purposes of the International Instrument at least, to consider them equivalent. Regarding the present Article 1(c), listing possibilities from where space debris may result, there was consensus in considering it non-exhaustive.

It is opportune to mention, at this stage, that the scope of the Instrument, after the first reading of the final text, was no longer restricted to GEO and LEO. There were sound reasons, coming both from Committee members and other experts, to move away from this restrictive approach. The broad approach was equally supported in the various presentations made to the First European Conference on Space Debris (Darmstadt, April 1993) previously referred to. Consequently, definitions of these orbits do not appear in the Buenos Aires text.

3. Inclusion of provisions on responsibility and liability

We shall now turn to responsibility and liability which, in spite of being a more familiar and less creative topic than the question of definitions, managed to confront scientists and lawyers in a sometimes dubious battle. The scientists contended there was no need to include provisions of the kind. Professor *Rex* referred to one of the most typical assumptions of collision, *i.e.*, when a large space object (active or otherwise) is hit by a small object (usually second generation debris) which is normally untrackable and may render the large object defunct.

Similarly, in many instances it may be hard to establish whether the damage was, in fact, caused by man-made debris or by a natural object. Professor *Ricciardi*, during the elaboration of the Instrument, frequently observed that the ever-increasing number of objects to be placed in low earth orbits in the foreseeable future will make identification extremely complex.

Prof. *Rex* then brought up a second example, as follows. Let us

assume that two large space objects collide (which is, indeed, unlikely). The difficulties of determining which of the two is responsible and establishing the extent of concurrent liability is a well-known problem to the lawyer in spite of the fact that the Liability Convention contemplates such a possibility. Hence the conclusion of two of the scientific consultants of the ILA Space Law Committee, Professors *Rex* and *Ricciardi*, that provisions on responsibility and liability should be left out.

This thinking, realistic and well-grounded as it may sound, did not convince the space lawyers. In the first place, because the ILA Cairo Resolution - adopted after an exhaustive debate on the matter - clearly indicated that the draft should include rules on responsibility and liability. Secondly, and for practical reasons, as Professor *Böckstiegel* pointed out, when a later stage is reached, it would be far easier to leave out any such rules if necessary than to include new ones.

This line of thought, advocated by the Rapporteur, is widely endorsed by the doctrine. Professors *Christol*, *Gorove* and *Malanczuk* have championed it with emphasis. Professor *Cocca* took up this stance ever since the drafting of the Liability Convention, when he was Argentine representative to COPUOS. Prof. *Seyersted* underlined the need for a more ambitious method of legislation and implementation and Professor *Leanza* fully agreed with the inclusion of the matter within the text. Furthermore, this has always been the view of the former chairman of the ILA Space Law Committee, Professor *Goedhuis*.

The Rapporteur then drew the attention of the Space Law Committee to the work carried out by the Commission on Environmental Law of the World Conservation Union (Working Group Draft 5, December 1993). Under Part IX, entitled Obligations Relating to Liability and Compensation (Arts. 46-56), rules are laid down concerning, *inter alia*, the use of terms, state responsibility, state liability, exemptions, coincidence between state responsibility and civil liability, and immunity from jurisdiction. Simple, as well as interesting, is the distinction embodied in Article 46 between "harm" and "damage," the latter being a consequence of the harm inflicted.

A further support from the doctrine is given by *Dr. Alfred Rest*, who favors the combination of the two concepts (responsibility and liability).³ In like manner, *Dr. Marietta Benkő* has drawn a clever comparison between responsibility and liability concerning space debris and nuclear power sources in outer space.

The above-mentioned authors provided an illustrative example of the way opinion was moving in connection with the inclusion of provisions on responsibility and liability in the field of space debris.

³ See Alfred Rest, *New Legal Instruments for Environmental Protection, Control and Restoration in Public International Law*, ENVTL. POL'Y & L. 260-272 (1993).

4. Obligations to cooperate, prevent, inform, consult and negotiate in good faith

It was suggested, for stylistic purposes, to speak of an obligation "to exchange information" rather than "to inform". Be that as it may, the Rapporteur insisted on the latter formula because, in addition to implying an obligation "to exchange", it entailed a unilateral obligation "to inform" with a view to reducing and preventing space debris as much as possible.

The obligations enshrined in Articles 3 and 4 of the Buenos Aires Instrument were listed in the ILA Cairo Resolution and subjected to deep analysis based on the Queensland (1990) and Cairo (1992) ILA Reports to which the reader may refer for further detail. Suffice it to say now that it follows the trend of seeing international cooperation as mandatory in this field and that a refusal to hold consultations or the breaking up of such for no valid reason shall be considered as bad faith. To "negotiate in good faith" is interpreted to mean not only sitting around a table to talk but also to continue those talks with the objective of reaching a solution.

To sum up, there was general agreement in Buenos Aires on this aspect, which was not surprising given the developments that took place during the different readings of the draft.

5. Settlement of disputes

Following the Cairo mandate, one of whose fundamental aspects was to deal with methods of dispute settlement within the framework of the international instrument, including provisions on compulsory third-party settlement, the Rapporteur submitted to the ILA Space Law Committee what is now Article 9 of the Buenos Aires text. The general rule is a free choice of means for dispute settlement by the parties.

There is an initial phase of consultations, at the request of any of the parties, with a view to reaching a prompt and amicable settlement. Failing this, a twelve-month time limit is set for the parties to refer the dispute to arbitration or adjudication unless they have agreed on some other means of peaceful settlement.

Appended to the Buenos Aires Instrument, as an Annex, is the ILA Convention on the Settlement of Space Law Disputes adopted in 1984 at the 61st ILA Conference held in Paris, to which Article 9 of the Instrument refers. The Parties to the Instrument may declare at anytime that they choose any of the non-binding or binding dispute settlement procedures included in that Annex or that they exclude in part or in full its application.

In order to be more in harmony with the spirit of the Queensland Resolution, Professor *Kopal* advocated a more stringent system. In this vein, he objected to the choice between binding and non-binding procedures given to the parties.

Even though this reasoning is a truly attractive way of going about the dispute settlement problem, particularly for the lawyer, the

Rapporteur felt that, if the main objective of the Buenos Aires Instrument was to get the widest possible support from the international community, it seemed sensible to begin at a low level of compulsion. The discussion went full circle and it was decided that, for the time being, the choice between the two possibilities should remain open.

Dr. *Chowdhury*, who contributed actively during all stages of the preparation of the draft as well as to the Buenos Aires Session, insisted that in case of failure to settle a dispute a higher authority ought to be called upon to intervene. This idea was shared by Professor *Seyersted* who was also present at the Buenos Aires Conference. However, the thought of establishing a supranational authority with judicial power would, at this point, likely endanger the above mentioned objective.

The possibility of having a choice between binding and non-binding procedures was supported by a majority, *inter alia*, Professors *Böckstiegel*, *Christol*, *Cocca*, *Ferrer* and *Leanza*.

Interesting, during the second reading of the Final text, was the observation made by Professor *Gorove* to the provision whereby, if the parties to the dispute have not agreed on a means of peaceful settlement, the dispute shall be referred to arbitration or adjudication at the request of any party thereto. Supposing a Party to the Instrument has excluded the applicability of the ILA Convention on the Settlement of Space Law Disputes, in full or in part, how is the matter of arbitration or adjudication to be worked out in such a case? Professor *Gorove* wondered whether this will be left to the disputing parties.

In the present stage of development of international law, it is believed that the disputing parties referred to by Professor *Gorove* would have to comply with their obligation to negotiate in good faith in accordance with Article 4(d) of the Instrument.

The provisions on dispute settlement were therefore unchanged during the Buenos Aires Session of the Space Law Committee and stand as they did in the second reading of the draft.

As stated at the opening, the Buenos Aires International Instrument was adopted by consensus at the Plenary Meeting of the 66th Conference. The Working Session of the Space Law Committee sorted out the final common denominators achieved. Professors *Böckstiegel*, *Cocca*, *Kim*, *Seyersted*, Dr. *Chowdhury* and two young graduates from the University of Buenos Aires, Drs. *Viviane Contin-Williams* and *Dolores Franco Laplace*, took part in the debate. Finally, a moving tribute was paid to Ambassador *Cocca* in recognition of his devotion and contributions, for the last half century, to the progressive development of the law of outer space.

It was decided that the Space Law Committee should now pursue its work in the field of dispute settlement having in mind that the major Space Treaties did not go beyond the stage of conciliation. To this end, a re-examination of the ILA Paris Convention on Dispute Settlement was proposed considering that this text had no rules on disputes among States and private entities which was a growing reality today.

Prof. *Maureen Williams*
Rapporteur - ILA Space Law Committee

*Jerusalem Colloquium on the Law of Outer Space*Introduction

The 37th Colloquium on the Law of Outer Space was opened by the President, *Dr. N. Jasentuliyana*, on Tuesday 11 October 1994. The colloquium was attended by some fifty persons throughout the week, and the overall quality of the papers was good. Also, a new arrangement, consisting of a separate session for discussion on all colloquium topics at the end of the week, allowed ample time for discussions, and all authors were able to present their papers in detail.

This colloquium hosted the finals of the *Third Manfred Lachs Space Law Moot Court Competition*. The competition had been made possible with the assistance of the Hebrew University of Jerusalem, Martin Marietta Inc., and KLM Royal Dutch Airlines. Preliminary competitions had been organized in Europe (by ECSL) and in the US (by AUSMIISL), and the winners of those preliminaries met in the final round in Jerusalem. The University of Helsinki (Finland) and the John Marshall University of Chicago (USA) competed in a case concerning an international space station, intellectual property rights and liability for damage. The honorable court was composed of *Judge G. Guillaume*, *Judge G. Herczegh* and *Judge Chr. Weeramantry* of the International Court of Justice. The team of the John Marshall University of Chicago won the competition. Its members were *Daniel Groth* and *Jollene Kime*. The members of the University of Helsinki team were *Peter Iiskola* and *Craig Thompson*, with *Kari Vallonen* serving as alternate. The case and the written briefs will be published in the IISL Proceedings. Each team also served as rapporteur for one of the sessions of the Colloquium. The final of the fourth Competition will be held in Oslo, October 1995, after preliminaries in Europe and the US. The case, which deals with satellite broadcasting, has been distributed to numerous universities.

SESSION 1: New Legal Developments in Satellite Communications

(Chairman *Prof. Lyall* (UK); rapporteur *P.H. Tuinder* (NL))

The first presentation was given by *Mr. Potter* (USA) on "The Outer Space Cyberspace Nexus: Satellite Crimes," dealing with legal questions raised by the expansion and collision of two modern frontiers: outer space and cyberspace. According to Mr. Potter space law has a vacuum in this fast moving field. Cyberspace is the process of transmitting, receiving, storing and manipulating information through telecommunications. A problem arises when cyberspace collides with outer space, for example when a telecommunication satellite is used in an unauthorized manner. The author proposes a new analytical framework, which captures the entire communications process, to understand satellite crimes. The framework consists of four conceptual categories: Origination, Transportation,

Termination, and Content. The author's conclusion was that as cyberspace and outer space become increasingly internationalized, there will be a need for treaty law in the area of satellite crimes.

The next presentation was by *Mr. Henaku* (NL) on "The Satellite-based air navigation systems and approaches to the concepts of state sovereignty." Mr. Henaku discussed the ICAO CNS/ATM concept and the legal regimes it has to deal with, viz. space law, telecommunications law, and air law, especially the problems raised because the three disciplines have different perceptions of state sovereignty. The author concluded that the search for an appropriate regulatory framework will involve unorthodox, global based, anti-formalistic and functional measures. A solution could be to establish global rule making as has been done in the ICAO framework through SARPs, and make these enforceable within all states.

Mr. Kaiser (Germany) dealt with another focus of this issue in his paper "Aeronautical satellite navigation: civil aviation's needs and institutional alternatives." The GPS and GLONASS systems were very positively received by the aircraft operators and pilots, but on the political side the situation was totally different, and ICAO reacted reluctantly to the offer from the US and the (then) USSR to provide GPS and GLONASS systems to the civil aviation community free of charge for a certain period. The reason for this reluctance was that the two systems are military, offered unilaterally by a single state, the services can be interrupted or down-graded, and when terrestrial systems come to be abandoned it will give these states an enormous bargaining power upon the expiry of the period of free use. Mr. Kaiser then discussed institutional alternatives and thought it unlikely that a fully operational civil system would emerge in the near future due to financial constraints, although the prospects for a civil GNSS of a number of rudimentary systems may not look so dim.

Prof. Kosuge (Japan) discussed the "Legal issues of Low Earth Orbit satellites." He described the characteristics of Iridium, Inmarsat P., and Globalstar systems, the market for satellite PCN services and the regulatory issues. Prof. Kosuge foresaw problems with the enforcement of regulations when for example pocket size terminals will be usable beyond the borders of their licensing states, and the international spectrum access mechanism which can be unfairly exploited for global services. He concluded that a new legal regime and rules should be established for LEO satellite telecommunication networks within the framework of the ITU.

The paper of *Prof. Lyall* (UK) was entitled "The ITU: A World Communications Commission?" and raised the question whether the ITU, in view of its important task as the only agency in operational space law, should not be further revised. Prof. Lyall described four matters of concern which indicate more problems for the ITU: 1) The Tongasat filing for 36 geostationary slots, later reduced to six slots; one may wonder whether the ITU provisions are being dealt with in good faith in conformity with Art. 26 of the Vienna Convention on the Law of Treaties; 2) The conflict between Indonesia and Tonga when a Palapa satellite was moved

into a Tonga claimed slot; 3) The Apstar problem when the APSTAR 1 sponsored by the Chinese government was scheduled to operate on a position of 1 degree away from satellites owned by Japan and Tonga which were properly registered through the ITU; 4) LEO's which do not use GSO and thus to which the orbital responsibilities of the ITU do not apply. Prof. Lyall suggested that the ITU should be reconsidered and given a major role in all matters of satellite radio links, and orbital use wherever that orbit be. One possibility would be to make the ITU a World Communications Commission to deal with orbits and frequencies. Such a Commission would require both decision-making and enforcement powers.

Mr. Meyerhoff (ITU) described the way the ITU systems have been developing and emphasized that the ITU provides a mechanism for the rational use of the orbit/frequency spectrum resource and to prevent potential interference with satellite systems.

Mr. Castro Villalobos (Mexico) discussed the DBS principles and the case of American broadcasts directed to Cuba in his paper "The UN DBS Declaration: the TV Marti case." He concluded that human rights regulations result in the need for a change of the DBS principles.

Dr. Hoskova (Germany) was the last speaker of the session and she focused on the "Eastern European Legal Developments in Radio and TV Broadcasting." She described the changes in the field of the mass media after the "fall of the wall" in Eastern Europe which brought about the "information revolution." The elaboration and implementation of an appropriate legal framework proved to be more difficult as state monopolies had to be overcome and a response had to be given to the technical developments of broadcasting including satellite broadcasting. Mrs. Hoskova described the developments of the legal orders of Bulgaria, the Czech Republic, Poland, Russia and Slovakia, especially taking into account their aspirations to be integrated into the relevant European framework.

During the discussion, *Dr. Nilson* was invited by the Chairman to give a short presentation on the Tongasat System. Currently four orbital positions of Tonga are used by satellite operators and Tongasat registered seven positions with the ITU. The original filing of Tonga was for 36 positions. Mr. Nilson shortly discussed the problems with the Indonesian occupation of a Tongasat slot and the potential APSTAR-1 interference with Japan and Russia satellite systems. The APSTAR-1 problem was solved in August this year by leasing a Tonga slot to APSTAR. Mr. Nilson wondered why the Tonga applications received such widespread criticism from the world community and compared the actions of some other states. Mr. Nilson's conclusion was that the ITU had been extremely helpful in solving the disputes which did arise with Tongasat but that in view of the non-enforceability of ITU decisions, interested parties have to resolve their conflicts amicably.

Prof. Lyall commented that the ITU was originally established by and for states and that the privatization of telecommunication operators requires a reorientation of this concept. *Dr. Nilson* agreed that operators are now typically private companies. *Dr. Meyerhoff* again explained the

mission of the ITU, i.e. to prevent radio interference and to fulfill the need for international coordination procedures. He added that at this moment there is no scarcity of capacity for satellite communications.

Prof. Lyall wondered how APSTAR acquired its license to operate a satellite system, if it is a Hong Kong based company that normally should have applied for a license under the UK Space Act of 1986. He also wondered whether a situation was evolving comparable to flags of convenience as states might license use of orbital positions but be unable properly to supervise what was done by licensees.

Dr. Doyle then considered that today the basic shortcoming of the telecommunications administration is the lack of planning. In his view, planning must involve the following aspects: (1) ITU roles in allocating signaling codes, operational standards etc., and (2) national administrations assign frequencies to specific users, grant licenses and police the users. *Dr. Meyerhoff* stated that planning of paper systems causes problems and that registration should happen on a first come, first served basis. This, however, may raise accommodation problems for the systems that will come afterwards. *Dr. Doyle* proposed to use MPM's to solve these problems and put a time limit on paper registrations. *Dr. Nilson* added that MSS and FSS frequencies are not planned by the WARC's.

Dr. Meyerhoff concluded the discussion by saying that the frequency spectrum should be considered a resource and that the ITU mechanism is a means of attributing this resource, which can certainly be used commercially.

SESSION 2: Definitional Issues in Space Law

Chairman *Prof. S. Gorove* (USA); rapporteurs *P. Iiskola* and *C. Thompson* (Finland)

Prof. Gorove was the first to present his paper. His topic was "Definitional Issues Pertaining to 'Space Object'." Primarily, he discussed the question of applicability of the partial definition of "space object" to all of the space treaties and whether there should be a distinction between component parts and parts of a space object. His conclusion was that such a distinction was unnecessary. On a subject that was to receive a lot of attention during the session, i.e., space debris, *Prof. Gorove* stated that the term "space debris" should not be legally separated from the term fragments of space objects. *Prof. Gorove* also brought up the question of whether or not launching is a prerequisite for an object to be regarded as a space object. This question has often been raised in discussions concerning aerospace planes. In *Prof. Gorove's* definition of a space object, emphasis was placed on when an object becomes a space object and when it ceases to be a space object. Launching or attempted launching and landing or return, as well as the point of embarkation or disembarkation in a manned space flight are crucial to this definition. *Prof. Gorove* also stressed that the intention to launch is important for determining liability. As a final point, *Prof. Gorove* raised the question of whether the material status of an

"object" is relevant. He offered, as food for thought, electromagnetic impulses, cosmic radiation, and marketable energy which are not regarded as objects. In his closing remarks, Prof. Gorove stressed that no fool-proof definition of a space object could be drafted, but in order to reduce disputes, clarifications were necessary.

Next, *Prof. Kopal* (Czech Rep.) introduced his paper "Issues relating to legal definitions of 'space object,' 'space debris' and 'astronaut,' which included many of the same issues covered by Prof. Gorove. As to a definition for space object, Prof. Kopal stated that a definition should include the expression 'man-made'. He also pointed out that there is a difference in the definition of space object when discussing registration and liability. As to the question of space debris and Article VIII of the Outer Space Treaty, Prof. Kopal stressed that either a definition for space debris should be clarified or a separate instrument should be drafted. According to his paper, the difference between "parts" of a space object and "space debris" should also be clearly established. At least, unidentifiable space debris can no longer be considered as part of a space object.

Prof. Böckstiegel (Germany) presented two papers at the session; one concerning the term "appropriate state" and the other concerning "launching state." His paper on the appropriate state recommended that a functional approach be used when Article VI of the Outer Space Treaty leaves room for a different number of interpretations. As to the "launching state," the Registration Convention and the Liability Convention are binding and give sufficient guidance in most cases.

Mr. Wirin (USA) discussed the practical implications of the definition of 'launching state'. Paramount to the topic of his paper was the distinction between state responsibility and liability. In this context, Mr. Wirin stressed that the term 'appropriate state' should be narrowly construed.

Mr. Wirin also presented *Prof. Gál's* paper on "Space Objects - While in Outer Space" in his absence, and Prof. Gorove summarized the papers of the Russian scholars *Zhukova* and *Kamenetskaya* on space debris and the terms astronaut, personnel, crew, and passenger.

Finally, *Dr. Doyle* (USA) presented an unannounced paper concerning the concept of peaceful uses of outer space. His approach primarily concentrated on the historical development of the concept, tracing the definition of peaceful use from its inception in international space law to today.

In the discussion, *Dr. He Qizhi* (China) noted in response to Prof. Böckstiegel's papers that the key term "procure" had not been interpreted when speaking of a definition of the launching state. He proposed a hypothetical situation and said that he preferred a broad interpretation of the term "procure".

Mr. von der Dunk (NL) inquired whether in a proposed uniform definition of a space object the launch vehicle would be considered to be part of a space object. *Prof. Gorove* answered that under such a definition, the launch vehicle would be considered to be a space object from the time

of a launch or attempted launch.

Mr. Meyerhoff (ITU) inquired whether the ownership of a satellite had any relevance to the definition of space object. *Prof. Gorove* replied that ownership has no relevance once the satellite is classified as a space object. Additionally, an object may be considered to be a space object during temporary stopovers on the moon that are not indefinite in duration.

Mr. Kaplan (UK), when called upon by Dr. Jasentuliyana to present his views on the progress made since the sixties in these sessions, expressed his consternation that no progress had been made on the establishment of an international space organization equivalent to the ICAO in air law. Additionally, he supported Prof. Kopal's distinction between unidentifiable and other debris. In conjunction with this opinion, he supported special legislation on space debris. As a final note, he stated that space activities simply took off without any mention of peaceful use and that it is senseless that a similar situation be repeated or allowed to continue with regard to space debris.

Prof. Gorove, referring to Prof. Kopal's statement that unidentifiable debris should not be regarded as space debris and space objects, noted that there are known to be a very large number of man-made objects in outer space which at present cannot be identified or tracked by available technology and those objects irrespective of our current inability to identify their source of origin should be regarded as space objects. He felt that it would appear unwise to make identification a necessary prerequisite of regarding an object a space object. He added that with technological developments, our ability to determine the origins of different sizes of space debris will be greatly enhanced. In this context, it is important that the law keep abreast of such developments lest it fall behind and thus complicate liability issues.

Mr. Smith (UK) asked whether an object ceases to be a space object when abandoned on the moon. *Mr. von der Dunk* took up the question by stating that the appropriate state is responsible for the activity in accordance with its control duties. *Mr. Wirin* added that there appears to be some confusion as to the application of the Liability Convention in these matters.

SESSION 3: Liability in Commercial Space Activities

Chairman *Prof. Böckstiegel* (Germany); rapporteurs *D. Groth* and *J. Kime* (USA)

Mr. von der Dunk (NL) presented the first paper, entitled "Commercial Space Activities: An Inventory of Liability - An Inventory of Problems." He noted that there is an overlap between questions of liability and commercial space activities, and identified eight key aspects of liability: 1) a definition of liability as a form of accountability triggered by damage; 2) the consequence of liability as a duty to compensate such damage; 3) the identity of the party responsible for compensation; 4) the identity of the party victimized by the damage; 5) the mechanism of dealing with claims for damage; 6) the relationship, contractual or tortious,

between the party causing the damage and the victimized party; 7) the type of liability, absolute or fault-based; and 8) the amount of compensation, limited or unlimited. A survey of these aspects of liability reveals a common thread relating to (a) the conceptual relationship between commercial and private space activities and (b) the peculiar focus on the launching state in liability. When a public entity undertakes commercial space activities, the same liability regime that applies to private space activities should apply to it in view of the concept of "level playing field". While the area of liability at first glance seems to provide this level playing field, this is not so. As a result, the current way of handling liability leaves much to be desired.

Mrs. Meredith (USA) dealt with "Liability Issues Raised by Commercial Space Activities: A Hypothetical Case Scenario". The hypothetical involved liability for a failed satellite launch. The satellite owners brought suit against the launching corporation alleging negligence and gross negligence for failing to carry out collision avoidance procedures for the launching rocket body and other related claims. The defense of the suit raised issues involving a launch contract as well as the Commercial Space Launch Act of 1984.

"Preventive Liability for Space Activities" was the topic of *Mr. Reibel's* (USA) paper. The paper examines current trends in preventive liability to determine the feasibility of applying preventive liability principles to outer space activities. The four current trends identified by Mr. Reibel were the use of whistle blowers to prevent waste and fraud, acquisition reform or contractor incentive programs which would ensure quality design and manufacturing, risk spreading through insurance, and the merger of specialized space manufacturing industries allowing for the internationalization of risks and costs. In conclusion, further issues of preventive liability were identified and a revaluation of fundamental principles of liability urged.

Dr. Wirin (USA) presented a paper entitled "Policy Considerations of Launching US-Origin Satellites in the People's Republic of China." The author noted that while China has significant launch capabilities, it may not be in the best interests of the USA to allow commercial use of these capabilities. After briefly outlining the various mechanisms for limiting commercial launches in China, Dr. Wirin noted that non-space matters have an impact on launch decisions. The crux of the problem in dealing in this area, according to Dr. Wirin, is that trade gains are contingent on meeting American policy interests. However, curtailing trade to meet those policy objectives may have the opposite effect of causing China to turn inward and deny not only trade, but also ideas and information from entering its borders.

Dr. Balsano (Italy/France) presented a paper entitled "Technology Transfers in the Public International Research Organizations; the Example of the European Space Agency." The author noted that there has been a great increase in cooperation in outer space brought on by changes in politics and economics. She provided a definition of the transfer of technology as the "systematic transfer of know-how which should enable the

receiver to manufacture a product, enforce a process or render a service." Dr. Balsano then discussed the ways in which ESA transfers technology among its members. She outlined the guidelines for ESA staffers and contractors, and then discussed the provisions governing technology transfer to third parties. These transfers are done on an ad hoc basis and are guided by the International Cooperation Agreements of ESA. These operations range from general cooperation programs to specific experiments. Dr. Balsano then discussed the Trade Related Intellectual Property rights (TRIP) as it relates to the protection of Intellectual Property Rights (IPR). Dr. Balsano noted that although the GATT Treaty solved a problem by defining patentable matters, its effect cannot be gauged until more countries ratify GATT. She did observe that TRIP and GATT will provide a more stable environment that is conducive to the transfer of technology. Dr. Balsano concluded by noting that ESA has recently adopted a resolution reaffirming the need for international cooperation. However, ESA's *quid pro quo* approach to the transfer of technology with developing countries should be adapted to increase the benefits of ESA technology.

Dr. G. Catalano Sgrosso (Italy) presented a paper entitled "Copyright and Intellectual Property in Outer Space." Dr. Sgrosso first noted that in performing outer space research, much time will be devoted to terrestrial preparation of experiments and hypothesis in order to minimize the time used for experiments in outer space. Therefore inventions will be carried out in outer space, but more often will inventions result from further research carried out on Earth. Also, the costly investment required to perform such research requires adequate economic return for the investors available through the protection of intellectual property. Dr. Sgrosso noted that the creation of a "space patent" would be beneficial but also that it is unrealistic at the present time to hope for any international consent for the creation of a specific convention. The immediate solution seems to be the principle of "almost territoriality" utilized in the Inter-Governmental Agreement for the International Space Station.

In the discussion, Dr. He Qizhi (China) mentioned that he welcomed the trend toward greater trade on the part of the US. He noted the view of the author that the vacillation of US policy concerning launches by China is tied to the US policies on the MTCR and human rights concerns, and pointed out a legal instrument on the MTCR was recently signed by the US and China, so that this issue is solved. On the matter of human rights, Dr. He stated that although this was not the proper forum to deal with this issue, he wanted to stress that the development of cooperation between the two states will bring great benefit not only to the relations between the two powers but also to the peace and security of the world.

SESSION 4: Other Legal Matters

Chairman Dr. V. Kopal (Czech Rep.); rapporteur Martha Mejía-Kaiser (Germany)

In the paper presented by Dr. Courteix (France) "Towards the Legal

Recognition of a New Method of Proof for the Defence of the Environment: Satellite Images," remote sensing images as evidence for the control of armament and surveillance of the environment were discussed. International practice is evolving to use satellite images as a legally recognized method of proof which will progressively be codified. Remote sensing images may be used as a tool by the International Atomic Energy Agency and by the International Environmental Court to be established. Prof. Courteix stressed that the creation of an international satellite control agency with responsibility for armament control and environmental surveillance is necessary.

Drs. Sterns and Tennen (USA) examined in their paper "Space and the Environment: Public Perceptions and Policy Considerations" the dividing line between scientific certainty and social factors as it has emerged in US environmental litigation. After the adoption of the National Environment Protection Act which grants the right to the public to review the federal agencies' environmental considerations, space missions using nuclear power sources are also placed under the microscope of the public opinion. US public opinion is thus taking a significant role in the definition of the environmental aspects of space policy and jurisprudence.

Drs. Williamson and Obermann (USA) presented the paper "New Challenges in International Orbital Debris Policy." The authors stated that in recent years, US Government has been hesitant to impose satellite design and mission standards relating to debris avoidance on its private sector or governmental agencies, because such steps would reduce competitiveness. They emphasized that politicians and policy makers do not perceive the space debris problem as a high priority, because there is technical uncertainty about the extent of the debris threat. However, a proposal will be submitted to Congress containing technical standards on launch systems, spacecraft design and operational procedures to be applied to all civilian and military space activities. This proposal includes a schedule for the development of an international accord on the control of orbital debris.

Dr. Hashimoto (Japan) proposed in his paper "Verification Systems from Outer Space. Revival of International Satellite Monitoring Agency" the reactivating of the international Satellite Monitoring Agency (ISMA) as proposed by France in 1978, because of the new political order and the recent technical developments. He outlined the rapid increase of small-scale disputes after the cold war era and the increased responsibility of the UN. The examples of the Open Skies Treaty of 1992 and the satellite center of the West European Union (WEU) founded in 1993 show how satellite monitoring is accepted as a mechanism to contribute to international security. He called for cooperation in order to revive the ISMA proposal.

Ms. Mejia-Kaiser (Mexico-Germany) presented the paper "Verification of European Farm Subsidies by Satellite." She analyzed a European Union (EU) regulation for the verification of farm subsidies which requires member states to establish databases with information from several sources including satellite remote sensing data. German data

representatives have objected to this regulation arguing that member States are obliged to interfere with the privacy rights of individuals in a systematic manner. Mrs. *Mejla-Kaiser* noted that the protection of privacy rights relating to personal data may affect the remote sensing business, when remote sensing data is combined with personal information.

Dr. Esquivel de Cocca (Argentina) submitted the paper "SETI Draft Second Protocol" which examined two drafts on communication with extraterrestrial intelligence. Dr. Esquivel analyzed the differences between the two drafts and discussed the shortcomings of the SETI Draft Second Protocol in respect of the procedures in the frame of the United Nations for the reaction and answering to a potential extraterrestrial signal.

Dr. Heidmann (France) presented the paper "What Legal Questions are raised by the Establishment of a Dedicated Lunar Far Side Specific Crater for High Sensitivity Radio Astronomy?". Dr. Heidmann indicated that crater Saha will be a good location for antennas for the SETI program and other astronomical uses. He proposed to initiate an international discussion to support the astronomic community which needs a moon far side crater site free from interference of other stations and satellites.

The following paper was entitled "The Technical Basis for Regulating the Use of Nuclear Power Systems in Near-Earth Space", presented by *Dr. Farinella* (Italy). He discussed the potential reentry of radioactive materials into the atmosphere of satellites in low earth orbit (LEO). He referred to a proposal of creating a prohibited zone for all nuclear power sources (NPS) in LEO. As an exception, Dr. Farinella proposed that NPS for space missions with final destination outside the prohibited zone be assembled in LEO. Furthermore, he asked for safety design improvements and orbital assignment for NPS satellites in order not to interfere with gamma-ray space observatories.

Dr. Cocca (Argentina) presented the paper "Legal Aspects of Mental and Physical Workload of Astronauts." In his view the astronaut is an individual delegate of mankind as a collective subject and a representative of the human culture but not a political agent. He stressed that astronauts have rights and duties which need to be codified. Among the rights are the special protection against risky medical experiments, privacy and intellectual property for scientific research. In conclusion, Prof. Cocca asked for legal safeguards for the astronaut's basic human needs.

In his paper "The New Brazilian Space Agency (AEB); Political and Legal Analysis," *Dr. Monserrat Filho* (Brazil) described the creation of the Brazilian Space Agency in early 1994. Brazil is the most active Latin American country in space activities, although it suffered drawbacks in the development of a domestic launching system due to the interruption of technology transfer on grounds of the Missile Technology Control Regime. The author affirmed that the AEB was established in an effort to foster transfer of advanced technology. The establishment of this agency involved many irregularities, as it was established under urgency status without discussion in Congress and without consultation of the scientific community.

After a detailed analysis of facts on the use of remote sensing satellites, *Dr. Brown* (USA) warned in his paper "International Peace Through the Free Market; The Effect of Commercial Remote Sensing Satellites on International Peace" of the dangerous effects on international stability, if access to remote sensing imagery and technology were restricted. Although some specialists are of the opinion that unrestricted distribution of remote sensing images may have a potential de-stabilizing effect, the author stated that evidence indicates the opposite. Even though the US Government promotes the restrictions to remote sensing data and to technology transfer during international crisis, no such restrictions could internationally be imposed. *Dr. Brown* concluded that the free remote sensing market is a vehicle for achieving arms control.

Dr. Terekhov (Russia) described in his paper "Space Debris and the United Nations: a Possible Modus Procedendi" the development of the agenda item on space debris in the UN Committee on Outer Space (COPUOS). *Dr. Terekhov* made reference to the practice of discussing first the technical aspects in the Scientific and Technical Subcommittee, before submitting the issue to the Legal Subcommittee. He stressed that the space debris problem should be discussed simultaneously in both Subcommittees. As a first step, the Legal Subcommittee could conduct a review of existing international law applicable to space debris.

Dr. Marta Gaggero (Uruguay) presented the paper "The Establishment of an International Space Organisation." *Dr. Gaggero* asserted that there are two new subjects of international law, humankind and people. The said organization should manage the goods that constitute the Common Heritage of Mankind based on the concepts of Article 11 of the Moon Agreement and the law of the sea regime.

Mr. O'Donnell (USA) presented "Metaspace: A Design for Governance in Outer Space." He proposed the creation of an independent government in outer space, "Metanation," for future space exploration. Starting with a private sector initiative, he proposed the establishment of a trusteeship council of space faring nations with UN approval. This trusteeship would exist for one hundred years, then being replaced by Metanation as an independent state. Metanation should hold title of all space territories and properties for the benefit of mankind.

In the discussion, *Dr. Doyle* (USA), commenting on *Dr. Heidmann's* proposal for a radio-quiet lunar far side observatory suggested to publish a specific, technical proposal taking into account the experience obtained by existing radio astronomy fixed facility operators. Next step would be informal consultations in the ITU and then formal application sponsored by an administration to ITU for registration and recognition. In order to establish priority of right of the far side facility, it would be necessary to activate and complete an international registration procedure with the ITU and to have the facility identified in the international radio frequency mechanism. *Dr. Doyle* suggested also the submission of this project proposal to ICSU/COSPAR, the IAA and the IAU. All these steps would create a historical precedence and provide for information in the near future when space activities will be undertaken on the moon.

In respect of the increase of space debris and the reluctance of some space faring nations to establish counter measures, *Dr. Jasentuliyana* proposed the establishment of a permanent group in the UN for the setting of technical standards and recommended practices as new types of regulatory instruments to supplement treaties and principles on space law. He called for international cooperation in the transfer of information for such technical standards, which are classified in some countries like the United States. *Dr. Perek* (Czech Republic) suggested that such a group should communicate with the space industry, take into account the work done by COPUOS, but be independent of its decisions. Also a UN database available to all countries should be established containing information on space object orbital parameters and space debris. *Dr. Jasentuliyana* further mentioned the IISL/ECSL symposium to be held during the 1995 COPUOS Legal Subcommittee session. In this context, Prof. Böckstiegel reminded of the ILA draft on space debris and outlined the gap between the awareness of the scientific community and the reluctance of policy makers in Germany.

In conclusion, IISL President *Dr. N. Jasentuliyana* closed the 37th Colloquium on the Law of Outer Space. The 38th Colloquium will be held during the International Astronautical Congress in Oslo, Norway, 2-6 October 1995.*

*Tanja L. Masson-Zwaan***

IISL Secretary/ Colloquium Coordinator

ECSL and ESA Provide World-Wide Perspective on Intellectual Property Rights and Space Activities

On December 5-6, 1994, the European Centre for Space Law and the European Space Agency (ESA) convened a Workshop on intellectual property rights and space activities in Paris, France. The Workshop, chaired by Mr. *Sa'id Mosteshar*, presented the first analysis of legal and policy issues with regard to intellectual property rights and space activities in a world-wide perspective.

In the first session, presentations were given by the representatives of the main national space agencies in the world in order to give an overview of the different ways they deal with intellectual property

* Information about the Colloquium, the session topics and the procedure for the submission of papers, as well as the Manfred Lachs Space Law Moot Court Competition can be obtained from the IISL Secretariat, 3-5 rue Mario Nikis, 75015 Paris, France, tel. 33-1-45674260, fax 33-1-42732120.

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rights (IPRs) related to space activities. Mr. *Gimeno*, representing NASA, noted that the United States' approach is to consider any object launched into outer space to be a facility that is under the jurisdiction of the launching nation for the purpose of determining the IPRs that are applicable to any activities occurring on the object. He believed this approach to be consistent with the Outer Space Treaty, and the approach has been codified in the U.S., whose patent law now provides that any invention made, used, or sold in outer space on a space object (or component thereof) under the jurisdiction or control of the United States shall be considered to be made, used, or sold in the United States for patent law purposes.

Consequently, U.S. jurisdiction may be established either by U.S. registration or via international agreement. In addition, U.S. patent law expressly recognizes the fact that there will not be U.S. jurisdiction or control where there is registration by a foreign State, or if so provided in an international agreement to which the U.S. is a party. Mr. *Gimeno* noted that in the rare event that there is neither registration nor an international agreement governing the issue, the U.S. may by virtue of physical control (such as by ownership, launch, and exercise of telemetric commands) factually establish that an invention was made, used, or sold on an object under U.S. control and, therefore, in the U.S. for patent law purposes.

Dr. *O. Vorobieva*, representing the Russian Institute of State and Law, noted that in 1992-93 a new set of laws on IPRs were adopted by Russia in order to conform its system to modern international practice and provide a legal base for the contractual terms and conditions (including contracts with foreign partners) concerning the 'sharing of rights to the results of scientific and technical works between parties.

Dr. *Vorobieva* pointed out that Russian patent law, in similarity with most European countries, provides a "first-to-file" system, in which the territory where an invention was created is irrelevant for purposes of obtaining a patent. As to the applicability of Russian patent law in the case of an unlawful use of an invention in outer space (particularly on a space station), she stated the answer is not entirely clear. However, she noted that the Russian Law on Space Activity of 1993 contains several provisions which give a base to consider the Russian legislation, including the Patent Law, applicable to an activity on board a space station and to the results of such activity when the space object is registered in Russia and outside the jurisdiction of any other State. Russia is now negotiating the terms and conditions of joining the Intergovernmental Agreement on the Space Station (IGA), and doing so will resolve many issues pertaining to international cooperation that are currently unresolved.

Mr. *Takayuki Yokoo* of the National Space Development Agency of Japan (NASDA), in relation to the launch of a spacecraft, referred to Article 69 of the Japanese Patent Law which states that Japanese patent law does not apply to "ships or aircraft merely passing through Japan...", and Mr. *Yokoo* favored a revision of this law to include spacecraft. Concerning activities in outer space, the Mr. *Yokoo* addressed microgravity

experiments, the IGA, and remote sensing data. Interestingly, article 21 of the IGA results in an exception to Japanese patent law because it makes that law applicable to space activities, which would normally not be the case. As far as satellite data are concerned, these are not protected by Japanese law. Unenhanced data are not considered as copyrighted materials, while enhanced data are, but it is still necessary to protect data sent electronically through computer networks.

In the question period which followed the first part of this session, Mr. René Oosterlinck (ESA) inquired as to the status of remote sensing data in Russia, and Ms. Vorobieva replied that for the time being only databases as such are protected in Russia; she expected that the same situation as in Japan would exist, *i.e.*, unenhanced data would not be protected by copyright, while enhanced data could be.

Mr. Robert Lefebvre of the Canadian Space Agency (CSA) presented the Canadian experience, and gave a general overview of IP protection in Canada, noting that Canada's Patent Act was amended in 1989 to reflect a "first-to-invent" system. As in the US, there is a 1-year grace period for the requirement not to publish an invention before filing. Mr. Lefebvre then focused on Canadian government policy, and indicated that in 1991 a new government policy on ownership of intellectual property arising from R&D contracts was adopted to encourage the exploitation of inventions from government contracts; rights are now established before contracts are concluded. He also discussed the Canadian Space Station Program and the Canadian Technology Network (CTN) to illustrate the flexible management and commercialization policy of the CSA.

Mr. Lefebvre concluded by indicating that Canada is presently negotiating two umbrella agreements, with the US and with Europe, to ensure the proper management, allocation and exercise of IP rights on a bilateral basis. These agreements do not necessarily harmonize the systems of the countries involved, but at least ensure that ownership and use principles are addressed before initiating cooperative research.

Mr. Pravin Anand, representing India, noted that India's intellectual property laws are broadly compatible with international conventions. In areas where gaps remain, Mr. Anand noted that India is now obliged under the TRIPS agreement to amend its laws in order to bring them into conformity with international standards.

As for IPR arising from activities in outer space, Mr. Anand discussed a significant difference between Indian copyright law and patent law. India's Copyright (Amendment) Act of 1994 defines a literary work to specifically include a computer database within its ambit. However, this law would not prevent another organization from independently creating its own database without "copying." Although independent creation may be a defense under India's copyright law, however, it is not a defense under patent law. Hence, if there is a patent for a certain invention, the law would prevent the use of the invention by another, even if independently conceived and developed.

Mr. Anand further noted that Indian patent law is based on a first-to-file system and consequently the place of invention is irrelevant for

patent protection, but unlike the U.S., there is no domestic legislation that specifically extends Indian law to activities occurring on space objects. However, analogies could be drawn from India's law of admiralty to extend Indian law to Indian registered spacecraft or objects. Mr. *Anand* also posed further queries, such as whether the novelty criteria would be any different simply because outer space provides an exceptional environment.

Mr. *Anand* concluded by noting India's increasing effort to commercialize its space technology, pointing out that the Government established the Antrix Corporation in 1992 to act as the corporate front of ISRO and the Department of Space (DOS) for the marketing of space products and services in India and abroad and for taking over the technology transfer and technical consultancy services previously carried out by ISRO and DOS.

The panel discussion of the first session was monitored by Mr. *René Oosterlinck* of the European Space Agency. Several issues were discussed, including the difference between title policy (US, Canada, Russia, and Japan) and license policy (Europe and ESA), the temporary presence doctrine, and protection of remote sensing data.

The second session of the workshop dealt with practical experiences and the importance of the legal environment, and hosted speakers from ESA, the French Space Agency CNES, Intospace and Sospa.

Ms. *Anna Maria Balsano* from ESA spoke about the experience of the European Space Agency. She discussed the ESA provisions on information and data, and distinguished between (1) inventions made by ESA staff, (2) those made by contractors and (3) those made by experimenters. In the first case, ESA retains ownership of the invention. In the second case, for inventions made before conclusion of the R&D contract, ESA needs prior agreement of the contractor before disclosing information, whereas for inventions made after the contract, ESA will obtain a non-exclusive, irrevocable license from the contractor who will own the invention. As far as information and data from instruments flown on ESA provided flight facilities are concerned, a distinction must be made as to whether or not the customer paid for the experiment. If not, ESA will own the rights on raw data, while granting prior access to the experimenter, whereas the experimenter will own the rights on the analyzed data. But if the customer paid for the mission, he will have exclusive rights on the resulting data. Ms. *Balsano* also addressed the issue of remote sensing and mentioned that a study has been carried out for the CEC on data protection, whose results will be included in the Draft Directive on Databases. Finally, she discussed the concept of "information highways" which is on the agenda of the European Union and indicated its effects on ESA programmes.

Ms. *Christiane Blemont* presented a paper written in cooperation with G. *Oscar* and Chr. *Thibault* on the viewpoint of the French Space Agency, CNES. She first raised many practical issues, such as whether a patented object used in an unauthorized manner on the space station could be seized, and the possibility of being sued for infringement of a patent right when using that patent in outer space, where the national law does not apply. Ms. *Blemont* then discussed the international and national legal

framework, where CNES' practice concerning contracts and agreements was addressed. She noted that almost all patentable inventions are developed on earth, while results obtained in space will mostly be sent back to be studied on earth. Thus, in her view, national patents will suffice for the coming future. She concluded by raising the question of the protectability of raw data which do not involve any human creativity, and held that protection will have to be based on encrypting and confidentiality provisions, although the images might also be considered as photographs, protectable under the Berne Convention.

Ms. *Angela Lemius* presented a paper on behalf of INTOSPACE, a company whose purpose is to promote, initiate and support microgravity space activities and to render assistance and consultancy in those activities. In practice, Intospace serves as intermediary between the launcher and the research institution: Intospace concludes one contract with the launching entity, and another with the research body, and tries to strike a balance between the interests of both: the launcher will seek the maximum of information to ensure security, while the contractor will seek the maximum of confidentiality to protect his investment. The speaker then explained the contractual provisions of secrecy agreements before discussing the detrimental effects of contractual liability waivers on such agreements. In this regard, a waiver could imply that the research institution cannot turn against the launching entity in case of non-authorized use. Ms. *Lemius* therefore proposed to exclude claims concerning confidentiality agreements from the waivers. Finally, she addressed questions of infringement of confidentiality and discussed the German law against unfair competition.

Mr. *Bradford Smith* of SOSPI, the industrial property organization of the Alcatel Alsthom Group, presented an industry perspective on space-related IPR. He began by indicating that the space-related industry is not a typical industry to which the normal rules of free market economy apply. Many participants have grown out of defense-related industries, and since there is a limited number of programs and players, the partners on one program may well be competitors or clients on another. This makes it difficult to apply traditional IPR principles to space activities. Thus, legal certainty and a uniform system must be ensured in order to create a level playing field for all. This would transform the industry's expectations from IP protection (*i.e.*, protection of investment, securing a competitive or commercial advantage, and using IPR as a defense against 3rd party attacks on the basis of 3rd party rights), into reality. Finally, Mr. *Smith* warned against the trend to see IPR as a potential revenue source, and the trend that research entities are being privatized and conduct commercial operations.

In the question period that followed the 2nd session, it was asked whether the ESA Convention should be amended, as it may be counterproductive to commercial business, and whether it was desirable to establish space as a separate "territory" where one uniform law would apply. Mr. *F. von der Dunk* (Netherlands) responded why, in his view, space can never be a territory in terms of public international law, and

explained that it would suffice to apply an international legal regime to space activities via treaty.

Mr. *André Farand*, representing the European Space Agency, opened the 3rd Session of the Conference by discussing the context in which the International Space Station Project will take place and the specific challenges facing the European States which are parties to the Space Station Agreements in connection with the protection of IPRs. The Intergovernmental Agreement on the Space Station (IGA) * contains the general principles that govern the conduct and cooperation between the many countries involved in the Space Station Project. Mr. *Farand* pointed out that the IGA establishes a distinction between Partners and Partner States, the nine European States being grouped as "the European Partner," represented by the European Space Agency.

Mr. *Farand* noted that the variety of techniques followed by the Partner States for ensuring compatibility between their domestic law and the obligations contained in the IGA is one significant factor that is likely to breed inconsistencies in the implementation of the IGA at a later stage. For instance, Germany incorporated the entire text of the IGA into its national laws, whereas the United Kingdom deposited its instrument of ratification without any prior regulatory or legislative action. As a consequence, Mr. *Farand* noted that it is possible for the courts of one Partner State to adopt a stance which is different from the one that could be adopted by another Partner State. The same could be said between the courts of the European Partner States themselves, a very troubling possibility since the IGA generally treats the European Partner States as an homogenous block.

In briefly discussing the legal principles contained in the IGA, Mr. *Farand* stressed that the discussions on IPRs during the IGA negotiations were the most lengthy and complex, primarily due to the fact that the basic philosophy behind the patent laws of the U.S. and the other Partner States - and between the European Partner States themselves - are not easily reconcilable. Such issues encountered during the negotiations included: the application of different concepts such as "first to invent" and "first to file"; the case where an inventor is prevented from filing a patent application in one country because of provisions of one Partner State's laws protecting the secrecy of invention; and the initiation of proceedings for patent infringement based on the temporary presence, in transit on the territory of a Partner State ensuring the launch, a situation Mr. *Farand* pointed out as similar to the one which has given rise to the lengthy Hughes

* The IGA came into force in July 1992, after ratification by Japan and the U.S.; presently, the European Partner and Canada have not yet ratified. Due to Project redesigns by both the U.S. and the European Partner States, and for the purpose of including Russia in the Space Station partnership, the Parties are currently halfway through the negotiations on a Protocol to amend the IGA. However, Mr. *Farand* noted that it is fairly clear that the legal regime put in place through the IGA will remain fundamentally the same.

patent case in the U.S.

Mr. *Farand* concluded by noting that while the IGA sets up a general framework for cooperation, the Parties need to establish detailed legal rules and clarify further the general framework itself in order to protect the Partners' existing and future IPRs.

Mr. *Brian Derby*, on behalf of the European Patent Office, discussed the European Patent System and the problems likely to arise when seeking protection of inventions related to space activity. After briefly discussing the European Patent Convention (EPC), which establishes a single European procedure for the grant of patents, he suggested that novelty is perhaps the most problematic aspect pertaining to patentability of space related inventions. Since the EPC has no equivalent to the "grace period" which exists in the U.S., where disclosures up to one year prior to filing are not considered prejudicial to novelty, Mr. *Derby* stressed that it is very important that no public disclosure of the invention occur prior to the filing date. He noted that the risk of premature disclosure is heightened by the unique nature of space related activity, and by the differences which exist in the patent laws of space faring nations. For example, if an invention is relayed to a U.S. location and is published, it would be fatal to obtaining patent protection in Europe, whereas it would not interfere with obtaining a patent in the U.S.

Mr. *Derby* suggested that another issue that needs to be addressed is confidentiality of information relayed by satellite. Under the EPC, information "made available to the public" will bar patentability of the invention, regardless if anyone actually received the information. On this point, he posed the query of communications accessible by persons other than the destinee. In such a case, it appears that so long as the information was intended to be confidential, patentability in Europe would not be jeopardized.

On the issue of infringement of patented inventions during outer space activities, Mr. *Derby* suggested that an exemption for experimental use should be a provision in any agreement on space cooperation. Since private entities currently have to ponder whether a particular act may constitute infringement and render them liable to significant damages, an exemption for experimental use would help alleviate these concerns and thereby encourage private undertakings in space activities.

Mr. *Jens Gaster* of the European Commission spoke about the present and future legal framework of copyrights in the European Union (EU). After addressing the emergence of digital technology and its effect on EU harmonizing policy for IPRs, he described the EU harmonizing efforts in the field of IPRs and noted that the 1991 Follow-up to the Green Paper on Copyright and the Challenge of Technology set out a policy for such IPR harmonization. He discussed such topics as piracy, computer programs, satellite transmissions, and databases. As regards the latter, Mr. *Gaster* spoke about the draft Directive on databases prepared by the CEC. This draft provides for protection of electronic databases through both copyright protection and protection under a new *sui generis* right against unauthorized extraction or reutilisation.

Mr. *Gaster* concluded his presentation by speaking about the "European Information Society." In July 1994, the CEC adopted a communication on "Europe's way to the Information Society: an Action Plan," and as a consequence, a Green Paper on IPR's will be prepared. After an initial hearing in July 1994, participants requested only minimal adjustments to the existing framework of the IP protection in the EU, but did stress the importance of rapid consensus on the database Directive. The Green Paper is expected to be published by the end of 1995 and should be seen as an effort to contribute to national, bilateral, regional and international (WIPO) efforts to ensure an adequate worldwide IP legal framework.

Mr. *Albert Tramposch*, representing the World Intellectual Property Organization (WIPO), discussed the international norm-setting activities of WIPO. He noted that the efforts of WIPO have taken place in two main arenas: treaties establishing international application or registration systems for obtaining industrial property protection (for example, the Patent Cooperation Treaty), and treaties for harmonization of the domestic industrial property laws of nations (for example, the Draft Patent Law Treaty). He then discussed some issues that may arise in the context of inventions in outer space, and which might require harmonized international norms for their solution. He noted the differences between the "first-to-file" patent system and the "first-to-invent" patent system, and the difficulty in determining exactly what time an invention was created. He pointed out the heightened possibility of technology becoming public unintentionally during space activities, for example through broadcast television or photographs showing the interior of a spacecraft, and thereby become "prior art" which could prevent issuance of a patent. Mr. *Tramposch* then concluded by discussing issues which should be agreed upon before a joint activity in outer space is undertaken, such as the extent of disclosure before patents are applied for, and the determination of potential infringement of third-party patents - a difficult task when a cooperative space activity involves the territory of several States.

Mr. *Gervais*, also representing WIPO, discussed the application of copyright law to outer space, and the observation that during cooperation by many different States the problem of the applicable law is bound to arise. For example, in the case of a satellite transmission, which law should apply: the law of the country where the uplink takes place or the law of the downlink country? At the European level, this problem has now been solved. Another difficult area encountered is the protection of databases containing remote-sensing data, as well as the fact that some databases are simply not original in a legal sense.

The panel discussion of this session was monitored by Mr. *Stephen Kahn* of ESA-ESTEC. The moderator proposed the following questions: (1) have all interests, conflicts, etc. been fully categorized?, (2) can existing concepts be used without damaging them, e.g., the example of the tendency to "overstretch" copyright? (3) what new institutions should be developed, and (4) is our ultimate goal to have one single regime for space activities?

The answers to these questions should provide the starting point for WIPO to take this matter a step further to reach world-wide agreement.

In closing the workshop, Mr. *Sa'id Mosteshar* thanked ECSL for having initiated this debate and thanked WIPO for having taken an interest and for taking the matter further towards the ultimate goal of a uniform world-wide agreement on the protection of intellectual property rights.

Michael A. Gorove
Associate Editor, J. Space L.

Tanja L. Masson-Zwaan
IISL Executive Secretary, ECSL Board Member

*The Forty-Ninth session of the U.N. General Assembly Adopts Resolutions Related to Outer Space Matters **

The General Assembly of the United Nations at its forty-ninth session considered jointly two agenda items related to outer space matters: "international cooperation in the peaceful uses of outer space," and "question of the review of the Agreement Governing the Activities of States on the Moon and other Celestial bodies," and adopted two resolutions as of 9 December 1994. The regular resolution,¹ which endorses recommendations of the Committee on the Peaceful Uses of Outer Space and its subsidiary bodies reflecting the discussions during the concerned session and determining the items to be discussed during the following session, was adopted without a vote, as it had been the case in the previous years. However, the resolution on the enlargement of the Committee² was adopted with a recorded vote of 165 in favor to 1 against (the United States), with no abstentions.

International cooperation in the peaceful uses of outer space, including the question of the review of the Agreement Governing the Activities of States on the Moon and Other Celestial Bodies (General Assembly resolution A/49/34)

Regarding the above resolution, which was adopted without a vote, Member States considered the issues which had been raised in the Committee and its subsidiary bodies during the present session including the following key items.

* The views and opinions expressed in this report are the sole responsibility of the author and not the United Nations Office for Outer Space Affairs.

1 General Assembly resolution A/49/34.

2 General Assembly resolution A/49/33.

UNISPACE 82 and the United Nations Programme on Space Applications:

The importance of ensuring benefits of outer space activities for all countries, particularly for those developing countries, was reiterated at the above session of the General Assembly. Several delegates reemphasized the necessity of implementing the recommendations of UNISPACE 82 and expressed their support for the United Nations Programme on Space Applications, the mandate of which had been expanded by recommendations to include the development of indigenous capability. In this connection, many delegations noted the progress made by the United Nations towards the establishment of regional Centres for Space Science and Technology Education. Several delegates indicated their high interest in and expressed their support for the establishment of such Centres, which would also enhance regional cooperation among the countries in various fields of space activities.³

Remote sensing technology and environmental monitoring

Discussions at the above session of the General Assembly reflected an increasing awareness of the usefulness of remote sensing satellite in the social and economic development. Some delegations of the Member States with active space programs shared their experience in applications of remote sensing technology in such fields as natural resources management and disaster prevention. The importance of remote sensing activities was once again considered in the context of environmental monitoring and sustainable development. The General Assembly endorsed the agreement of the Committee that it would request the Commission on sustainable Development to bring to the attention of its members the valuable role of space technology and applications in implementing sustainable development programs.⁴ During the course of the discussions, the view was once again expressed that the Committee could play a significant role in applying some of the recommendations of the United Nations Conference on Environment and Development (UNCED).

With regard to the distribution of data, the United States, which had taken steps to merge the Polar Orbiting Operational Environmental Satellite System and the Defense Meteorological Satellite Programme,

³ At the time of discussions at the General Assembly, evaluation missions to the regions of Africa, Asia and the Pacific, Western Asia and Latin America and the Caribbean had been already undertaken to consider the sites for the Centres. For the Latin America and Caribbean region, Brazil and Mexico had already been selected by the United Nations as the host countries, and the official announcement on the establishment of the Centre in this region was being awaited. With regard to the Asia and the Pacific region, the announcement on the possible site for the Centre was expected to be made in a short time. (It was announced on 29 November 1994 that the offers and commitments by India in its proposal to host the Centre favor an early establishment and operation of the Centre in this region.)

⁴ General Assembly resolution A/49/34, para. 34.

indicated that those data would continue to be distributed openly and worldwide, by direct broadcast and by established distribution system. Nicaragua emphasized the importance of the use of remote sensing technology for developing countries to support the ecology and stated that meteorological information should be distributed free of charge. Indonesia also expressed that there was a growing concern of many developing countries on the commercialization of data acquired from remote sensing activities and that it was important that such analyzed information would be available at a reasonable cost.

Space debris

Environmental concern is not limited to the environment of the Earth but also extends to that of outer space. The General Assembly had active and constructive discussions particularly on space debris issues. Acknowledging the growing potential danger of space debris for various space activities, many delegates welcomed the decision of the Committee to consider the matter of space debris and the inclusion of this matter as a new item on the agenda of the Scientific and Technical Subcommittee. The view was expressed that a deadline should be set for a thorough report on space debris from the above Subcommittee. The view was also expressed that it was hoped that speedy progress in the Committee's deliberations would make it possible for the Legal Subcommittee to start its consideration on space debris.

As a result of the deliberations at the General Assembly, space debris has been now included among the items to be considered on a priority basis by the Scientific and Technical Subcommittee. The General Assembly also endorsed the agreement of the Committee that, at its next session, the Scientific and Technical Subcommittee should focus its attention on the acquisition and understanding of data on the characteristics of the space debris environment and should also develop a continuing, deliberate, specific multi-year plan for its work on this agenda item.⁵

Ways and means of maintaining outer space for peaceful purposes

Several delegates recognized increased opportunities for using space technology to enhance international security in the new political environment after the end of the Cold War. While the issue of international security is being discussed in a more comprehensive manner, covering such areas as international economic activities, social development and protection of global environment, prevention of an arms race in outer space continues to be a factor in enhancing international security, particularly among those who indicated that there was an urgent need for an

⁵ For General Assembly decisions related to space debris, see paras. 10-12 and 32 of General Assembly resolution A/49/34.

international agreement to prevent an arms race in outer space.

In this connection, some delegations expressed the view that there could be closer cooperation between the work of the Committee and the Conference on Disarmament. During the 1994 session of the Committee, some delegations had expressed the view that the Committee had been created to address international cooperation in the peaceful uses of outer space, with a clear separation between its role and that of other United Nations forums dealing with disarmament, and that contacts between the Committee and disarmament bodies would be inappropriate.⁶ However, at the 1994 session of the Conference on Disarmament, the complex political transaction at the Conference resulted in a deletion of a paragraph in its report to reestablish the above Ad Hoc Committee.⁷

It will be interesting to see the course of actions which will take place at the Conference of Disarmament and also the related discussions at the Committee on the Peaceful Uses of Outer Space at their next sessions.

UNISPACE-III

Acknowledging the benefits of space technology in various aspects of human activities and realizing the changing international political circumstances which allowed a greater scale of international cooperation in many fields of space activities, many delegations expressed their support for the agreement of the Committee that a third UNISPACE conference could be convened in the near future. Speaking on behalf of the European Union, Germany stated that the above conference should be meaningful for all participants, not just one group or another. Germany also supported the decisions of the Committee that there should be a consensus recommendation on the agenda, venue and funding of the conference prior to recommending a date for such a conference and that a very thorough analysis and definition of an agenda for a third UNISPACE conference should take place at the next session of the Scientific and Technical Subcommittee.

As a result of its deliberations, the General Assembly agreed with the above decisions of the Committee. The General Assembly also agreed that the discussions to be held by the above Subcommittee should provide the basis for a prompt decision by the Committee on a recommendation to the General Assembly regarding the agenda, timing, funding and organization of such a conference. While inviting interested Member States to submit additional ideas and proposals for the conference, the General Assembly endorsed the Committee's request that the Secretariat compile a document, in time for consideration at the next session of the Subcommittee, containing the various ideas regarding the agenda and organization for the conference submitted to the Committee.⁸

⁶ A/49/20, para. 22.

⁷ See CD/1271.

⁸ General Assembly resolution A/49/34, paras. 26 - 29.

Review of the Moon Agreement

In accordance with Article 18 of the Agreement Governing the Activities of States on the Moon and Other Celestial Bodies,⁹ the General Assembly had included in its provisional agenda the question of its review. The General Assembly considered whether to revise the Agreement and noted the recommendation of the Committee that the General Assembly should take no action at the present time.¹⁰

Enlargement of the Committee on the Peaceful Uses of Outer Space (General Assembly resolution A/49/33)

The Committee on the Peaceful Uses of Outer Space, since its establishment, has been conducting its work based on the principle of consensus, and the General Assembly has been adopting resolutions which endorsed the recommendations and decisions of the Committee mostly without a vote. The adoption of a resolution with a recorded vote, as it was the case for the above resolution, is exceptional as far as the matters related to the work of the Committee are concerned.

Prior to the current session of the General Assembly, there had been a clear indication of the increasing interest of States in becoming members of the Committee. Under this circumstance, the Chairman of the Committee had conducted extensive consultations among Member States of the Committee, which led to the agreements of the Committee that its membership should be enlarged by not more than eight member States, that is, by not more than two seats for each of the regional groups that had indicated an interest and that after consulting with the regional groups and the Chairman of the Committee and subject to the consensus of member States of the Committee, the President of the General Assembly should appoint the member States to be added to the Committee at the current session of the General Assembly.

Responding to the request by the Chairman of the Committee to conduct necessary consultations and to provide the names of the two candidates per each regional group to be added to the Committee, chairmen of the regional groups of Africa, Asia, Latin America and Caribbean States, and Western European and Other States communicated the following recommendations to the President of the General Assembly:

African Group:

The Group nominated two candidates, Senegal and South Africa;

⁹ Annexed to General Assembly resolution A/34/68 of 5 December 1979. The Moon Agreement entered into force on 11 July 1984.

¹⁰ General Assembly resolution A/49/34, para. 42.

Group of Western European and other States:

The Group had decided to terminate the practice of rotating membership between Greece and Turkey, and between Portugal and Spain;¹¹

Asian Group:

The Group nominated two candidates, Kazakhstan and Republic of Korea, on the understanding that the term of office for Republic of Korea would expire at the end of 1996 and that Republic of Korea would then be replaced by Malaysia, thus establishing a rotation system of two-year periods between those two countries;

Latin American Group:

The Group nominated two candidates, Cuba and Nicaragua, on the understanding that the term of office for Cuba would expire at the end of 1996 and that Cuba would then be replaced by Peru, thus establishing a rotation system of two-year periods between those two countries.

Extensive consultations were carried out with a view to having a consensus resolution on the enlargement of membership of the Committee. However, this proved to be difficult, and as a result, the General Assembly decided to adopt the resolution with a vote. With this resolution, the membership of the Committee was enlarged from 53 to 61.¹²

In explaining the vote, the United States stated that it could not support the resolution which does not reflect the consensus agreement reached at the 1994 session of the Committee and expressed its regret that a commitment to consensus was abandoned during the final hours of this year's negotiations. The United States further indicated that it intended to review carefully the scope and nature of its future participation in the Committee on the Peaceful Uses of Outer Space.

Conclusion

Reflecting the changing political environment of the international community, increased opportunities for international cooperation in space

¹¹ These four permanent members of the Committee had been sharing their seats on a rotating basis every three years (Greece with Turkey and Portugal with Spain).

¹² As a result of this resolution, the Committee is now composed of the following sixty-one Member States: ALBANIA, ARGENTINA, AUSTRALIA, AUSTRIA, BELGIUM, BENIN, BRAZIL, BULGARIA, BURKINA FASO, CAMEROON, CANADA, CHAD, CHILE, CHINA, COLOMBIA, CUBA, CZECH REPUBLIC, ECUADOR, EGYPT, FRANCE, GERMANY, GREECE, HUNGARY, INDIA, INDONESIA, IRAN, IRAQ, ITALY, JAPAN, KAZAKHSTAN, KENYA, LEBANON, MEXICO, MONGOLIA, MOROCCO, NETHERLANDS, NICARAGUA, NIGER, NIGERIA, PAKISTAN, PHILIPPINES, POLAND, PORTUGAL, REPUBLIC OF KOREA, ROMANIA, RUSSIAN FEDERATION, SENEGAL, SIERRA LEONE, SOUTH AFRICA, SPAIN, SUDAN, SWEDEN, SYRIA, TURKEY, UKRAINE, UNITED KINGDOM, UNITED STATES, URUGUAY, VENEZUELA, VIETNAM and YUGOSLAVIA.

activities through the work of the Committee on the Peaceful Uses of Outer Space were recognized at the current session of the General Assembly. More Member States indicated their interest in the work of the Committee, and with the current enlargement of its membership, the Committee has become one of the largest committees established by the General Assembly. Many States expressed their expectation for the potential of the Committee in assuring the peaceful uses of outer space and the benefits from outer space for all the countries, through such a measure as establishing legal regimes concerning various aspects of space activities.

The current session of the General Assembly indicated that the Committee can enjoy this positive political atmosphere to conduct its work in a more dynamic manner to enhance international cooperation and to identify and solve the potential problems in outer space activities. However, it has become apparent that the Committee now has the difficult task to respond to increasing demands of its Member States in a timely manner while maintaining the balance among their diversifying political interests which can no longer be grouped into two. With the questions of the convening of a third UNISPACE and reactions of some Member States of the Committee after the enlargement, some dynamic movements can be expected in the Committee and the General Assembly during the 1995 session. The current session of the General Assembly on international cooperation in the peaceful uses of outer space was adjourned with much hope and recognition of greater responsibility for the international community in the coming years.

Takemi Chiku
Associate Political Affairs Officer
U.N. Office for Outer Space Affairs

Case Note

Eosat filed suit against the U.S. Department of Commerce Dec. 27, 1994 in U.S. District Court in Washington, to retain its exclusive contract to operate the government-owned Landsat 4 and 5 satellites as well as its exclusive marketing rights to the data from the satellites and to prevent the Department to open the contract for competition.

In a March 16, 1995 ruling, the Court ordered the Department to extend Eosat's exclusive contract until June 30, 1995 and report on the matter to Congress within 10 days.

The Land Remote Sensing Act of 1992 requires that Congress be notified if a satisfactory arrangement is not reached between the Government and Eosat. Final ruling in the case is not expected until after Congress had considered the matter.

Short Accounts

The International Lunar Workshop of the European Space Agency

The European Space Agency (ESA) and Switzerland conducted an

"International Lunar Workshop: Towards a World Strategy for the Exploration and Utilization of Our Natural Satellite" in Beatenberg, Switzerland from May 31-June 3, 1994. The detailed scientific, technical and economic planning for this initiative of "Back to the Moon" laid the foundation for analytical discussions guided by the co-chairman *Dr. Hubert Curien* (France) and *Prof. J. Geiss* (Switzerland). The commitment of the planners, particularly *Dr. P. Creola* of the Swiss Department of Foreign Affairs, and *Dr. R. M. Bonnet*, ESA's Director of Science, created an atmosphere of inspired leadership.

The need was identified for a large, long-term space program which would stimulate world economic development. The Moon was chosen as a goal because it is the nearest celestial body to the Earth, a natural space station for acquiring knowledge of the Earth/Moon relationship, for unique astronomical observations, and for testing the possibility of human expansion into the Solar System. The planned research and development approach is expected to develop a coordinated matrix of economic, political, scientific, and technological, factors, resulting in applications of practical benefits to the Earth.

The invited participants to the Workshop were divided for discussion purposes into seven groups:

- Current Plans for Lunar Activities

- Transportation Capabilities

- Political, Legal and Economic Aspects of a Return to the Moon

- Protection of/from the Lunar Environment

- Infrastructure (both before and after the Moon becomes inhabited)

- Lunar Sites.

The Framework of International Lunar Collaboration

The aforementioned groups had available ESA's comprehensive background report "A Moon Programme: the European View" (May 1994) as well as ESA's scientific study "Mission to the Moon" (June 1992). Europe's affordable and feasible approach to an international Moon program was divided into four phases. The first phase would be devoted to an inventory of lunar resources by means of lunar orbiters, landers, and rovers. The second phase would develop a permanent robotic presence on the Moon. The third phase would then be ready for the first exploitation of Lunar resources. Phase four would accomplish the first human outpost on the Moon. ESA stated that "Europe can build on its available means and expertise to embark on the first phase autonomously after which growing international cooperation will stimulate the subsequent phases."

The Workshop discussions resulted in the following Declaration:

INTERNATIONAL LUNAR WORKSHOP
TOWARDS A WORLD STRATEGY FOR THE EXPLORATION AND UTILIZATION OF
OUR NATURAL SATELLITE
DECLARATION

On the initiative of Switzerland and the European Space Agency, representatives from space agencies, scientific institutions and industry from around the world met in Beatenberg, Switzerland from 31 May to 3 June 1994 to consider plans for the implementation of internationally coordinated programmes for robotic and human Lunar Exploration.

THE MEETING WAS ENTHUSIASTIC ABOUT THE RICH OPPORTUNITIES OFFERED BY THE EXPLORATION AND UTILISATION OF THE MOON.

- The uniqueness of the Earth-Moon system was emphasised and the potential of the Moon as a natural long-term space-station was recognised.
- The Workshop agreed that the time is right, scientifically and technologically, for a staged lunar programme implemented in evolutionary phases, the first phase involving science, technology, and resource exploration missions. The initial phases of the programme, involving Moon orbiters and landers with roving robots, are within the capabilities of the various individual space agencies technically and financially; but the benefits, scientifically and technologically, would be greatly enhanced by close coordination. Each phase should set the task for the next one, but will be fully justified on its own merits without being in any way dependent on the follow-on.
- Strong interest was expressed in the science of the Moon (illuminating the history of the Earth-Moon system), from the Moon (for astronomical projects), and on the Moon (biological reactions to low gravity and the unique radiation environment).
- The phased evolutionary approach allows the differences of opinion over the role of humans in space and the economic utilisation of the Moon to be assessed later in the light of results from earlier phases. As the programme progresses, it is possible that the attractions and benefits of human presence on the Moon will become clearly apparent. It is evident, however, that the Moon would represent the next logical step and a testbed in any plans of human expansion into the solar system.
- The Workshop concluded that existing launcher systems would permit the implementation of the initial phases. The significant technological advances required in areas such as robotics, telepresence, and teleoperations will certainly find scientific and industrial applications on Earth.
- The Workshop agreed that the objectives of the programme can be accomplished while at the same time protecting the lunar environment.
- The Workshop concluded that current international space treaties provide a constructive legal regime within which to conduct peaceful scientific exploration and economic utilisation of the Moon, including the establishment of permanent scientific bases and observatories.

In conclusion the Workshop agreed that this is the right time:

- to begin the first phase of the lunar programme
- to prepare for future decisions on later phases
- to implement international coordination and cooperation
- to establish, at a working level, a mechanism for regular coordination of activities.

A second International Lunar Workshop will be held in mid-1996 to review progress and plans.

Beatenberg, 3 June 1994

Dr. Eilene M. Galloway
Honorary Director
International Institute of Space Law

Innovative Teaching Methods Tout 1994 ECSL Summer Course on Space Law and Policy

The Summer Course on Space Law and Policy has now been organized for the third time by the European Centre for Space Law (ECSL) with the support of the European Union within the framework of its Erasmus Intensive Programme. The course was hosted and supported by the Universities of Messina ('92), Toulouse ('93) and, this year (Sept. 1-17, '94), by the University of Granada, Spain which provided the participants with the most excellent provisions and accommodations for the course, for which we owe the University and, especially, Professor de Faramiñan our gratitude. Twenty-six European Universities participated,¹ an increase of twelve compared to 1993. Two students per University had the opportunity to participate. The program was divided into two parts this year. Thanks to the efforts of several Spanish institutions and companies, the first two days were spent in Madrid for visits to space industries, since most of the industry is located there. Visits were made to important Spanish industries and to the European Space Agency Satellite Tracking Station of Villafranca. The structure of lectures, which took place in Granada has not been changed in most parts. The program consists of lectures on: the United Nations role in space activities and on the international organizations active in the field of space law such as the European Space Agency, the role of the European Union in space activities, lectures on the law governing space applications, training on the legal database ESALEX and use of this database for research.

In light of the experience of organizing the previous summer courses, some changes have been made to improve the quality of the working groups.

In previous years, the students were divided into working groups, each group focusing on one specified topic in the field of space law. This method has been abandoned because of the lack of time for the students to do serious research. This year a case was written especially for the course, and each working group represented a party at a simulated international conference, held during the last two days of the course under the presidency of Professor *Pocar* of the University of Milan. Each group had to deal with various space law issues, such as liability, delimitation of air-space and outer space, intellectual property rights, appropriation of the Moon, non-military use of outer space and the rescue of astronauts. Before the conference, each party had to submit a list of the legal issues they wished to discuss and a summary of each legal issue. In this manner, the students were stimulated to study several issues of space law, instead of

¹ The Universities of: Aberdeen, Amsterdam,, Bourgogne, Bretagne, Occidentale, Campobasso, Cologne, Delft, Jaén, Granada, Kiel, Lapland, Leiden, Louvain, Messina, Milano, Modena, Padua, Paris I, Perugia, Pisa, Roma la Sapienza, Roma Tor Vergata, Sassari, Siena, Toulouse, Utrecht.

only one, and the conference required each student to participate actively.

This method of space law teaching has proven to be very successful and is unique in Europe. Besides providing the students with a good practical knowledge of space law, it also gives them the opportunity to experience how an international conference proceeds. The simulated international conference will be continued in the following years. Next year the course will be hosted by the University of Aberdeen.²

Rafaël J. Roelandt
ECSL Secretary

Report on the 1994 Asia-Pacific Satellite Communications Workshop

During October 26-28, 1994, the Korean Organization for Space Science and Technology (KOSST) convened the 1994 Asia-Pacific Satellite Communications Conference (ASPCC '94) in Seoul, Korea. The event was supported by numerous organizations, including the United Nations.

The ASPCC '94 was opened with speeches by *Dr. Adigun Ade Abioun* of the UN Office for Outer Space Affairs, *Hon. Dong-Yoon Yoon*, Korea's Minister of Communications, and *Mr. Graham Davey*, Director of the ITU's Regional Office for Asia-Pacific. The gentlemen emphasized the importance of satellite communications to economic development of the vast Asia-Pacific region.

Among the highlights of the first day of the Conference were a live satellite video conference with Digital Satellite System pioneer *Stanley Hubbard*, a luncheon address by satellite super-journalist *Scott Chase*, and addresses by *Drs. Korobenkov* and *Koutoukov* of the ITU and the Russian Federation.

On the second day of the ASPCC '94, the attendees divided their time between sessions on different satellite systems planned for or operating in Asia-Pacific, and on drafting a charter for a new international space organization called the Asia-Pacific Satellite Communications Council. The satellite systems that were presented as planned for or operating in Asia-Pacific and their primary services are as follows:

(US)	PanAmSat	Int'l Fixed Satellite Service
(Global)	IntelSat	Int'l Fixed Satellite Service
(Russia)	Intersputnik	Int'l Fixed Satellite Service
(US)	Columbia	Int'l Fixed Satellite Service
(US)	Orion	Int'l Fixed Satellite Service
(US)	Spaceway	Int'l Fixed Satellite Service
(Japan)	SCC	Domestic Fixed Satellite Service
(Japan)	JSAT	Domestic Fixed Satellite Service
(Thailand)	Thaicom	Domestic Fixed Satellite Service

² More information on the European Centre for Space Law may be obtained from ECSL Secretariat, 8-10 rue Mario Nikis, 75738 Paris Cedex. Tel. 33-1-42.73.76.05, Fax: 33-1-42.73.75.60.

(Indonesia)	Palapa	Domestic Fixed Satellite Service
(Philippines)	Philcomsat	Domestic Fixed Satellite Service
(Global)	Inmarsat	Mobile Satellite Service
(US)	Iridium	Mobile Satellite Service
(US)	GlobalStar	Mobile Satellite Service
(US)	TRW	Mobile Satellite Service
(US)	VITA	Mobile Satellite Service
(Korea)	KoreaSat	Domestic Fixed Broadcasting Service
(Hong Kong)	AsiaSat	Int'l Fixed Broadcasting Service
(US)	WorldSpace	Int'l Portable Broadcasting Service

Regarding the new Asia-Pacific Satellite Communications Council, a new charter was agreed upon and Seoul, Korea was selected as the permanent headquarters. Over 25 government organizations and private satellite operators signed on as charter members of the Council. The Council's primary mission is to foster international cooperation in the use of space communications for the Asia-Pacific region.

The last day of the Conference was devoted to presentations of the latest technology in space telecommunications. The Korean Engineering and Technical Research Institute (ETRI) provided an excellent overview of the roles of communication satellites in the information superhighway. Attendees were also introduced to the latest technology in conditional access systems for satellite television and in satellite broadcasting to portable devices (WorldSpace's *StarMan*™ receiver).

APSCC '94 appeared to be a watershed in the organization of Asia-Pacific interests in the peaceful use of outer space technology. A new international organization was birthed, and an extraordinarily exciting future was unveiled. The theme heard repeatedly was that Asia-Pacific would become a "closer neighborhood" through satellite communication and broadcasting. APSCC '94 will undoubtedly help that theme come true.

Martine A. Rothblatt
WordSpace Corp.

Vice President, Strategic Planning

The Eagle Landed 25 Years Ago: Issues of Space Law Today

The Space Law Committee of the International Law Association's American Branch had a luncheon seminar, chaired by *Prof. Stephen Gorove*, during the Association's International Law Weekend on October 28, 1994, in New York City.

In introducing the topic of discussion, the Chair pointed out that since the Eagle's landing on the Moon 25 years ago, several U.N.-drafted international agreements have been added to the 1967 Outer Space Treaty, the basic charter of the international space law. Among them was the 1979 Moon Agreement which has been ratified by 9 States and signed by 5 but not ratified by the major spacefaring nations, including the U.S. and

Russia. Also, Principles were adopted by the U.N. in the field of remote sensing, direct broadcast satellites and nuclear power sources. The past 25 years have also seen the birth of a multitude of international intergovernmental space organizations and, more recently, a host of domestic space agencies as well as court cases which brought up many legal issues requiring consideration.

Prof. Gorove noted some of the recent space law issues that public and private international organizations are currently considering. For example, one of the agenda items of the main U.N. organization, COPUOS, relates to the issue that has been with us since the beginning of the Space Age: the definition and delimitation of outer space, though in a larger context because it includes consideration of the rational and equitable use of the geostationary orbit without prejudice to the role of the ITU. The COPUOS also has under consideration the "Legal Aspects of the Principle that the Exploration and Utilization of Outer Space Shall be Carried out for the Benefit and in the Interests of all States Taking into Particular Account the Needs of Developing Countries."

Of course, the U.N. is by no means the only organization dealing with the legal aspects of space activities. As to nongovernmental organizations, a multitude of conferences continue to examine many relevant and significant issues. By way of example, Gorove referred to a major, internationally attended conference in Tokyo which, *inter alia*, dealt with issues of a Draft Convention on International Manned Space Flight prepared by leading institutions in the former Soviet Union, Germany and the U.S. and submitted to COPUOS for possible consideration. A similar major conference was held at the University of Chicago on the "Preservation of Near-Earth Space for Future Generations" focusing both on technical and legal issues associated with space debris. He noted that space debris was also the subject matter of an "International Instrument on the Protection of the Environment from Damage Caused by Space Debris" which was recently approved by the ILA Buenos Aires Conference and was expected to be submitted to COPUOS. Prof. Gorove recalled that the Space Law Interest Group of the American Society of International Law discussed earlier in the year issues of sovereignty and sovereign rights arising out of space activities and IISL has just concluded its Colloquium in Jerusalem dealing with issues of telecommunications, definitions, settlement of disputes and a variety of other subjects. Then Prof. Gorove gave a brief run down on sample issues.

Where does the airspace end and outer space begin?--An old unresolved issue. Is freedom of exploration and use an enforceable principle? Does it mean that a space object may pass through the airspace of a foreign country during the ascending or descending phases of its flight in nonaccidental conditions without prior authorization of the underlying State? Should a different rule apply to aerospace objects, like the contemplated aerospace plane capable of flying in the air like conventional aircraft and also capable of moving in outer space? Has the traditional concept of sovereignty been diminished by the recent technological advances reflected by global positioning satellites (GPS), direct broadcast

satellites (DBS) and remote sensing satellites which are employed to locate natural resources and gather valuable economic information in foreign sovereign territories? Has the exercise of sovereignty in outer space been abolished by Article II of the Outer Space Treaty? Does Article II bar claims of ownership asserted by private individuals and entities? To what extent is existing law applicable to acquisition of natural resources on earth applicable to acquisition of natural resources in outer space? To what extent should uses of natural resources in outer space by private entities and individuals be subject to national or international regulation, and what form should such regulation take? What's the meaning of "appropriate State" in Art.VI? Are jurisdiction, control and ownership over space objects permanent? Under what circumstances, if any, may a State either lose jurisdiction and control of a space object or cede any existing rights to that space object? What is the legal status of property manufactured in outer space or on a celestial body both from material imported from Earth and from natural resources found in space? Gorove also listed many more issues pertaining to the definition of space object, a notion which he felt was central to the international law of outer space. He noted the suggestion that hard thinking on such matters must await the evolution of factual situations requiring legal resolution.

In addition to Prof. Gorove, *Andrei Terekhov*, Senior Legal Officer in the General Legal Division, of the U.N. Office of Legal Affairs, gave an informal presentation in his personal capacity of the U.N. work in the field of space law but requested that his statements not be recorded. Those in the audience had a lively exchange of views with the speakers, especially insofar as what they believed was the insufficient development and growth of space law, a view with which the speakers could not agree.

Stephen Gorove

Chair, ILA Space Law Committee, Am. Branch

Third ECSL Practitioners' Forum 11 November 1994, ESA Headquarters, Paris

The European Centre for Space Law (ECSL) is a research Centre established in 1989 under the auspices of the European Space Agency (ESA). The Centre functions as a forum for all those interested in legal issues related to space activities in Europe and the main sectors represented in it are: universities, industries, government agencies and private practitioners. It is especially for this last category of members that the Practitioners' Forum has been established and is now becoming a fixed annual event. The aim remains to bring private practitioners together at a one-day meeting at ESA Headquarters in Paris to discuss issues which they feel are important for their day-to-day work as it relates to issues of space law.

The third ECSL Practitioner's Forum was held on 11 November 1994. The program of the Forum was divided into two parts. The morning session, chaired by Professor *Karl-Heinz Böckstiegel*, of the Institute of Air and Space Law of the University of Cologne, focused on regulatory

developments of European institutions and provided the participants with up to date information with respect to the latest actions taken.

The first presentation was given by Mr. *Paul Lippens de Cerf* of the European Commission (EC), DG XIII (telecommunications, information market and exploitation of research) on developments in regulations of the European Community. He reviewed the main features of the EC's policy on the liberalization and harmonization of telecommunications in Europe and mentioned the different directives of the European Commission on this matter.

The second presentation, given by Mr. *Christian Roisse*, Legal Advisor of Eutelsat, dealt with modifications of the regulatory environment of telecommunications in Europe and the impact of these modifications on Eutelsat. He explained that Eutelsat was established on a permanent basis in 1985 to look after the development of the space segment required for the provision of public telecommunications in Europe, including television signals. The European Commission has played a decisive role in the development of telecommunications in Europe and the two policy papers it published in 1987 and 1990 contain the essentials of its doctrine on the matter. Eutelsat is significantly influenced by the Commission's doctrine and has taken steps to revisit its basic rules to respond to new challenges, in particular in relation to its financial structure and the framework for an efficient commercialization of its services.

Mrs. *Mareni Pichler*, formerly working as a legal advisor for CLT/RTL and ASTRA, focused on the users' point of views, especially those of the broadcasters, on the European Community policy regarding satellite communications and outlined the effects of this policy on the users. She provided explanations on the European Directives dealing with the liberalization of the operation of satellite earth stations, the liberalization of the provisions of satellite telecommunications services in light of the new Directive of 13 October 1994 and commented on the draft Directive on the mutual recognition of national licenses to provide satellite services.

The afternoon session, chaired by Mrs. *Mareni Pichler* addressed specific legal issues related to the practical arrangements of space activities.

Mr. *Brian Yeomans*, Technical Director of Bowring Space Projects Ltd., gave a presentation on liability and insurance in space activities. He started by giving an overview of the history and the present status of the specialized space liability market and reported on the differences and similarities between the insurance policies of NASA, Arianespace and NASDA. Mr. Yeomans listed a number of concerns related to the liability market which are likely to develop into significant issues in the future. Firstly, collision risks are beginning to figure prominently in space industry thinking. Concerns with respect to the increasing value of a satellite exposed to damage by collision and the establishment of the respective culpability of the parties if a collision occurs will play an important role. Secondly, user liabilities are potentially of even greater concern. The contracting pattern for transponder users appears less well developed than that for the satellite and launcher procurement. The

separation between the satellite user community and the manufacturers, in contractual terms, is in Mr. Yeomans' view a source of potential litigation. The last concern for the future Mr. Yeomans mentioned is the changing of the regulatory and international environment. With the change of circumstances, such as the privatization and commercialization of space activities or the adoption of new laws, the space industry will not have a clear understanding of the liabilities to which they are exposed; and it is unlikely that the insurers will do any better.

The last presentation was given by Mr. *Peter Nesgos* of Haight, Gardner, Poor & Havens in New York, who briefed the participants, firstly, on recent developments in the United States involving international trade in commercial launch services with the People's Republic of China and the Russian Federation and, secondly, on selected provisions of the standard launch contracts of the major launch companies. Concerning the second issue of his presentation, the conclusion of Mr. Nesgos was that the standard launch services agreements of the major launch services providers are very similar in many aspects. Almost all offer some form of relaunch/refund option, usually supported by commercial launch insurance. Similarities also exist with respect to the implementation of inter-participant waivers of liability and the provision of third party liability insurance. As the commercial launch industry becomes more competitive and reliability increases, additional performance warranties can be expected in the near future.

During the open forum discussion, which is considered as a vital part of a successful Practitioners' Forum, the participants were given the opportunity to ask questions and express their views on the presentations.

In November 1995, the fourth ECSL Practitioners' Forum will again be organized at ESA Headquarters in Paris. The precise date will be decided and announced in the very near future.*

Rafaël J. Roelandt
ECSL Secretary

Technical and Policy Issues Related to the Use of the Space Environment

Immediately prior to the opening of the 34th Session of the Legal Subcommittee of the United Nations Committee on the Peaceful Uses of Outer Space (COPUOS) on March 27, 1995, there took place a Symposium sponsored by the International Institute of Space Law (IISL), in cooperation with the Institute of Air and Space Law (IASL).

As in 1994, Dr. Ernst *Fasan*, Honorary Director of IISL, was requested by the President of IISL, Dr. Nandasiri *Jasentuliyana*, to act as Coordinator. Many delegates of the Legal Subcommittee attended as well as

* For further information on the Practitioners' Forum or on the European Centre for Space Law, please contact: ECSL Secretariat, c/o ESA, 8-10, rue Mario Nikis, 75738 Paris, France. Tel: 33-1-53.69.76.05.

other interested scientists and the Chairman of the Legal Subcommittee, Dr. Valclav Mikulka, was on the rostrum. Mr. Jitendra Thaker, Legal Affairs Officer to the U.N. Office for Outer Space Affairs, served as Rapporteur.

Fasan welcomed the audience and expressed the gratitude of the IISL for the opportunity to sponsor Symposia before or during a COPUOS Legal Subcommittee Session. He pointed out that the topic "Technical and Policy Issues Related to the Use of the Space Environment" was not on the agenda of the Legal Subcommittee this year and expressed his hope that the papers presented might informally contribute to the deliberations of the audience. He then introduced the four speakers, all members of IISL and authors of numerous important publications on space law in the order of the agenda. They were: Professor Lubos Perek, of the Astronomical Institute of the Czech Academy of Sciences in Prague and, among others, member of the International Academy of Astronautics (IAA); Dr. Richard Crowther of the British National Space Center who was to present his paper co-authored by Dr. Richard Tremayne-Smith, also of the British National Space Center; Dr. Peter Nesgos, partner with a prestigious New York law firm and one of the 1994 Symposium speakers; and Professor Peter Malanczuk, Chair in International Law at the University of Amsterdam.

The first speaker, Professor Perek, reported on "Space Debris: Summary of the Discussion in the Scientific and Technical Subcommittee." He noted that the 37th Session of the Subcommittee was held from 6th to 17th February 1995, at which time many delegates had expressed their satisfaction to have space debris issues (for the second time) on the Subcommittee's agenda. He reported that the Subcommittee, as a follow-up of last year's decision, supported the elaboration of a Work Plan for the future with the following highlights: (A) 1996: Measurements of space debris, understanding of data and effects of this environment on space systems. (B) 1997: Modeling of space debris environment and risk assessment. A space debris model is a mathematical description of the current and future distribution in space of debris as a function of its size and other physical parameters. (C) 1998: Space debris mitigation measures.

Perek then elaborated upon the technical presentations during the Scientific and Technical Subcommittee's session by: Prof. Derek McNelly on adverse impacts on astronomy; Dr. Ives Trempat on French experiments on modeling a space debris environment; Dr. Walter Flury of ESA about a multi-year work plan and protection measures; Prof. Edwin Wnuk who pointed out that the present knowledge of the gravity field of the Earth did not allow determination of future positions of space debris with a required accuracy; Mr. M. G. Chandrasekhar about the dynamics of explosion of spacecraft; Dr. Richard Crowther on a technical definition of orbital debris; and Mr. Peter Korobenzov of ITU, who quoted the recommendation of the ITU radio communication assembly in 1993 (create as little debris as possible, shorten its life time and transfer inoperable satellites to a super synchronous graveyard orbit).

Finally, Perek discussed the IAA position paper on space debris (U.N. Doc. A/AC. 105/570 *et al.*) and pointed out that the term "space debris" is to be understood in a wider sense than mere "orbital debris,"

which term refers only to the objects while in orbit around the Earth and before their reentry into the atmosphere (or as your Rapporteur might add, into escape velocity).

The second speaker, *Crowther*, elaborated on the sources of chemical, radiological and biological pollution on Earth and discussed the emissions during the launch of various types of vehicles as well as the impact of rockets on global stratosphere and acid rain. As an example, he mentioned that the whole U.S. energy production contributed with 33.000 ktons/yr to the global acid rain deposition, and that 9 Shuttles and 6 Titans provided 3 ktons/yr.

Crowther discussed the toxicity, with particular attention to radioactive emissions. He reported that there are more than 40 nuclear power sources in orbit which create 1 kton of radioisotopes (Uranium 235, Plutonium 238). He requested ways to avoid the release of radioisotopes by way of launch accidents, leakages in orbit and during re-entry into the Earth's atmosphere. 14 slides demonstrated the highlights of this presentation.

Nesgos presented a paper, prepared by Franceska O. *Schroeder*, and indicated that the damage to or loss of an unmanned spacecraft caused by debris would be borne by several entities, namely the satellite operator, those depending on the services, and the insurers. Damage caused by debris could raise the costs prohibitively, would mark the system as unreliable and would either raise the insurance premiums to impractical heights or make the system uninsurable. Damage to human life in case of manned spacecraft operations might cause the public to determine that such risks of loss would be unacceptable. This could bring about the end of funding of manned space missions.

Nesgos then discussed the efforts of the National Interagency Space Debris Coordination Committee (NASA, ESA, NASDA (Japan) and RSA (Russia), with the Chinese Space Agency having been invited. He pointed out that industry is obviously quite willing to set on itself standards for debris mitigation techniques, quoting the example of Motorola and pointed out the especially great risks associated with Low Earth Orbits (LEO-s). He concluded that at the forthcoming Global Meeting of AIAA in Washington, D.C. the following standards would be discussed: (a) Venting of residual fuel and pressurants from discarded upper stages; (2) boosting of geostationary satellites into disposal orbits; (3) de-orbiting spent equipment, and (4) reducing operational debris.

The last speaker, *Malanczuk*, discussed the necessity of an Environmental Regulatory Regime. In this connection, he pointed out that the development of "soft law" in global environmental protection seemed to be preferred by states rather than legally binding commitments. With respect to space debris, he gave the definition of the IAA expert group as

any man-made Earth-orbiting object which is non-functional with no reasonable expectation of assuming or resuming its intended function or any other function for which it is or can be expected to be authorized, including fragments and parts

thereof. Orbital debris included non-operational spacecraft, spent rocket bodies, material released during planned space operations, and fragments generated by satellite and upper stage breakup due to explosions and collisions,

and of the International Law Association (ILA) as

man-made objects in outer space, other than active or otherwise useful satellites, when no change can reasonably be expected in these conditions in the foreseeable future.

Malanczuk then discussed the general obligation to protect the environment, drawing attention to the register of the United States Command's Space Surveillance Network and the capability of the Haystack Orbital Debris Radar. He also elaborated on ILA Resolution No. 5 of August 1994 dealing with the above quoted definition of space debris, the possible causes of space debris, the definition of "damage," the legal notions of "cooperation," "consultation," the various possibilities of dispute settlement mechanisms, and the issues of the burden of evidence, etc. He negated the question whether there did exist *de lege lata* an "obligation to remove debris."

With respect to Intelsat, *Malanczuk* reported that this organization had adopted certain practices to minimize the creation of space debris, especially by way of boosting their communication satellites at the end of their operational life into an orbit of at least 150 km above the geostationary arc (U.N. Doc. A/A/AC. 105/593, Dec. 1, 1994). In conclusion, he discussed the possible creation of an International Compensation Fund and quoted *Jasentuliyana* according to whom the problem of LEO might be addressed directly by a few currently affected States and international organizations but that regarding the geostationary orbit a formal international agreement is necessary. Finally, *Malanczuk* proposed parallel approaches by both the Scientific and Technical Subcommittee and the Legal Subcommittee of COPUOS.

The four presentations were followed by a learned discussion, addressing the various presentations, by Messrs. *Ribeiro* (Brazil), *Schally* (Austria), *Terekhov* (U.N.), *Kopal* (Czech Republic and ILA), and *Lala* (U.N.).

In his concluding remarks Dr. *Mikulka*, Chairman of the Legal Subcommittee, expressed his gratitude to the speakers and underlined the importance of the Symposium for the deliberations of the members of the Legal Subcommittee, the session of which was opened after a little reception and break.

Dr. Ernst Fasan

Symposium Coordinator, Honorary Director, IISL

Commercial and Industrial Activities in Space: Insurance Implications

The 8th International Conference on "Commercial and Industrial Activities in Space: Insurance Implications" was held in Venice, Italy,

March 30-31, 1995.

As prior conferences, this meeting brought together a number of distinguished speakers and participants interested in the insurance implications of space activities. Among the topics discussed were: space system risk management as it relates to launch insurance (*Chester L. Whitehair*), risk management and the Optus B program (*Bill Hope*), disputes arising from space activities with an emphasis on arbitration (*Pino et al.*), the acquisition and financing of space projects (*Peter Nesgos*), the Globalstar system for mobile telecommunications (*Antonio Rodota*), CGWIC's recent launch services (*Gao Ruofel*), recent changes and challenges in spacecraft manufacturing (*Hughes Communications International Inc.*), the Iridium venture today and its expected global service in 1998 (*Iridium*), a report on the Lockheed Khrunichev Energia International established to market the Proton launch vehicle to Western customers (*LKE*), and the development philosophy and quality processes of McDonnell Douglas' Delta expendable launch vehicle (*Bob Cowl*s).

The Assicurazione Generali S.p.A. of Trieste, Italy, must be given credit for organizing the conference.

Executive Developments

The White House released its new National Space Transportation Policy on August 5, 1994, under which the government is to involve the private sector in the design and development of space transportation capabilities and encourage private sector financing. The Commerce and Transportation Departments are to seek industry's advice to foster an international competitive U.S. launch capability. All trade agreements must conform to existing U.S. arms control agreements and nonproliferation policies.

International Developments

The U.S. and Canada concluded a long-term space cooperation agreement in August 1994.

The new design of the international space station consists of eight pressurized modules. The station would be 290 ft. long with a 51.6 degree inclination which would permit the base to be reached from launch sites in Russia. Its formerly planned altitude of 240-n. mi. would remain the same. A Russian proton booster would carry a cargo vehicle in November 1997 to provide power, propulsion, guidance, navigation and control for the station. Soyuz capsules would be used as "lifeboats" back to Earth in case of emergency and Russia would supply systems for docking the shuttle to the station. Vice-President Gore flew to Moscow on December 13, 1994 to work out final details of U.S.-Russian joint ventures in space.

ITU's 14th Plenipotentiary Conference held in Kyoto Sept. 19 - Oct. 14, 1994 adopted key decisions on: enhanced participation of the industry and other organizations in ITU's work; greater focus on development; stronger involvement in the policy domain; and strengthening of the

financial base of the organization.

The Third Colloquium on the Changing Role of Government in an Era of Telecom Deregulation took place at ITU headquarters in Geneva, Nov. 9-11, 1994 and considered a variety of issues arising from the proposed new global mobile personal communication systems using nongeostationary satellites. The Colloquium advocated the formulation of an informal code of practice to provide guidance and promote uniformity of regulatory treatment.

On November 22, 1994, the United States and Ukraine signed an agreement on cooperation in the exploration and use of outer space for peaceful purposes that will expand joint efforts in space communications, space technology, life and microgravity sciences applications, remote sensing and earth sciences, space sciences and telecommunications. President Clinton and President Kuchma resolved to work together to open prospects for Ukrainian access to international aerospace markets. They agreed to hold further talks on commercial launches and the scope of these activities, in accordance with market principles, with the principles contained in international arrangements for integrating economies in transition into the international space launch market, and consistent with current obligations of the two countries.

The landing in Australia of a German-Russian orbital capsule launched aboard a Japanese rocket on January 15, 1995 was the first-ever case of permitting a civilian orbital capsule to be launched from the territory of one country and recovered in another.

A bilateral space agreement signed on January 27, 1995 in Beijing between the U.S. and China increases the number of geostationary satellites that China can launch through 2001 to 15, compared to 9 permitted under the former pact that expired Dec. 31, 1994. A flexible ceiling is part of the agreement in case Western companies cannot meet the demand for launches.

Notwithstanding the concerns of U.S. companies about unfair competition, Inmarsat's member governments approved the organization's plan to create a private affiliate, Inmarsat-P, to provide world-wide hand-held telephone service.

Manfred Lachs Space Law Moot Court Competition

The American and European preliminaries of the 4th Manfred Lachs Space Law Moot Court Competition were held in April 1995. The finals between the University of North Carolina and Leiden University, the winning American and European teams, will take place in Oslo, Norway on October 6, 1995 during the IISL Colloquium.

Other Events

ITU's First World Telecommunication Development Conference was held in Buenos Aires, March 21-29, 1994 and adopted a Declaration and Action Plan. (See ITU/94-11, 1994).

The International Law Association (ILA) at its August 1994

conference in Buenos Aires adopted an International Instrument on Protection of the Environment From Space Debris.* As to its future work, the ILA Space Law Committee proposed to examine what further steps should be taken to promote peaceful settlements of disputes involving space activities.

The second session of the Asia-Pacific Regional Space Agency Forum was held in Tokyo, October 31 - November 1, 1994, to provide a boost to socio-economic development and cooperation in the region.

NASDA organized the 17th Workshop on the Space Station Utilization Program in Tokyo, January 18-19, 1995 at which presentations were made by representatives of NASDA, NASA, Canada's CSA, ESA and the Russian Institute for Biomedical Problems.

The First International Symposium on the expansion of the remote sensing market took place in Paris, March 6-8, 1995.

During the U.N. Congress on Public International Law, held in New York City, March 13-17, 1995, there was a roundtable discussion on "Space Law: Role of the U.N." moderated by Prof. F. Lyall of Scotland.

The XI Symposium on L'Homme dans l'Espace au service de la science et de la technologie (Man in Space for Science and Technology Development) was held March 27-31, 1995, in Toulouse, France.

The 11th National Space Symposium took place in Colorado Springs April 4-7, 1995. The North American Aerospace Defense Command's Space-based Wide Area Surveillance Symposium preceded it on April 3-4.

The International Space Law Interest Group of the American Society of International Law had a round-table discussion in New York City, April 8, 1995, chaired by Prof. Stephen Gorove on "The Moon Agreement with Hindsight: Issues and Policies for the Future."

Topics for discussion at the 12th Space Studies Institute Conference on Space Manufacturing held May 4-7, 1995 at Princeton, included wireless power transmission, asteroids, near-Earth objects, non-terrestrial materials, and advanced technologies.

The World Conference on Natural Disaster Reduction was held in Yokohama, Japan, May 23-27, 1994.

The Space Congress '95 scheduled for May 23-25, 1995, in Bremen, Germany is to address evolving events in the dual-use of satellites, remote sensing for oil exploration and environment, use of small satellites for remote sensing, navigation and communication for maritime and land mobile applications, coastal zone management, applications of hyperspectral remote sensing, environmental assessment of geological hazards and SAR interferometry.

An International Colloquium on "Perspectives of Air Law, Space Law, and International Business Law for the Next Century" is to meet June 7-9, 1995 in Cologne, Germany.

* For a text, see the CURRENT DOCUMENTS section in this issue.

Brief News

Images from the **Hubble** space telescope suggest that the universe is 8-12 billion years old as compared to previous estimates of up to 16 billion years old....A huge radio astronomy observatory, 220 miles from Sydney, scans radio waves across the galaxy in search of extra-terrestrial life on 200 stars.

In what may have been once in a millennium event, 21 fragments, from less than one mile to three miles across, of **Comet Shoemaker-Levy 9** slammed into Jupiter in July 1994, leaving the back side of the planet battered. It was the first time that an active comet was seen striking a planet. The Galileo spacecraft sent images showing collisions of the comet with Jupiter.

On the 25th anniversary of Apollo 11's landing on the moon, earthbound priorities appeared to slow down if not sidetrack and stymie space exploration.

The **Columbia** mission in July 1994, with six American men and the first Japanese woman in space, involved biological experiments, metal melting, radiation monitoring, plant growth, and medical tests on the astronauts. Shuttle missions indicate that the astronauts can grow two or more inches in space because of absence of gravity but they revert back to their normal heights after their return to Earth.

During their October 1994 flight, **Discovery** astronauts tested their space suits and flew free with jet-powered backpacks 150 miles above Earth.... In February 1995, astronauts flew **Discovery** to a close rendezvous (37 ft.) with Russia's **Mir** space station to test methods for later docking missions needed for the construction of the international space station. They snatched the **Spartan** spacecraft which was put in orbit a few days earlier to study the sun....The first U.S. robot in space, known as **Robot Operated Materials Processing System (Romps)** performed flawlessly in its orbital debut.

During their Sept.-Oct. 1994 mission, **Endeavour's** astronauts gathered information about environmental changes and, on their March 1995 flight, they focused their telescopes on a distant quasar the light of which took ten billion years to reach Earth. They also studied light from stars, galaxies, the moon and Jupiter.

On their November 1994 flight, **Atlantis's** astronauts aimed solar-energy monitors at the sun for clues about global warming and retrieved a German satellite carrying measurements of earth's ozone layer....The first American, launched into orbit on a **Soyuz** capsule from the **Baikonur Cosmodrome** in Kazakhstan, joined Russian cosmonauts on the **Mir** space station. He and two cosmonauts are scheduled to return to Earth aboard the space shuttle **Atlantis** after its docking with **Mir** in June 1995.

The most recent U.S. weather satellite, **GOES-8**, is operational.

Altogether, **NASA** successfully launched seven shuttle missions in 1994. **Discovery's** June 1995 satellite-delivery mission is America's 100th human spaceflight.

NASA's second Space Shuttle mission to rendezvous and dock with

the Russian MIR space station is scheduled for October 1995....The launch of Lunar Prospector, a low-budget robot craft to orbit the moon, is planned for June 1997.

For the very first time, NASA is providing public computer access to virtually all aspects of space shuttle flight via the Internet. Occasional exchanges with the Shuttle astronauts, updates on their astronomical observations, and pictures and audio tapes of the crew can be accessed on the World Wide Web by typing: <http://astro-2.msfc.nasa.gov>.

The FCC granted the first LEO license to Orbital Communication and gave mobile satellite telephone licenses to Motorola's Iridium, Loral Corp.'s Globalstar and TRW's Odyssey.

The Air Force is permitting U.S. companies to use satellite processing and space launch facilities at its Vandenberg Air Force Base and at Cape Canaveral. Lockheed Missiles & Space company recently leased Vandenberg's Space Launch Complex 6 for five years.

Recent studies of space debris including data from the Long Duration Exposure Facility conducted in the U.S. suggest nuclear pollution in space, roughly 600 miles up, emanating from Russian reactors.

The retargeting of the U.S. strategic missiles away from Russia involves about 550 land based warheads and about 330 submarine deployed warheads. Russia, in turn, has taken about 9000 strategic warheads off targets in the U.S. However, it has been observed that ICBM's can be retargeted within a minute.

Russian cosmonauts are to abandon the aging MIR in 1997 which will be used to test a solar power system to be used for the jointly operated international space station.

Three French SPOT satellites are in orbit. SPOT-4, 5, 6 are planned for late 1995, 1999 and 2003, respectively.

A Long March II rocket carrying an Apstar-2 satellite manufactured by Hughes Co. which was to provide telecommunications for Asia, Eastern Europe, Northern Africa and Australia exploded after launch from the Xichang Satellite Launching Center in China's Sichuan province on January 26, 1995. The Chinese rocket that blew up killed six people and injured twenty-three others.

ESA, China and Russia are acquiring an increasing number of commercial launches of U.S.-built satellites sold to foreign interests.

Japan is planning manned space flight activities. The Japanese Hypersonic Flight Experiment (HYFLEX) vehicle currently under development is expected to be launched in the winter of 1996.

Canada's Radarsat was launched in March 1995.

According to the World Meteorological Organization, the Earth's protective ozone Layer shrank ca. 10 percent over the western U.S.

Malta has become the 135th member of INTELSAT, Senegal the 75th member of INMARSAT and Finland the 14th member of the European Space Agency (ESA).

Forthcoming Events

The International Space University's summer session will be held in Stockholm, Sweden from June 12 to August 18, 1995.

As reported previously, the 38th IISL Colloquium will be held in Oslo, Norway, October 2-6, 1995. Topics to be discussed are as follows:

Session 1: Legal aspects of commercial space activities; Chairman: *Dr. Fife* (Norway). Papers in this session may address question of intellectual property, transfer of technology and launch agreements.

Session 2: Legal issues arising from recent technical studies relating to space debris; Co-Chairmen: *Prof. N. Williams* (Argentina) and *Dr. L. Perek* (Czech Rep.). The specific purpose of this session is to identify and define the problem of space debris in legal terms, in order to provide a genuine contribution to the solution of the space debris problems. Only those papers which use the most recent technical data as the basis for their research shall be accepted.

Session 3: Recent developments in the law of intergovernmental organizations dealing with outer space matters; Chairman: *Dr. M. Bourély* (France). In this session the legal advisors of various organizations will be invited to discuss the developments and activities within their organization (e.g.; ESA, ITU, Inmarsat...). In addition, individual papers dealing with this topic may be submitted.

Session 4: Other legal matter; Chairman: *Dr. N.M. Matte* (Canada). Authors in this session may select their own topics which should deal with pertinent issues in the field of space law. Special attention may be given to NPS, review of the moon agreement, Article I of the Outer Space Treaty (the benefit principle), and the settlement of disputes.

World Telecom 95, will take place in Geneva, Oct. 3-11, 1995.

A major conference dealing with environmental issues (**IDEEA 3**), including those of outer space, will be held at the University of Oxford on March 18-22, 1996.

The 1996 IISL Colloquium will be held in Beijing during October.

BOOK REVIEWS/NOTICES*

Reviews

Droit Télédétection et Environnement, directed by Simone Courteix (Sides 1994), pp. 292.

Institut de droit comparé de l'université panthéon-assas (Paris II). Centre d'études et de recherches sur le droit de l'espace: Chronique des activités spatiales, Juin 1992 - Septembre 1993, Vol. IV (1993), pp. 139, Partie Annexe, pp. 61.

The first publication contains the reports and discussion which took place during the Strasbourg colloquium on the law in light of the technology of remote sensing by satellites placed at the service of the environment, held June 2-4, 1993 and organized by Droit de l'Espace de l'Institut de Droit Comparé de l'Université de Paris II and other institutions in Strasbourg.

The currently applicable law is described by *Olivier de Saint-Lager* in his contribution entitled Legal Aspects of Remote Sensing. This is followed by a discussion of specialists who review the main environmental problems, including global warming, destruction of the ozone layer, deforestation and desertification, pollutions, and natural disasters. The legal response is given by *Alexandre Kiss* who deals with international environmental law and remote sensing.

Earth observation systems, the technical dimension of acquisition and distribution of data, including European, American, Canadian, French, Japanese and Russian distribution systems, are analyzed in detail.

By way of example, *Marco Ferrazzani* focuses on the contractual practice of collecting and distributing remote sensing data, *Guennady Zhukov* elaborates on the 1978 Moscow Convention on Remote Sensing, *Gabriella Catalano Sgrosso* reviews the implementation of the 1986 U.N. Principles on Remote Sensing, *Philippe Gaudrat* deals with the protection of remote sensing data through national laws and *Vladimir Kopal* focuses on trends toward a world environment monitoring authority.

This is a very comprehensive study combining both the technical elements and the legal regulations in a well presented compilation.

The first part of the second, equally useful, paperback examines the space policies of the United States, ESA and Russia since June 1992, following the end of the Cold War. The second part deals with various aspects of international space cooperation, including bilateral cooperation between the United States and Russia, on the one hand, and Russia and Europe, on the other, and also covers multilateral cooperation aimed at putting in place the international (world) space station. The third part addresses regulatory issues relating to ITU's WARC '92, the work of the European Commission relating to Council Directives 93/83/CEE and

* Edited by Michael A. Gorove, Assoc. Ed. J SPACE L.

93/97/CEE dealing with regulation of the author's right in the field of radio broadcasting by satellite and regulation of telecommunications by satellite, respectively. Additionally, this part reviews the American Land Remote Sensing Policy Act of 1992. Apart from the texts of the mentioned directives and legislation, the Annex also contains the text of the U.S.-Russian bilateral agreement of September 2, 1993 and the texts (in English) of Russian Federation decrees on "Space Program, Industry" and "Space Policy Priorities" (May 12, 1993) and the "Law of Russian Federation on Space Activity" (August 20, 1993).

Stephen Gorove
Chair, Ed. Bd. J. SPACE L.

Oppenheim's International Law, edited by Sir Robert Jennings and Sir Arthur Watts (9th ed. Longman 1992), Vol. 1, pp. 1333.

Ever since its first publication in 1905-6, Oppenheim's International Law has been one of the leading English language treatises in its field.

From the perspective of space law scholars and practitioners, the ninth edition of this book is particularly welcome since, unlike many other scholarly international law treatises, it devotes a whole chapter (ch. 7) to the law of outer space. The relevant discussion provides, first of all, a brief overview of the beginnings of space law and touches upon the major provisions of the 1967 Outer Space Treaty, including those dealing with responsibility, liability and jurisdiction. This is followed by highlights of the provisions of the Astronauts Agreement, the Liability and Registration Conventions and the Moon Treaty. Additional topics focus on the role of international organizations, the definition of outer space, the geostationary orbit, telecommunications, space stations and remote sensing.

Throughout the chapter, there are ample citations and references to the relevant bibliography on the subject. It is hoped that future editions will follow the example set in this ninth edition and will keep up with developments in the field of space law.

Politics and Space, Image Making by NASA, by Mark E. Byrnes (Praeger 1994), pp. 212.

This book examines NASA's history in terms of its projected images during the Mercury (1958-63), Apollo (1964-72) and shuttle (1973-90) eras.

The first period's dominant image was nationalism which appeared appropriate in light of the cold war and the Soviet lead in space exploration. While nationalism was still emphasized during the Apollo era, romanticism, as reflected in idealism and intangible rewards, corresponded more to the political spirit of the time.

By the early 1970's nationalism and romanticism appeared no longer suitable in the changing political environment and pragmatism

became NASA's dominant image. Thus, the shuttle was promoted on pragmatic grounds.

While the use of different images by different agencies has been noted in the past, this book makes a case for the proposition that agencies change their images over time in response to changes in the political environment so as to build and maximize their political support. As the author notes, "even though NASA's mission points it toward the heavens, the agency cannot lose sight of politics on the earth, for that is where its fate is determined."

Book Notices

Nizsalovszky Endre Emlékkönyv (Nizsalovszky Endre Memorial Book), edited by Mádl Ferenc and Vékás Lajos (Elte, Budapest 1994), pp. 296.

This paperback, written in Hungarian, is devoted to the 100th anniversary of the birth of *Endre Nizsalovszky*, a prominent Hungarian law professor, who taught civil law and procedure for many years at the University of Budapest and most of whose former students honored him by contributing a chapter to this Memorial Book. There is a brief chapter in the book written by *Dr. Gyula Gál*, a well-known author in the field, who wrote on liability for damage in space law ("Kárfelelősség a világűrjogban"). In it Gál traces examples of space accidents with international repercussions, including the disintegration of the Cosmos 954 spacecraft over Canadian territory, and analyzes provisions of the Liability Convention, stressing Hungary's contribution to the drafting process.

World Guide to Commercial Launch Vehicles by Frank Sietzen Jr (Pasha Publications 1991), pp. 306, A-31.

This publication provides an overview of the proliferation of present day launch vehicles, offers a detailed comparison of their capabilities and addresses international competition that has emerged in recent years. Of potential interest to space lawyers and scholars are the Appendices which contain the texts of the International Trade Agreement between the US and China for Commercial Launch Services (26 Jan. 1989), the White House Commercial Space Launch Policy (5 Sept. 1990), the US Dept. of Transportation Study of Commercial Launch Scheduling (May 1989) and the Department of the Air Force Commercialization Agreement (Sample Model Agreement) of 31 March 1988, changed 3 May 1989.

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* Compiled and edited by Michael A. Gorove, Boston University School of Law.

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CURRENT DOCUMENTS

I.

66th Conference of the International Law Association
Buenos Aires, 14 - 20 August 1994

RESOLUTION NO. 5

Space Law

The 66th Conference of the International Law Association, held in Buenos, Argentina, 14-20 August 1994:

OBSERVING THAT:

- scientists, technicians, and practitioners in the exploration and use of outer space have been expressing a growing concern regarding the risks caused by space debris, in particular for space activities and in general for the environment in outer space and on the earth;
- many publications and meetings both of governmental organisations such as the European Space Agency and of scientific bodies such as the International Astronautical Federation and the International Academy of Astronautics have considered in detail the risks involved as well as possible options to reduce those risks;
- the United Nations Committee on the Peaceful Uses of Outer Space (COPUOS) has expressly recognised, in the words of its Chairman, "that the time has come for this body to fulfill its responsibility to the international community by beginning formal discussions on what steps should be taken to address this growing problem";
- the Scientific Subcommittee of COPUOS has for the first time placed the issue of space debris on its agenda, and held discussions on it in 1994;
- consensus could not yet be reached to place the issue on the agenda of the Legal Subcommittee of COPUOS, although many governments and the ILA, as an observer participating in COPUOS sessions, have so suggested;

RECOGNISING THAT, at least at medium and long term, adequate protection from the risks of space debris can only be assured if appropriate technical measures are complemented and reinforced by an appropriate international instrument;

RECALLING THAT the International Law Association has for 8 years been involved in the study of legal aspects of space debris, including through:

- reports of the committee to and resolutions of the Conferences at Seoul (1986), Warsaw (1988), Queensland (1990) and Cairo (1992);
- specific meetings on legal aspects of space debris organised in Buenos Aires in 1987 and in Asunción del Paraguay in 1988;
- an interdisciplinary meeting of scientists, technicians and lawyers in Cologne in 1988, which resulted in a comprehensive book on the subject;
- exchanges from 1986 within the Committee, and with its scientific consultants, leading to the elaboration of relevant principles and later to an international instrument;

ADOPTS the ILA Buenos Aires International Instrument on the Protection of the Environment from Damage Caused by Space Debris;

REQUESTS the Secretary-General to communicate the International Instrument, together with the Report of the Committee, to COPUOS and to other appropriate governmental and non-governmental institutions for further consideration and action;

REQUESTS the Law Committee to continue to examine developments in this field and to promote the International Instrument, and the adoption of rules of

international law regarding space debris;

OBSERVING FURTHER THAT, during the last decade, the growing volume of space activities and in particular of commercial space activities, as well as the growing participation of non-governmental entities and private enterprises in space activities, have given the issue of dispute settlement regarding space activities a new framework and a new relevance;

REQUESTS the Committee to reexamine the 1984 ILA Draft Convention on the Settlement of Space Law Disputes to determine whether developments since 1984 require any changes, or the elaboration of a new instrument, and also to examine in that context what further steps should be taken to promote the peaceful settlement of disputes regarding space activities.

BUENOS AIRES INTERNATIONAL INSTRUMENT ON THE PROTECTION OF THE ENVIRONMENT FROM DAMAGE CAUSED BY SPACE DEBRIS

Article 1: Definitions

For the purposes of this Instrument:

- (a) "Contamination/pollution" means a human modification of the environment by the introduction of undesirable elements or by the undesirable use of those elements.
- (b) "Contamination/pollution" will be considered as synonyms and are inclusive of all harmful elements other than space debris.
- (c) "Space debris" means man-made objects in outer space, other than active or otherwise useful satellites, when no change can reasonably be expected in these conditions in the foreseeable future.

Space debris may result, *inter alia*, from:

- Routine space operations including spent stages of rockets and space vehicles, and hardware released during normal manoeuvres.
 - Orbital explosions and satellite breakups, whether intentional or accidental.
 - Collision-generated debris.
 - Particles and other forms of pollution ejected, for example, by solid rocket exhaust.
 - Abandoned satellites.
- (d) "Environment", for the purposes of this Instrument, includes both the outer space and earth environments within or beyond national jurisdiction.
- (e) "Damage" means loss of life, personal injury or other impairment of health, or loss of or damage to property of States or of persons, natural or juridical, or property of international intergovernmental organisations, or any adverse modification of the environment of areas within or beyond national jurisdiction or control.

Article 2: Scope of Application

The instrument shall be applicable to space debris which causes or is likely to cause direct or indirect, instant or delayed damage to the environment, or to persons or objects.

Article 3: The General Obligation to Cooperate

1. States and international organisations parties to this Instrument shall

cooperate directly, and/or through the pertinent international organisations, to protect the environment and implement this instrument effectively.

2. States and international organisations parties to this Instrument shall take all appropriate measures to prevent, reduce, and control any damage or significant risk arising from activities under their jurisdiction or control which are likely to produce debris.

Article 4: Obligations to Prevent, Inform, Consult, and Negotiate in Good Faith

States and international organisations parties to this Instrument have, in addition to the duties set forth in Article 3, the following obligations:

- (a) To cooperate in the prevention of damage to the environment and make every effort to avoid situations that may lead to disputes.
- (b) To cooperate, in accordance with their national laws and practices, in promoting the development and exchange of technology to prevent, reduce, and control space debris.
- (c) To encourage and facilitate the flow and exchange of information of a scientific, technical, economic, legal, and commercial nature relevant to this instrument.
- (d) To hold consultations when a State, group of States or international organisation parties to this instrument have reasons to believe that activities carried out under their jurisdiction or control, or planned to be carried out, produce space debris that is likely to cause damage to the environment, or to persons or objects, or significant risk thereto.
Any State or international organisation party to this Instrument may request to hold consultations when it has reasons to believe that the activity of another State or international organisation party to this Instrument produces space debris that is likely to cause damage to the environment. Refusal to hold consultations, or the breaking up of such without justification, shall be interpreted as bad faith.
- (e) To negotiate in good faith which means, inter alia, not only to hold consultations or talks but also to pursue them with a view of reaching a solution.
- (f) To give special attention, when promoting these activities, to the needs of developing countries.

Article 5: Compatibility with Other Agreements

The rules laid down in this Instrument shall not be considered incompatible with the provisions of other international agreements concerning activities in outer space.

Article 6: Responsibility and Liability (general rule)

The rules laid down in this Instrument concerning responsibility and liability apply to damage caused by space debris in the space environment and, in the absence of other international agreements on the matter, to damage caused to the earth environment.

Article 7: International Responsibility

The State or international organisation, party to this Instrument, that launches or procures the launching of a space object shall bear international responsibility for assuring that national activities are carried out in conformity with the provisions

of this Instrument, the 1967 Space Treaty, and the 1972 Liability Convention.

Article 8: International Liability

Each State or international organisation party to this Instrument that launches or procures the launching of a space object is internationally liable for damage arising therefrom to another State, persons or objects, or international organisation party to this Instrument as a consequence of space debris produced by any such object.

Article 9: Dispute Settlement

1. Disputes concerning the interpretation or application of this Instrument shall be subject to consultation at the request of any of the parties to the dispute with a view to reaching a prompt and amicable settlement.
2. Failing this, if the parties to the dispute have not agreed on a means of peaceful settlement within twelve months of the request for consultation, the dispute shall be referred, at the request of any party thereto, to arbitration or adjudication. In such case, the ILA Draft Convention on the Settlement of Space Law Disputes, which is appended as an Annex to this Instrument, shall be applicable, unless a party to this Instrument has excluded such application, in full or in part, by a declaration as provided in paragraph 3 of this Article.
3. Each Party to this Instrument, when signing, ratifying, accepting, approving or acceding thereto, or formally confirming its acceptance, or at any time thereafter, may declare that it chooses any of the non-binding or binding settlement procedures envisaged in the Annex to this Instrument, or that it excludes in part or in full the application of the Annex.
4. In these procedures it shall be possible, whenever appropriate, to prescribe interim measures binding on the parties in order to preserve rights or to prevent serious damage to the environment, or persons or objects. These measures shall be implemented by the parties without delay.

Article 10: Signature

1. This Instrument shall be open for signature by all States and international organisations at the United Nations Headquarters in New York. Any State or international organisation which does not sign this Instrument before its entry into force may accede to it at any time.
2. This Instrument shall be subject to ratification or formal confirmation by signatory States and international organisations. Instruments of ratification, instruments of accession and of formal confirmation shall be deposited with the Secretary-General of the United Nations.
3. The Secretary-General of the United Nations shall promptly inform all signatory and acceding States and international organisations of the date of each signature, the date of deposit of each instrument of ratification and of accession and the date of each formal confirmation of the present instrument, the date of its entry into force, and other notices.

Article 11: Entry into Force

1. This Instrument shall enter into force among States and international organisations which have deposited instruments of ratification or formal confirmation thirty days after the deposit of the fifth instrument with the Secretary-General of the United Nations.

2. For States and international organisations whose instruments of ratification or accession, or of formal confirmation, are deposited subsequent to the entry into force of this Instrument, it shall enter into force on the date of the deposit of their instruments of ratification, accession, or formal confirmation.

Article 12: Amendments

Any party to this instrument may propose amendments to the Instrument. Amendments shall enter into force for each party to the Instrument accepting the amendment upon their acceptance by a majority of the parties to the Instrument and thereafter, for each remaining party to the Instrument, on the date of acceptance by it.

Article 13: Reservations

No reservations may be made to this Instrument except as provided in Article 9.

Article 14: Review Clause

Ten years after the entry into force of this Instrument the question of the review of the Instrument shall be included in the provisional agenda of the United Nations General Assembly in order to consider, in the light of past application of the Instrument, whether it requires revision. However, at any time after the Instrument has been in force for five years, the Secretary-General of the United Nations, as depositary, shall at the request of one third of the parties to the Instrument and with the concurrence of the majority of the parties, convene a conference of the parties to review the Instrument.

Article 15: Withdrawal

Any party to the Instrument may give notice of its withdrawal from the Instrument one year after its entry into force by written notification to the Secretary-General of the United Nations. Such withdrawal will take effect one year from the date of receipt of this notification.

Article 16: Authentic Text

The original of this Instrument, of which the Arabic, Chinese, English, French, Russian, and Spanisch texts are equally authentic, shall be deposited with the Secretary-General of the United Nations, who shall send certified copies thereof to all signatory and acceding States and international organisations.

In witness thereof, the undersigned, being duly authorised by their governments, have signed this Instrument, opened for signature at the United Nations Headquarters in New York, on ...

NOTE: The Annex on Dispute Settlement is appended in conformity with Article 9, 2.*

* The text of this Annex is not included here, but is published in: Report of the Sixty-First Conference of the ILA in Paris 1984, p. 334 *seq.*

II.

FRAMEWORK AGREEMENT BETWEEN THE GOVERNMENT OF THE FEDERATIVE
REPUBLIC OF BRAZIL AND THE GOVERNMENT OF THE PEOPLE'S
REPUBLIC OF CHINA ON COOPERATION IN THE PEACEFUL
APPLICATIONS OF OUTER SPACE SCIENCE AND TECHNOLOGY

The Government of the Federative Republic of Brazil

and

The Government of the People's Republic of China
(hereinafter referred to as "the Parties")

Willing to further and strengthen the traditional relations
of friendship between the two countries;

Convinced of the benefits to all mankind derived from
international cooperation in the peaceful uses of outer space;

Convinced of the importance, for Brazil and China, of the
utilisation of outer space as an instrument for the promotion of
social, economic and cultural development, as well as for the
strengthening of the means of communication, information and education
of their peoples;

Recalling that the development of their space capabilities
would allow for the better knowledge of the territories and natural
resources of their countries, as well as for the protection of the
environment;

Noting that the intensification of the space cooperation
between the two countries constitutes one of the objectives of the
Complementary Agreement of 29 May 1984 to the Agreement on Scientific
and Technological Cooperation of 25 March 1982;

Having in mind the results already obtained in the
China-Brazil Earth Resource Satellite Programme (CBERS), established,
in the above-mentioned framework, through specific Protocols signed
between the Government of Brazil and the Government of The People's
Republic of China since 1988;

Bearing in mind the terms of the Protocol on Cooperation in the Peaceful Application of Science and Technology in Outer Space, of 23 November 1993;

Considering the provisions of the Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies, done on 27 January 1967, as well as the provisions of other multilateral Treaties and Protocols on the exploration and use of outer space to which the Federative Republic of Brazil and the People's Republic of China are parties;

Willing to expand on the achievements of their space cooperation, with a view to furthering the bilateral exchange in the areas of space science, space technologies and space applications for peaceful purposes and for the benefit of the peoples of both countries;

Agree on the following:

ARTICLE I

1. The Parties, on the basis of each country's law and regulations and universally recognized norms of international law, and on the basis of the principle of equality and mutual benefits, shall promote the cooperation between the two countries in the field of outer space research and use of outer space for peaceful purposes.

ARTICLE II

Cooperation within this Agreement shall cover the following fields:

1. Cooperation and exchange in space science, space technology and space applications, including China-Brazil Earth Resources Satellites and various other kinds of satellites, remote sensing and its applications, space communications, space materials and microgravity.
2. Satellite launch vehicle services.
3. Other areas which are discussed and agreed upon by both parties, including launch services and other items which are of interest to both parties.

ARTICLE III

1. Cooperation under Article II of this Agreement may be carried out in the following ways:

- a) working out jointly and conducting a mutually beneficial space cooperation plan;
- b) joint organisation of scientific and technical meetings;
- c) establishment of training programs;
- d) exchange of information and documentation;
- e) provision of consulting services;
- f) establishment of joint ventures;
- g) any other modality agreed upon by the Parties.

2. The programs and projects on space cooperation referred to in the present Agreement shall be the object of complementary protocols to be negotiated and signed by designated governmental agencies. Such complementary protocols shall specify the purposes of the said programs and projects, the procedures for their implementation, as well as the obligations, including financial obligations, of each Party.

ARTICLE IV

1. The Government of the People's Republic of China shall designate the China National Space Administration to implement this Agreement. The Government of the Federative Republic of Brazil shall designate the Brazilian Space Agency to implement this Agreement.

2. In order to implement this Agreement, a Sino-Brazilian Working Group on Space Cooperation is hereby established and shall meet annually in Brazil and China, alternately. This Working Group shall be composed of representatives designated by the governmental agencies referred to in paragraph 1. of this Article.

ARTICLE V

The officials and experts of a Party designated to work on the territory of the other Party under this Agreement shall enjoy such local facilities as may be accorded on a reciprocal basis.

ARTICLE VI

Each Party shall facilitate the entry and exit of equipment and materials from the other Party under this Agreement on terms to be agreed on a mutual basis.

ARTICLE VII

Each Party shall notify the other on the conclusion of the formalities needed to the entry into force of the present Agreement, which shall occur on the date of the last such notification.

ARTICLE VIII

1. This Agreement shall be valid for five years and shall be automatically extended for another five year period unless either of the Parties notifies the other Party through diplomatic channels, with a minimum of six months prior notice, of its decision to the contrary.

2. The present Agreement may be denounced by either Party through diplomatic notification, and its effects shall cease six months after the date of the receipt of such notification.

3. The denouncement shall not affect the on-going programs and projects, unless the Parties decide otherwise.

Done in Beijing, on May 1994, in six originals, in the Portuguese, Chinese and English languages, all texts being equally authentic. In case of difference of interpretation, the English text shall prevail.

FOR THE GOVERNMENT OF THE
FEDERATIVE REPUBLIC
OF BRAZIL

FOR THE GOVERNMENT OF THE
PEOPLE'S REPUBLIC
OF CHINA

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