

SAFEGUARDING OUTER SPACE: ON THE ROAD TO DEBRIS MITIGATION

Maureen Williams

INTRODUCTION

The International Law Association (ILA) was created in Brussels 135 years ago, in the wake of the Alabama Arbitration. Its headquarters are currently in London. Among its objectives are the study, clarification and development of international law, both public and private, and the furtherance of international understanding and respect for international law. These objectives are mainly pursued through the work of the ILA's international committees and the focal point of its activities is the series of biennial conferences which provide a forum for discussion and endorsement of the work of the committees. The ILA Space Law Committee was set up 50 years ago during the Fifty-eighth Conference of the Association (New York, 1958), following the launching of the first Sputnik, and its work continues, to date, without interruption.

The ILA Space Law Committee is a permanent observer to the UN Committee on the Peaceful Uses of Outer Space (COPUOS) and both its subcommittees, namely the Scientific and Technical and the Legal Subcommittees. Its officers are the author, as chair, and Stephan Hobe (Germany), as general rapporteur. The practice of the Committee includes cooperation with other international organizations and institutions, public and private, such as the United Nations International Law Commission and the International Institute of Space Law, the European Centre for Space Law, the British National Space Centre, the Brazilian National Space Agency, the Argentine National Space Agency and others.

Similarly, the ILA Space Law Committee takes into account the activities, conclusions and recommendations provided by other academic institutions such as the National Council for Scientific and Technical Research of Argentina—in the framework of which the author is conducting research projects on space law on both the national and international fronts—and,

also in Argentina, the Universities of Buenos Aires and of Belgrano. Likewise, and among other examples, the ILA follows closely the progress and results of research projects carried out on the subject by Cologne University and its Institute of Air and Space Law, under the direction of Stephan Hobe. Most of the work of the ILA Committee is developed from a strong interdisciplinary approach.

Among recent contributions of the Association to the development of space law, mention should be made of:

- the *ILA International Instrument on the Protection of the Environment from Damage Caused by Space Debris*, Final Report to the Sixty-sixth ILA Conference, Buenos Aires, 1994;
- the *Revised Draft Convention on the Settlement of Disputes related to Space Activities*, Final Report to the Sixty-eighth ILA Conference, Taipei, 1998;
- the *Review of the UN Space Treaties in View of Commercial Space Activities, First Report*, Report to the Sixty-ninth ILA Conference, London, 2000;
- the *Review of the UN Space Treaties in view of Commercial Space Activities, Final Report*, Report to the Seventieth ILA Conference, New Delhi, 2002;
- the *Legal Aspects of the Privatisation and Commercialisation of Space Activities: Remote Sensing (RS) and National Space Legislation (NSL), First Report*, Report to the Seventy-first ILA Conference, Berlin, 2004; and
- the *Legal Aspects of the Privatisation and Commercialisation of Space Activities: Remote Sensing, National Space Legislation (with emphasis on Registration Issues), Second Report*, Report to the Seventy-second ILA Conference, Toronto, 2006.

The ILA Space Law Committee is presently working on remote sensing, national space legislation and registration issues, following up its second report on these questions adopted by the ILA Toronto Conference in 2006. Those results were reported to the Forty-sixth Session of the Legal Subcommittee during 25 March–5 April 2007, under the heading “Information on the activities of international intergovernmental and non-governmental organisations relating to space law” and, similarly, to the Forty-seventh Session of that body on 31 March–11 April 2008.¹ The ILA Committee keeps the legal aspects of space debris and dispute settlement

mechanisms under permanent review, taking as basis the above-mentioned ILA instruments adopted at recent conferences.

Concerning remote sensing, the ILA Committee is currently updating its 2006 Toronto Report in view of recent developments on the subject, particularly because developing countries are increasingly becoming involved in remote sensing activities and, therefore, the very controversial Principle XII of the UN principles relating to remote sensing of the Earth from outer space,² on the right of access of the sensed state to information collected over its territory, is now less dramatic.

Nowadays it is a fact that a number of sensed states have become, at the same time, sensing states. The ILA is also pursuing its review of state practice on remote sensing to establish whether it reflects the observance of the UN principles. To which the controversy surrounding satellite data and its value as evidence in international litigation should be added.

As to national space legislation and registration issues, our next report—well underway at the moment—is discussing and comparing a number of domestic laws recently adopted on registration. This question, closely intertwined with remote sensing and space debris, indeed gives food for thought. Suffice it to recall that this issue, developed by the working group operating in the framework of the Legal Subcommittee, chaired by Dr. Kai-Uwe Schrogl—and on which our ILA Committee had been asked for comments and suggestions which are appended to the ILA's report to the subcommittee for 2007³—is now embodied in General Assembly resolution A/RES/62/101, adopted at the end of 2007.

Strongly related to these issues are the answers from Germany, Japan, Poland, Saudi Arabia and the United Kingdom and the Committee on Space Research to a note by the Secretariat⁴ whereby governments were asked to submit information on space debris and national space legislation adopted pursuant to the Guidelines on Mitigation adopted by the Scientific and Technical Subcommittee in 2007 and which, on 21 December 2007, became the UN Space Debris Mitigation Guidelines.⁵

On dispute settlement it may be safely assumed, at this stage, that the ever-increasing private activities in outer space are diminishing the risk of state immunity clauses being brought up during dispute settlement procedures with the ensuing difficulties of such an attitude.

The results of the ILA Space Law Committee's work on the above-described topics will be reported by our committee to the forthcoming Seventy-third ILA Conference in Rio de Janeiro, Brazil, 17–22 August 2008. A panel is also envisaged on this occasion to discuss weaponization and space traffic management.

IDENTIFYING THE MAJOR THREATS TO SPACE SECURITY TODAY

The military use of outer space is not a topic specifically addressed by COPUOS, but no doubt the delegations are sensing that weapon deployment may affect the safety of outer space activities.

A common denominator to be drawn from the doctrine today concurs that space debris should be on the top of the list, followed by weaponization and natural near-Earth objects, such as asteroids and meteorites, and the risk of collisions with Earth.

Space debris is an increasing threat to security in outer space. In addition to active satellites—as well as abandoned or inactive satellites—orbiting the Earth, small particles originating from collisions between these objects, known as “second generation debris” imply an extremely serious risk of collision with active satellites, sometimes with untold consequences. These small particles because of their size cannot be detected from Earth at the present state of the art. They travel at very high speeds (roughly 8km per second) and there are currently tens of thousands of those pieces in outer space.

As to weaponization, it may be true to say that weapons of mass destruction have not, so far, been deployed in the space environment. Nevertheless, reconnaissance satellites and early warning satellites are constantly transmitting processed information which is then taken into account for decision-making.

Article IV of the 1967 Outer Space Treaty⁶ contains somewhat obscure provisions concerning the demilitarization and denuclearization of outer space, the Moon and other celestial bodies. In fact this article has been the target of sharp criticism over the years. Moreover, this situation opens the door for interpretation with all the dangers and uncertainties involved

thereby and which may run counter to the object and purpose of the treaty. Reminiscent of the wording of the 1959 Antarctic Treaty, the lack of clarity of Article IV becomes much more dangerous in the field of outer space: unlike the Antarctic Treaty, the Outer Space Treaty is unlimited both in time and scope.

Voices have been raised advocating the amendment of Article IV of the Outer Space Treaty. Other views consider that the treaty should remain untouched and any changes be introduced by means of a separate instrument, be it a protocol, code of behaviour, UN resolution or the like. The recent Draft Treaty on the Prevention of the Placement of Weapons in Outer Space, the Threat or Use of Force against Outer Space Objects, based on a working document on possible elements for a future treaty, submitted by the delegations of Russia and China to the Conference on Disarmament in 2002,⁷ embodies some interesting provisions in spite of excluding anti-satellite weapons which are today a most serious risk to space security. According to Victor Vasiliev (see his presentation in this volume), even though weapons that are not weapons of mass destruction may be lawfully deployed in outer space, they constitute a potential danger for other space objects and may affect the infrastructure on Earth. It is therefore surprising that anti-satellite weapons are excluded from that draft treaty having in mind that they are real stumbling blocks toward the strengthening of international cooperation, let alone transparency and confidence-building measures.

Near-Earth objects, for their part, pose a real challenge from the legal standpoint. This question has been discussed for some time now at the Scientific and Technical Subcommittee of COPUOS. The information stemming therefrom will indeed prove useful to start thinking of a more precise legal framework to this growing risk to space security. Indeed the topic seems to be gaining momentum and a place on the agenda of academic institutions dealing with international space law.⁸

SPACE DEBRIS MITIGATION: THE LANDMARKS

What follows are some general comments and recent steps which highlight the road toward the adoption of national and international measures and mechanisms consistent with the objective of the UN Space Debris Mitigation Guidelines.

In turning the pages of history back to 1967 it is easily perceived that Article IX of the 1967 Space Treaty was at the root of the problem when providing:

In the exploration and use of outer space, including the Moon and other celestial bodies, States Parties to the Treaty shall be guided by the principle of co-operation and mutual assistance and shall conduct all their activities in outer space, including the Moon and other celestial bodies, with due regard to the corresponding interests of all other States Parties to the Treaty. States Parties to the Treaty shall pursue studies of outer space, including the Moon and other celestial bodies, and conduct exploration of them so as to avoid their harmful contamination and also adverse changes in the environment of the Earth resulting from the introduction of extraterrestrial matter and, where necessary, shall adopt appropriate measures for this purpose. If a State Party to the Treaty has reason to believe that an activity or experiment planned by it or its nationals in outer space, including the Moon and other celestial bodies, would cause potentially harmful interference with activities of other States Parties in the peaceful exploration and use of outer space, including the Moon and other celestial bodies, it shall undertake appropriate international consultations before proceeding with any such activity or experiment. A State Party to the Treaty which has reason to believe that an activity or experiment planned by another State Party in outer space, including the Moon and other celestial bodies, would cause potentially harmful interference with activities in the peaceful exploration and use of outer space, including the Moon and other celestial bodies, may request consultation concerning the activity or experiment.

Even in those days the provisions established thereby were far from satisfactory. Suffice it to say that, behind the label of “consultations”—for which no deadline was mentioned—talks could go on and on and, in the meantime, serious—and possibly irreversible—damage be caused to the Earth or the space environment.⁹ Likewise, “cooperation” and “mutual assistance” appear as very vague requirements, hard to determine in practice. Moreover, who is to decide whether contamination is, in fact, “harmful”? What does “adverse change” really mean? And when do “appropriate measures” become such? To top the obscurity underlying Article IX, the requirement for a state “having reason to believe” that its activity may cause damage and thus request consultation is left entirely to

the discretion of that state—hence, it may have no “reasons to believe” but still the activity could entail harmful consequences.

The possibility of unilateral removal of inactive or abandoned satellites did not go unnoticed in the mind of international lawyers. Most of the doctrine concurred that any such procedure was not admissible and entailed a breach of international law. As Perek¹⁰ had acutely observed, at the time space objects were considered most valuable particularly in light of Article VIII of the Outer Space Treaty, reading:

A State Party to the Treaty on whose registry an object launched into outer space is carried shall retain jurisdiction and control over such object, and over any personnel thereof, while in outer space or on a celestial body. Ownership of objects launched into outer space, including objects landed or constructed on a celestial body, and of their component parts, is not affected by their presence in outer space or on a celestial body or by their return to the Earth. Such objects or component parts found beyond the limits of the State Party to the Treaty on whose registry they are carried shall be returned to that State Party, which shall, upon request, furnish identifying data prior to their return.

In this international context, and with the intention of moving towards a more agile, complete and compulsory registration system, and considering the growing number of abandoned or inactive objects in outer space, Perek was proposing the following.

The first step would be that every launching state should publish a list of all its active space objects plus the inactive ones it intends to protect and then declare that only the listed objects would fall under Article VIII of the Outer Space Treaty. Therefore any other object belonging to that state would not be included in that article and could be removed by a state having the adequate technology.¹¹ Naturally, for this system to be effective it would be essential to review that list perpetually, which, by electronic means, posed no problem. However, this proposal was viewed by some as a kind of “policy document or mechanism” and, therefore, did not gain the necessary support.

At the Sixty-fourth ILA Conference, Queensland, 1990, the initial bases for a future instrument on space debris were identified. Accordingly, the Space Law Committee instructed its then rapporteur (the author) to begin

the drafting of an international instrument on the subject, the pillars and guidelines of which were submitted to, and adopted by, the Sixty-fifth ILA Conference, held in Cairo in 1992. The following should be highlighted:

- a general obligation to cooperate;
- an obligation to negotiate in good faith;
- an obligation to ensure that space activities cause no harm to persons, objects or the environment of other states, or to the environment in areas beyond national jurisdiction;
- an obligation to inform and exchange information, to consult, to prevent, control and reduce contamination, pollution and space debris, as well as inactive satellites precluding the use of orbital facilities by active systems; and
- an obligation to make every effort to settle disputes promptly and in an amicable manner, by peaceful means, with special accent on the need to avoid situations which may lead to disputes.

Some brief comments and recommendations concerning those pillars, designed for space debris mitigation at the time, follow:¹²

- in the first place, for drafting an international instrument on the matter, it was essential to agree on some definition or description of what should be understood by contamination, pollution and space debris and establish the scope and implications of the proposed instrument in the widest possible terms;
- the general obligation to cooperate (first pillar) should be interpreted broadly, in a way consistent with the 1989 Ottawa Declaration of the Meeting of Experts on the Protection of the Atmosphere;¹³
- the obligation to negotiate in good faith should be interpreted as one where talks are conducted with the main target of reaching effective solutions and where any unjustified breaking-off of negotiations is seen as bad faith;
- the obligation to exchange information should be equally interpreted as one to inform in cases where a given activity of uncertain consequences is to be carried out;
- the obligation to consult should be binding upon states and refusal to hold consultations should be seen as bad faith;
- dispute settlement is a key issue for the effectiveness of the rules embodied in the proposed instrument. The draft should include an optional clause on dispute settlement to allow states to waive the

condition of “common agreement”. The clause could be drafted along the lines of the one included in the annex to the Convention on the Settlement of Disputes related to Space Activities (Sixty-first ILA Conference, Paris, 1984).¹⁴ Also to be borne in mind is the optional clause appearing as an Annex to the 1985 Vienna Convention on the Protection of the Ozone Layer, dealing with dispute settlement;

- the possibility ought to be examined of setting up a panel of experts to report on scientific and technical aspects whenever the review of the instrument on space debris is called for or when amendments are proposed; and
- to avoid controversies going on indefinitely it appears necessary to establish with precision at what stage a given dispute should be referred to arbitration or adjudication.

Most of these pillars and subsequent recommendations were embodied in the Buenos Aires International Instrument on the Protection of the Environment from Damage caused by Space Debris, the text of which is appended as an annex to this chapter.¹⁵ The Buenos Aires Instrument was introduced to COPUOS and its Legal Subcommittee in 1995 and explained thereto by then chair of the ILA Space Law Committee Karl-Heinz Böckstiegel. In the following years the instrument began to be quoted in the various circles involved with space law and to gain support from the doctrine. It is frequently mentioned and recommended as a basis, or starting point, for discussing space debris on the intergovernmental level, namely at the Legal Subcommittee of COPUOS. As noted before, the ILA Space Law Committee has kept this instrument under permanent review considering that, so far, it should be kept in its present reading.

THE NEW SCENARIOS: ADOPTION OF THE UN GUIDELINES

In 1999 COPUOS published a Technical Report on Space Debris¹⁶ evaluating the state of the art on the matter. The general opinion then was that the space debris environment posed a serious risk and that prompt implementation of mitigation measures was necessary to safeguard the space environment for future generations.

A short reference will be made to some of the main conclusions and common denominators stemming from the doctrine and relevant UN documents considered by the ILA Space Law Committee in 2007.

As expressed at the outset, for the specific topic of space debris, the ILA Committee took as reference a number of research projects on the matter developed by the present writer in the framework of the University of Buenos Aires and the National Council for Scientific and Technical Research of Argentina. Likewise, the University of Cologne and its Air and Space Law Institute have been showing interesting progress on legal aspects of space debris. In 1988 this institute—whose director at the time was Karl-Heinz Böckstiegel—organized an international colloquium in cooperation with the International Institute of Space Law and the Space Law Committee of the International Law Association.¹⁷ Also of great importance were the different views and recommendations of the members of the ILA Space Law Committee, based on their experience and dedication to these subjects, thus enabling the conduction of our objectives in a realistic manner. The emerging conclusions led the ILA to take up this subject for future work and discussion at its biennial conferences, which, as previously explained, resulted in an international instrument addressing the various legal implications of this topic.

The latest doctrine considered by the ILA was also drawn from other international and regional institutions—private and public—addressing the subject. On the governmental level, as said earlier, special attention was given, among others, to the various UN documents on the matter and the 2004 European Code of Conduct for Space Debris Mitigation.

On the private level 2007 was marked by a number of meetings which created further awareness on the need to give a more precise meaning to the general principles of the Outer Space Treaty and other sources of international law applicable to the mitigation of space debris. On 8–9 October 2007 a meeting convened under the heading Civil Society and Outer Space Forum 2007 took place at the Vienna International Centre with strong emphasis on security in outer space. This forum brought together a considerable number of non-governmental organizations involved, in one way or another, in outer space activities and their regulation. The author was assigned the topic Registration and the Mitigation of Space Debris on a panel addressing “Safeguarding Space” together with Patricia Lewis, then Director of UNIDIR, Ray Williamson, Executive Director of the Secure World

Foundation, and Rebecca Johnson, director of The Acronym Institute for Disarmament Diplomacy. The panel was chaired by Serge Plattard, former Secretary-General of the European Space Policy Institute who opened the session by stressing that outer space was a common heritage of great strategic value, essential for the long-term sustainability of the living planet. All speakers agreed on the importance of increasing space security through collaboration and collective trust which would lead, in turn, to transparency and confidence-building measures thus paving the way for a future legal regime on the subject. As to space debris in particular the panel concurred on the need to engage a wider audience in order to create awareness on this ever-growing threat.¹⁸

On 3–4 December 2007, the chair of the ILA Space Law Committee, together with a number of specialists representing the different legal systems of the world, were invited by the UN Outer Space Affairs Office in Vienna to participate in a UN Expert Meeting on Promoting Education in Space Law. The purpose was to elaborate a Space Law Education Curriculum and develop the syllabi of the general curricula (various modules) for the UN-affiliated Regional Centres. With a view to creating further awareness on the risks to the Earth and space environments implied by space debris, the legal aspects of the topic are one of the priorities in this context.

The outcome of these activities encouraged the ILA which, year after year, has advocated the inclusion of legal aspects of space debris on the agenda of the Legal Subcommittee of COPUOS. The matter had been brought up during the presentation made by the Space Law Committee to the Legal Subcommittee at its Forty-sixth session, 26 March–5 April 2007,¹⁹ as well as in 2008 in the ILA Report to the Forty-seventh session of the Legal Subcommittee.²⁰

Consequently, during 2007 the ILA directed its attention to the UN Scientific and Technical Subcommittee of COPUOS, particularly to the Guidelines on Space Debris Mitigation that had been adopted by that UN Subcommittee at the end of its forty-fourth session in February 2007.²¹ As indicated in the subcommittee's report,²² space debris mitigation measures can be divided into two broad categories, namely those that curtail the generation of potentially harmful space debris in the near term, and those that limit their generation over the long term. The former involves the curtailment of the production of mission-related space debris and the avoidance of break-ups. The latter concerns end-of-life procedures that remove decommissioned

spacecraft and launch vehicle orbital stages from regions populated by operational spacecraft.

Briefly, the seven guidelines considered—and subsequently adopted—by the Scientific and Technical Subcommittee of COPUOS for the launch, mission and disposal phases of spacecraft and launch vehicle orbital stages were as follows:

- limit debris released during normal operations;
- minimize the potential for break-ups during operational phases;
- limit the probability of accidental collision in orbit;
- avoid intentional destruction and other harmful activities;
- minimize potential for post-mission break-ups resulting from stored energy;
- limit the long-term presence of spacecraft and launch vehicle orbital stages in the low Earth orbit region after the end of their mission; and
- limit the long-term interference of spacecraft and launch vehicle orbital stages with the geosynchronous Earth orbit region after the end of their mission.

The fact that the guidelines reached the status of UN Guidelines on Space Debris Mitigation in 2007, plus the response given by a number of states concerning domestic measures taken in accordance with those guidelines, was a strong indication that the topic would be included on the agenda of the Legal Subcommittee of COPUOS in the near term.

This objective, towards which the International Law Association and its Space Law Committee have been concentrating since the early 1990s, is reflecting to a large extent the general opinion of the doctrine today.

STATE OF THE ART

The latest progress is reflected by the fact that the Legal Subcommittee of COPUOS at its forty-seventh session, 31 March–11 April 2008, included a proposal entitled “General exchange of information on national mechanisms relating to space debris mitigation measures” to be considered at its forty-eighth session in 2009 as a single item for discussion.²³

ANNEX

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 Spanish 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...

Notes

- ¹ General Assembly, *Information on the activities of international intergovernmental and non-governmental organizations relating to space law*, UN document A/AC.105/C.2/L.265, 16 January 2007, pp. 10–19; and General Assembly, *Information on the activities of international intergovernmental and non-governmental organizations relating to space law*, UN document A/AC.105/C.2/L.270, 25 January 2008, pp. 7–10.
- ² General Assembly, *Principles relating to remote sensing of the Earth from space*, UN document A/RES/41/65, 3 December 1986.
- ³ See General Assembly, *Information on the activities of international intergovernmental and non-governmental organizations relating to space law*, UN document A/AC.105/C.2/L.265, 16 January 2007, pp.14–19.
- ⁴ General Assembly, *National research on space debris, safety of space objects with nuclear power sources on board and problems relating to their collision with space debris, Note by the secretariat*, UN document A/AC.105/918, 17 December 2007; and General Assembly, *National research on space debris, safety of space objects with nuclear power sources on board and problems relating to their collision with space debris, Note by the secretariat, Addendum*, UN document A/AC.105/918/Add.1, 10 January 2008.
- ⁵ General Assembly, *International cooperation in the peaceful uses of outer space*, UN document A/RES/62/217, 1 February 2008.
- ⁶ Article IV reads:

States Parties to the Treaty shall regard astronauts as envoys of mankind in outer space and shall render to them all possible assistance in the event of accident, distress, or emergency landing on the territory of another State Party or on the high seas. When astronauts make such a landing, they shall be safely and promptly returned to the State of registry of their space vehicle.

In carrying on activities in outer space and on celestial bodies, the astronauts of one State Party shall render all possible assistance to the astronauts of other States Parties.

States Parties to the Treaty shall immediately inform the other States Parties to the Treaty or the Secretary-General of the United Nations of any phenomena they discover in outer space, including the Moon and other celestial bodies, which could constitute a danger to the life or health of astronauts.

- ⁷ Conference on Disarmament, *Letter Dated 27 June 2002 from the Permanent Representative of the People's Republic of China and the Permanent Representative of the Russian Federation to the Conference on Disarmament Addressed to the Secretary-General of the Conference Transmitting the Chinese, English And Russian Texts of a Working Paper Entitled "Possible Elements for a Future International Legal Agreement on the Prevention of the Deployment of Weapons in Outer Space, the Threat or Use of Force against Outer Space Objects*, document CD/1679, 28 June 2002.
- ⁸ For example, the Institut de Droit de l'Espace of the Académie Internationale d'Astronautique is dedicating one of the working sessions of its forthcoming International Colloquium (Glasgow, September 2008) to the discussion of near-Earth objects from a legal viewpoint.
- ⁹ In 1969 Sir Francis Vallat, in those days head of the UK delegation to the Vienna Convention on the Law of Treaties, had already subjected this article to severe criticism considering that it did not manage to go beyond a loose duty of international cooperation. See "The Outer Space Treaties", *Journal of the Royal Aeronautical Society*, vol. 73, 1969, pp. 755 ff.
- ¹⁰ Lubos Perek, "Outer Space Treaty in Perspective", *Proceedings of the 40th Colloquium on the Law of Outer Space, American Institute of Aeronautics and Astronautics*, 1998, pp. 291–302. Also, Maureen Williams, "The Development of Article IX of the 1967 Space Treaty", *ibid.*, pp. 177–84; and Maureen Williams, *El Riesgo Ambiental y su Regulación—Derecho Internacional y Comparado*, Abeledo-Perrot, 1998, chps. 1–5.

- ¹¹ See *Report of the Sixty-fifth Conference of the ILA*, Cairo, 1992, p.144. At this conference the pillars for an International Instrument on Space Debris were agreed, leading to the adoption, in 1994, of the “ILA International Instrument on the Protection of the Environment from Damage caused by Space Debris”, at the Sixty-sixth Conference, Buenos Aires, 1993. This has been published in book format and may be requested from the International Law Association headquarters, <www.ila-hq.org>.
- ¹² For more details, see Maureen Williams, “International Instrument concerning the Protection of the Environment from Damage Caused by Space Activities (Third Draft)”, *Report of the Sixty-Fifth ILA Conference*, Cairo, 1992, pp. 142–62.
- ¹³ Principle XI of this Declaration speaks of a “general obligation to cooperate”, this being one of the first times the principle of international cooperation—which used to appear in earlier international instruments as an expression of ideals—is seen as a general obligation.
- ¹⁴ This draft was amended in 1998 at the Sixty-eighth ILA Conference and adopted as the 1998 Revised Draft Convention on the Settlement of Disputes related to Space Activities. See *ILA Report to its Sixty-eighth Conference*, resolution 5/98, p. 20.
- ¹⁵ For further details and explanations of each of the articles of this ILA International Instrument, see Maureen Williams, “Report and Final Text of the International Instrument on the Protection of the Environment from Damage caused by Space Debris”, *ILA Report to its Sixty-Sixth Conference*, Buenos Aires, 1994, pp. 305–25.
- ¹⁶ Available at <www.unoosa.org/pdf/reports/ac105/AC105_720E.pdf>.
- ¹⁷ The colloquium was held in Cologne on 16–19 May 1988 under the heading “Environmental Aspects of Activities in Outer Space—State of the Law and Measures of Protection”. The papers were published in book format by Carl Heymanns Verlag in 1990.
- ¹⁸ See the NGO Position Paper adopted in Vienna on 9 October 2007, available at <<http://www.ngocongo.org/index.php?what=doc&id=1181>>.
- ¹⁹ General Assembly, *Information on the activities of international intergovernmental and non-governmental organizations relating to space law*, UN document A/AC.105/C.2/L.265, 16 January 2007, pp. 10–19.
- ²⁰ General Assembly, *Information on the activities of international intergovernmental and non-governmental organizations relating to*

space law, UN document A/AC.105/C.2/L.270, 25 January 2008, pp. 7–10.

²¹ General Assembly, *Report of the Scientific and Technical Subcommittee on its forty-fourth session, held in Vienna from 12 to 23 February 2007*, UN document A/AC.105/890, 6 March 2007, annex IV.

²² *Ibid.*, p. 42.

²³ General Assembly, *Draft report, Addendum*, UN document A/AC.105/C.2/L.273/Add.3, 10 April 2008, para. 21.