

**INTERNATIONAL LAW ASSOCIATION**  
**RIO DE JANEIRO CONFERENCE (2008)**

**SPACE LAW**

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Professor Stephan Hobe (Germany): *Rapporteur*

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**LEGAL ASPECTS OF THE PRIVATISATION AND  
COMMERCIALISATION OF SPACE ACTIVITIES**

**THIRD REPORT**

**REMOTE SENSING, NATIONAL SPACE LEGISLATION, REGISTRATION**

**PART I**

**INTRODUCTION - REMOTE SENSING AND REGISTRATION**

**NEW DEVELOPMENTS ON SPACE DEBRIS**

by **Professor Maureen Williams (HQ)**  
**Committee Chair**

A word of welcome, in the first place, to our nine new Committee members who have joined us following the Toronto Conference. Indeed they go a long way in contributing to make up this excellent cross-section which our Committee is today. These are Professor Setsuko Aoki (Japan), Mag Aleksander Cicerov (Slovenia), Professor Raúl A. Etcheverry (Argentina), Professor Anatoly Kapustin (Russia), The Hon. Mr Justice Markandey Katju (India), Professor Frank Maes (Belgium), Dr Antonio Carlos Rodrigues do Amaral (Brazil), and Mr Raymond Purdy and Mrs Joanne Wheeler from the United Kingdom.

The Committee regrets to announce the recent loss of Sir Francis Vallat (UK), former Director of Studies of the ILA (1966-1970) and scholar of great renown who made important contributions to the development of space law from its very early stages. This Committee is also sad to announce the loss of a long-standing member, Professor Fin Seyersted (Norway) who was always prepared to support our work with the authority of his vast experience.

And now for the Report itself. In June 2006, in Toronto, the Committee submitted to the 72<sup>nd</sup> Conference of the ILA its Second Report on 'Legal Aspects of the Privatisation and Commercialisation of Space Activities: Remote Sensing (RS) and National Space Legislation (NSL)'.

During the Toronto working session special attention was equally given to registration issues mindful of their close link with the topics on the Committee's agenda, i.e., the use of earth observation satellites and the increase -albeit slow- of domestic laws on outer space. The Toronto Report focused on state practice concerning all three issues and this was clearly reflected in the working session where participants, in addition to addressing RS and NSL, discussed the reasons for the timid support by the international community to the 1975 UN Convention on Registration of Objects launched into Outer Space. As at 1 January 2008 the Convention has been ratified by 51 states.

Indeed, the importance of registration -apart from its link with RS and NSL- is its direct connection with the effectiveness of the sections on international responsibility and liability underlying the Space Treaties in force. In fact, in the aftermath of the Toronto Conference this ILA Committee was invited to give its thoughts on a Report prepared in 2006 by the UN Working Group on Registration -chaired by one of our Committee members, **Kai-Uwe.Schrogl**- operating within the framework of the Legal Subcommittee (LSC) of the UN Committee on the Peaceful Uses of Outer Space (COPUOS). The comments and suggestions of the ILA Space Law Committee were presented to the 46th Session of that UN body (Vienna, 26 March-6 April 2007) and are published as an Annex to the ILA Report to the LSC. This information on the contribution of international organisations to the development of space law is requested annually by the UN Office on Outer Space Affairs (OOSA) and is embodied in a presentation made by the Committee Chair and published in a Note by the Secretariat (Doc. A/AC.105/C.2/L.265). I shall come back to this question later.

This Report -to be submitted to the Rio Conference- addresses the various chapters of the Committee's terms of reference, as indicated by its title. It contains some draft proposals as well. Attention is also drawn to the legal aspects of space debris, a matter under permanent review by our Committee since the adoption of the 'ILA International Instrument on the Protection of the Environment from Damage caused by Space Debris' (66th ILA Conference, Buenos Aires 1994). The topic gained momentum following the Toronto Conference, the most recent outcome being the adoption by the UN General Assembly, on 21 December 2007, of the 'United Nations Guidelines on Space Debris Mitigation' (UNGA Res. 62/217).

The Committee maintains under permanent review the issues underlying dispute settlement related to space activities on the basis of the ILA Revised Draft Convention on the matter adopted at its 68th Conference in 1998. In view of the increasing activity of private entities in outer space this Draft Convention enables these entities to avail themselves of its provisions in cases of dispute (Art. X, paragraph 2). Moreover, and as noted in the Committee's Report to the Berlin Conference, one of the most welcome consequences of this situation was that dispute settlement procedures were eased as the principle of state immunity became more flexible.

Having in mind the scope of the Committee's current mandate and the many implications involved in each topic the Final Report should be expected for the 74th Conference of the ILA in 2010. The Final Report will be including proposals for future work of this Committee and it is advisable that this Committee begin its consideration in Rio.

Given the nature of this Third Report no questionnaire was circulated to members after Toronto.. However, over the past two years a great majority of Committee members contributed regularly with their thoughts and ideas to meet the terms of reference for the Rio Conference, keeping in touch with the officers of this Committee. A good number of them -including our general rapporteur, the chair and the session reporter- met with some frequency at various international meetings on these topics. This went a long way in helping the development of our ILA work having in mind the various geographical areas and different legal systems of the world.

On the governmental front mention should be made, *inter alia*, of the 45<sup>th</sup> (2006), 46<sup>th</sup> (2007) and 47<sup>th</sup> (2008) Legal Subcommittee of Copuos. On all three occasions Reports were submitted containing the ILA contributions to the development of space law. These Reports, as previously observed, are published as UN Documents. In that framework, some Committee members took part in a Seminar on 'Capacity Building' convened by the International Institute of Space Law (IISL) and the European Centre for Space Law (ECSL). Likewise the chair, the general rapporteur and other committee members participated in a 'UN Expert Meeting on Promoting Education in Space Law' organised by the UN Office for Outer Space Affairs in Vienna (OOSA) on 3-4 December 2007, with the objective of elaborating a Space Law Education Curriculum and developing the syllabi of the general curricula (several modules) for the UN-affiliated Regional Centres. A follow-up took place at the time of the 47<sup>th</sup> Session of the LSC (Vienna, March-April 2008). And, between 31 March-1 April 2008, the Committee chair represented the ILA at the UNIDIR Conference on 'Security in Space: the Next Generation' at the Palais des Nations, Geneva.

On the private field, the ILA Space Law Committee was represented by its chair at the 'Forum on Civil Society and Outer Space (CONGO)', Vienna, October 2007. Also, during the Annual Colloquia of the IISL and other international and regional meetings, our Committee members have frequently gathered and exchanged views about present and future work.

As a customary feature of the Committee in Part II of this Report our general rapporteur, **Professor Stephan Hobe**, will be dealing with National Space Legislation (NSL), updating and advancing on the questions he dealt with in 2006 in Toronto with a view to producing corner-stones for the elaboration of national space legislation. In Part I of this Report the Committee Chair will be discussing Remote Sensing (RS) as a follow-up to the ideas put forward in Toronto 2006 - with emphasis on the use of satellite data and its value and evidence in international and national litigation. Registration issues -including the contribution of the ILA to the Legal Subcommittee of Copuos- and legal aspects of space debris in light of recent developments will be addressed as well.

To sum up, this Report covers a number of specific issues. I shall close this introduction by returning to the central questions for discussion at the Rio Conference and which were announced,<sup>1</sup> and later included, in the Report of the LSC on its 47<sup>th</sup> Session, as follows

*The Subcommittee took note of the information received from ILA on its most recent contributions relating to space law, contained in a Note by Secretariat (A/AC.105/C.2/L.270). It was noted that, at the 73<sup>rd</sup> ILA Conference, to be held in Rio de Janeiro, Brazil, in August 2008, the ILA Space Law Committee would report on remote sensing, national space legislation, registration issues, the legal aspects of space debris and the settlement of disputes related to space activities. Special attention would be drawn to the use of satellite data in national and international litigation and its value as evidence in court proceedings. The ILA Study Group on the Responsibility of International Organizations, which was working closely with the International Law Commission, would also be meeting in the framework of the 73<sup>rd</sup> ILA Conference. The Legal Subcommittee would be kept informed of the progress of the work of the Study Group<sup>2</sup>.*

I shall take these matters in turn.

## R E M O T E   S E N S I N G

### *1. Remote sensing and registration*

A thorough debate on this topic was held during the Toronto working session of the Space Law Committee. As observed before, the close link of remote sensing with registration issues prompted the idea of asking this Committee for its opinion on the Report by the UN Working Group on this matter. This Group -to which reference has been made in the introduction to the present Report- was chaired at the time by our distinguished Committee member Kai-Uwe Schrogl. The outcome of this matter was a UNGA Resolution 62/101 of 17 December 2007 entitled 'Recommendations on enhancing the practice of States and international intergovernmental organisations in registering space objects'. The opinion of this Committee, stemming mainly from the Berlin 2004 and Toronto 2006 working sessions, is appended at

<sup>1</sup> See Note by Secretariat, Doc. A/AC.105/C.2/L.270, pp.7-10, at p.9.

<sup>2</sup> Legal Subcommittee Report on its 47<sup>th</sup> Session, Doc. A/AC.105/917, p.12, paragraph 54.

the end of this chapter (Remote Sensing) under the heading 'Comments and Suggestions on Registration Issues by the Space Law Committee of the International Law Association' (Note of Secretariat, Doc. A/AC.105/C.2/L.265, pp.14-18).

## 2. *Other controversial issues*

The Toronto working session examined very carefully some of the most controversial issues underlying remote sensing with a view to submitting concrete proposals in the Committee's Final Report in 2010. It was noted that disagreement surrounding the 1986 UN Principles -and particularly Principle XII on the right of access- had become less dramatic in view of the growing commercial aspects of space activities. It is a fact today that 'sensed' states are progressively accessing remote sensing technologies and, consequently, becoming 'sensing' states as well. A number of cooperation agreements enabling this possibility were cited in this connection in Toronto. And in Latin America, presently, there is a move towards what is called the 'democratisation of access to information', particularly in Brazil and Argentina. The latter, for its part, intends using its scientific satellite SAC-C for distributing satellite data in the short term and at no cost to the ground station in Cotopaxi, Ecuador.

## 3. *Validity of the UN Principles*

As to the validity of the Principles, namely whether they reflected state practice and could be seen as rules of customary international law, no consensus was manifest at the Toronto session. Industrialised countries informed, in general, that state practice in their countries did reflect these Principles. Concerning definitions, a good number of Committee members saw the definition embodied in Principle I as outdated, but voices were also heard to the contrary in the sense that the definition in question was wide enough to be applied to the present international context. To give a more precise legal meaning to the UN Principles ideas came up on the possibility of drafting 'interpretation guidelines', perhaps by means of a separate instrument. However, a look at the development of this question in the LSC clear shows that the topic is losing intensity since remote sensing technologies have been operating satisfactorily and no serious claims have been raised in the field. In fact, in the course of the 47<sup>th</sup> Session of the LSC (31 March-11 April 2008) the need to move towards a binding instrument on the topic was only sustained -without much eloquence- by Greece. Yet, the possibility of going ahead with the suggested interpretation guidelines remains open and may still be considered at the Rio Conference for submission to the 74<sup>th</sup> ILA Conference in 2010 in this Committee's Final Report. In this field, the International Charter on Space and Major Disasters may have an important part to play and should be explored further.

The issues surrounding the value of satellite data as evidence in court and related applications calls for a separate subtitle under the general heading of 'remote sensing' and is one of the focal points of the present Report. What follows is, therefore, some comments, proposals and tentative conclusions reached by this Committee in the past two years.

### ***Satellite data in international and national litigation***

This is indeed one of the most important applications of satellite data today not yet addressed by the LSC. Be that as it may, progress on this topic within our Committee was reported to the 46<sup>th</sup> and 47<sup>th</sup> session of the LSC, in 2007 and 2008 respectively, by the present writer when referring to the contribution of the ILA to the development of space law, a regular item on the agenda of that body.

It was agreed in Toronto that solutions were needed as the current situation was running counter to the use of satellite imagery in court, particularly in international boundary disputes where the precision of satellite imagery is essential.

#### (a) General remarks

Raw data, in this initial stage, cannot be modified. The issue, however, as expressed in Toronto, is the manipulation of digital data as outcome of a long chain of interpretations once the raw data is collected by the satellite. This is particularly sensitive where boundary disputes are concerned, involving sovereignty questions over land and waters. As explained in the Toronto Report (Part I)<sup>3</sup> a number of recent cases

<sup>3</sup> See ILA Report of the 72<sup>nd</sup> Conference, Toronto 2006, Space Law chapter, pp. 693-730, at pp.714-715 and Working Session, pp.730-740. The question was initially raised at the New Delhi (2002) and Berlin (2004) Conferences of the ILA. See Report of the Seventieth Conference, Space Law chapter, pp. 192-215, at p. 212, and Working Session, pp. 216-227, and Report of the Seventy-First Conference, Space Law chapter, pp. 733-759, at pp.

decided by the International Court of Justice (ICJ), and other international arbitrations, clearly illustrate the major issues involved.

One of the outstanding questions is the handling of digital images - which amount to a collection of data-without the possibility of detecting changes at a later stage. The difference between satellite data and other conventional means of evidence is not merely the higher precision of the former which leaves no space for human error but a very wide margin for interpretation purposes. It is, rather, a substantial question. The main pitfall is that obscuring, moving or introducing elements to digital images may be largely invisible to the human eye. This means an inevitable dependence on the experts called upon to interpret the data which, in turn, makes judges, arbitrators and lawyers particularly uneasy.

I shall briefly recall the different stages leading to the elaboration of digital maps.

1. Earth observation satellites collect the raw data which is transmitted by them to ground. In this primary state the data has no real value and must be processed.
2. The first step -known as preprocessing- is to apply radiometric and geometric corrections, among others.
3. Next, the raw data becomes available in digital form and certain aspects of the picture may be enhanced, at the user's request, by means of computers.
4. The user may then ask for the classification of the information gathered, bringing together, for instance, similarities and differences.
5. Ancillary information, such as maps, GPS data, etc., may be added to prove the results of the satellite image<sup>4</sup>.

Concerning point 2 above, our Committee member **Y.S. Rajan** has observed that the main reason for pre-processing the raw data is because of the continual non-ideal position of the orbit and spacecraft attitude (yaw, pitch & roll). Corrections for this ephemerides are crucial to ensure that the picture is not distorted. It may thus be important to have this process in mind. Moreover, it could become mandatory (by consensus) for all remote sensing satellite operators to keep in record (archives) such ephemerides data with them. If so done, one can always come back to it to reassure that the "raw data" (which is actually pre-processed) has not been manipulated except for what is demanded by the natural life changes of the satellite orbit and altitude.

Hence, obscuring, moving or introducing elements to digital images may not be detected, at a later stage. This means an inevitable dependence on the experts called upon to interpret the data. As observed in Toronto, a possible step forward is provided by running the data through Photoshop, a method applied by the *Journal of Cell Biology* in the USA which, in this case, revealed cases of manipulation and misrepresentation of data<sup>5</sup>.

In 2006 the Hwang case was in the limelight. It involved fraudulent papers published in *Science* on stem cell research which unchained a string of most controversial opinions surrounding 'fraud in science' and 'routes of scholarly lying', and its persuasion mechanisms. It revealed, at the same time, the ineffectiveness of peer reviews<sup>6</sup>.

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748-751, and Working Session, pp.760-772. The problem was outlined by the ILA Committee Chair on the basis of an experience carried out by the British Institute of International & Comparative Law in 2001 (BIICL, London) which set up a study group of lawyers and experts in the interpretation of satellite data and digital mapping to share their experiences in this field. The group produced a report on the matter which was submitted to the Annual Conference of the BIICL on 22 June 2001, and extensively discussed on the occasion.

<sup>4</sup> See *inter alia*, Harald Ginzky, *Satellite Images as Evidence in Legal Proceedings relating to the Environment - A US Perspective*, Air and Space Law, Vol. XXV, Kluwer 2000, at p. 115. The problem is addressed by the author from an almost exclusively US perspective and frequently linked to the Fourth Amendment and the right of privacy to establish compatibilities with the use of remote sensing technologies.

<sup>5</sup> See Report of the Seventy-Second Conference, Toronto 2006, p. 715. In note 51 it is explained that when an object is enlarged beyond its proper resolution photoshop may generate extra pixels and, if the object is rotated, another set of pixels is generated in a characteristic pattern. See 'On Sunday with the New York Times: 20', *The Buenos Aires Herald*, Vol. 6, N° 258.

<sup>6</sup> See Delgado-Lopez-Cozar, E. (Granada University), Torres-Salinas, D. (Navarra University) and Roldán-López, A. (Granada University), 'El fraude en la ciencia: reflexiones a partir del caso Hwang' ('Fraud in science: reflections on the Hwang affair'), in *El profesional de la información*, 2007, March-April, Vol. 26, N°2, pp. 143-150.

Owing to the fact that the doctrine remains divided on these questions -particularly in the legal world and the value of satellite data in court proceedings- and that lawyers and judges have conflicting views as well, it is suggested that this Committee continue research on the matter.

(b) Input from Committee members

What follows is a contribution made in April 2008 by new Committee member **Ray Purdy**<sup>7</sup> (British Branch), who has been involved for some time in the study of this subject and kindly summarised his thoughts on the 2001 Report of the British Institute of International & Comparative Law (BIICL) and its aftermath .

In 2001 the BIICL participated in a study entitled '*Applications of Earth Observation to the Legal Sector*'. This looked at the use of EO data in court, planning law, international treaties and international litigation. The final report made a number of key recommendations to promote opportunities for EO in the legal sector including: (i) establishing standards for the certification and presentation of EO data; (ii) a register of expert witnesses; (iii) promoting opportunities, increasing awareness and publicising successful uses of EO data in court; and (iv) tracking opportunities for the use of EO data in environmental legislation and new initiatives.

Many of the issues and recommendations raised in the BIICL study are being revisited in a University College London (UCL) project which has been running since 2005. This study, conducted by lawyers with strong collaboration from satellites specialists, is examining the potential of satellite technologies for providing a rigorous, legally reliable, and cost- effective tool in inspection and compliance regimes. The researchers from UCL have found that the BIICL recommendations mentioned above were never fully implemented, even though many still hold true in 2008.

Having access to satellite derived information could be potentially invaluable to many in the legal sector. However, it seems the legal sector is still not embracing satellite imagery, or even engaged in thinking about whether these 'spy in the sky' technologies have the capabilities to provide new sources of valuable legal information. Closer scrutiny reveals that there seem to be five primary reasons for which the legal sector might have either deliberately ignored, or alternatively been unaware, of the potential of satellite technologies since the publication of the BIICL report in 2001.

The first observation is that the significant improvements in satellite technologies have taken place in a very short space of time. Technology has developed extremely fast and the legal community has not kept pace nor considered the implications of the important step-changes taking place. The BIICL report was published at the beginning of an exponential step- change in resolution capabilities. In the 1990s the spatial resolution of satellites was in most instances low resolution, between 30-80m. Satellite resolution capabilities have continued to rapidly develop and some now have a 41cm resolution. This now allows for the collection of digital data at resolutions approaching those of aerial photography, with some now close to allowing for collection of near-real-time information. There may now be growing advantages in the use of satellites over other traditional forms of evidence collection. Equally, lawyers need to consider the wider implications to legal systems as no doubt there are dangers in cases of misuse of this technology. Also, closer consideration is needed to determine whether its development requires limitations.

A second point is that there are still no developed international rules or standards in place as to the use of EO evidence in the courtroom. Common standards for digital data products are slowly being developed at national levels, but there is still widespread uncertainty in the legal sector as a result of the relative novelty of the technology and the fact that satellite images are essentially digital in nature – meaning that they could potentially be more easily manipulated to suit individual purposes. The lack of international rules or standards is not an insurmountable barrier in using satellite images in court, but it is clear that such rules or standards could bring greater confidence within the legal sector and could be considered a reliable form of evidence in court. A trustful international body should be in charge of the accreditation and certification of rules and standards.

A further observation is that there have not been as many reported instances of satellite data being used in the courts as was probably anticipated in 2001. Maybe at an operational level satellite technology has not yet reached a point where it is considered useful. Possibly the technology is too imprecise to provide the

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<sup>7</sup> Ray Purdy is Senior Research Fellow on the AHRC Programme on Satellites and the Law; and Deputy Director of the Centre for Law and the Environment, Faculty of Laws, University College London.

specific legal data required; it could also be too inflexible to react to specific events; or maybe the conventional means of obtaining evidence -such as ground inspections or aerial photography- are more cost-effective or preferable, according to the objectives. University College London is currently testing the use of satellites in enforcing a number / type of laws with mixed results. In the last two years there has been a notable increase in the use of satellite technology in court and it is now necessary to have more recording and publicity of its applications.

The main conclusion of the BIICL Report was that training the legal sector was crucial for the development of these technologies. There is still, however, a lack of awareness, knowledge and understanding in the legal sector as to what the technology can offer and what are its limitations. Interestingly enough there is, at the same time, a greater public awareness of satellite technologies through internet programmes such as Google Earth, downloaded by millions worldwide. Even so, it is most likely that many in the legal sector have never seen a satellite image in a legal context. So far scarce efforts have been made to train the legal sector and very few bodies are taking institutional or leadership responsibility to raise awareness of the advantages and limitations of the use of satellite data. There is still a pressing need for capacity building and training in the legal sector, ranging from early career lawyers to senior judges. Besides potential applications, of particular importance is an increased awareness of the evidential issues and privacy considerations when evaluating new technologies. The legal sector needs to look ten years ahead for a glimpse of the future context to avoid being left out by rapidly improving technologies.

The last reason, and one which perhaps underlies all the problems with implementing satellite technologies in the legal sector, is that technology is not currently developed having the legal sector in mind. To date, there has been little interaction between lawyers and satellite technology experts, and the use and development of satellites has been almost exclusively technology-led from its inception to the current time. Its mainstream development and growth in the legal sector will not be stimulated until there exists cross-disciplinary cooperation whereby future technologies have a greater ability to meet the legal users' needs. There should be stronger, more proactive advocates of the new technology in the legal sector in order to influence, design and suggest demonstration projects so that the research stages reach the operational level.

(c) State-of-the-art, conclusions and suggestions

On 14 May 2008 a Conference was organised in Buenos Aires (Ministry of Foreign Affairs) on this topic under the heading *Información Satelital y su valor como medio de prueba en tribunales nacionales e internacionales*, under the auspices of the Argentine Space Agency (CONAE), the European Space Agency (ESA), the National Council for Scientific and Technical Research of Argentina (CONICET) and the National Institute of Air and Space Law (INDAE)<sup>8</sup>. Following a technical presentation by Dr Gagliardini from CONAE with the objective of putting the audience in context on the application, implications and dilemmas of these technologies, the national, international and European legal sides of the matter were addressed by Dr Oosterlinck, Dr Agostinelli and the present writer. The meeting was chaired by the Executive Director of CONAE, Dr Conrado Varotto and a stimulating debate -from all standpoints- followed the presentations.

The foregoing activities and different views are a clear indication that further studies are needed to enable the drawing up of sound, realistic proposals. Hereunder some tentative conclusions and suggestions to be discussed at our working session in Rio.

1. It is beyond question that raw data, as such, cannot be modified. The problems arise over the various stages involved in the production of the digital images.
2. As underlined at the Toronto Conference, this question should be given a more positive spin so as to benefit from the use of satellite data in every possible field.
3. Recent experience has shown that the question is particularly sensitive insofar as boundary disputes are concerned. The problems are now extending to other areas, such as biology, where 'photoshop' methods appear to be useful to detect the manipulation of satellite data and other misrepresentations. Per contra, peer reviews do not appear to be effective, particularly in the field of medical and other sciences.

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<sup>8</sup> Speakers included Dr René Oosterlinck (ESA), Dr Carlos Agostinelli (INDAE), Dr Antonio Gagliardini (CONAE) and the present writer (Conicet). The proceedings of this Conference are being published in the journal of the Buenos Aires Bar (*Revista del Colegio de Abogados de la Ciudad de Buenos Aires*) having in mind the interest this topic has arisen for the legal profession. This journal is published twice a year, in July and December.

4. Consequently, reliable mechanisms for the production of satellite imagery should be developed without delay.
5. There is still a lack of awareness, knowledge and understanding in the legal sector as to what these technologies can offer and what are their limitations.
6. As technology is not currently developed having the legal sector in mind, efforts should be directed to creating greater awareness of their applications and implications in the legal field. Capacity building and training are of major importance to tailor capabilities to this specific mission.
7. Some proposals indicate the need to have an international body for accreditation and certification of satellite data.
8. Other views suggest, as a first step, the drafting of an agreement on international standards concerning authentication and certification.
9. The various sources consulted agree on the need to draw up a list of experts of international renown to which the parties to a dispute, and the courts and tribunals, may be able to resort for the interpretation of satellite data.
10. The general opinion is that control of all the phases of data collection - from the very first stage of raw data collection to the moment the final product is made use of- is essential for the transparency of this technology.

### **Registration issues**

#### **The ILA contribution to the LSC and its Working Group**

##### **Doc. A/AC.105/C.2//L.265 (Annex) pp.14-18**

Further to its First Report -discussed and adopted at the ILA Berlin Conference (2004)- the ILA Space Law Committee submitted a Second Report on the *Legal Aspects of the Privatisation and Commercialisation of Space Activities – Remote Sensing, National Space Legislation and Registration*, focusing on state practice relating to all three topics, to the 72<sup>nd</sup> ILA Conference (Toronto 2006). The registration of space objects, in fact, has been on the agenda of this Committee since 2000 when a Special Report was submitted to the ILA London Conference followed by a Resolution which included recommendations on registration and which was adopted at the 70<sup>th</sup> Conference (New Delhi, 2002).

The 2006 Toronto Report includes a chapter with comments on the answers of Committee members to a Questionnaire, circulated in 2005, addressing state practice with regard to remote sensing, national space legislation and registration. This Report draws attention to important developments, in recent times and both at the scientific and governmental levels, which relate to registration, clearly indicating that certain sections of the 1975 Registration Convention are outdated. We need most importantly to get states to implement the obligations of the treaties. In this quest many of the deficiencies or outdated aspects of the Convention can be taken account of during national implementation.

The beginning of the new millennium was marked by scientific meetings and workshops on registration and related matters. The Institute of Air and Space Law of Cologne University, for example, organised a number of international symposia on the topic in cooperation with the German Aerospace Centre (DLR) during 2004-2005. In other latitudes, a research project on the subject is currently being conducted in the framework of the National Council for Scientific Research of Argentina (Conicet/University of Buenos Aires) in consultation with the national space agency of this country (CONAE). Details concerning these Projects can be found in the ILA Report submitted by the Space Law Committee to the 2006 Toronto Conference<sup>9</sup>).

Noteworthy for its many implications, and on the governmental level, is the setting up of a Working Group<sup>10</sup>) to deal with the practice of states and international organisations in registering space objects. This Working Group was set up in 2004 by the UN Committee on the Peaceful Uses of Outer Space (COPUOS) and submitted its First Report in 2006 (UN Doc A/AC.105/871, pp.33-37).

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<sup>9</sup> For the full text of this Report see the ILA website: [www.ila-hq.org](http://www.ila-hq.org) (click on “Committees” and then on “Space Law Committee”). Similarly, for the London, New Delhi and Berlin ILA Reports of the Space Law Committee. The Toronto Proceedings and Resolutions, in book format, should be available by the end of 2006.

<sup>10</sup> Hereinafter referred to as “UN Working Group on Registration” or, simply, “UN Working Group”.

Within the following comments on registration due regard will be taken of the above-mentioned sources which reflect the views of both industrialised and developing countries. Likewise the above-mentioned Report, submitted by Dr. Kai-Uwe Schrogl, Chairman of the UN Working Group, will be a source of permanent reference, as well as the opinion of experts within the Scientific and Legal Subcommittee of COPUOS. On these bases, the ILA Space Law Committee, permanent observer to COPUOS, will be expressing its views hereunder. An attempt will be made to produce suggestions on possible ways of interpreting the 1975 Registration Convention in light of the current trends towards the commercialisation and privatisation of space activities. The main objective of the present ILA contribution is to increase the overall acceptance of the 1975 Convention, today under challenge, both by states, international organisations and private entities involved in space activities.

### **I. General comment**

The underlying approach of the Chairman of the UN Working Group, in the sense that every effort should be made to broaden the acceptance of the Registration Convention (Section 8 of the Report), should be fully supported. Therefore, the recommended harmonisation of administrative proceedings seems a sensible course of action to achieve the objectives set forth by the UN Working Group.

### **II. Definitions**

It appears realistic to make use of some of the key notions applicable to the field of international space legislation relating to the registration of space objects with a view to increasing support to the 1975 Convention which is presently under challenge.

(a) Within the concept of “launching state” embodied in UNGA Resolution 59/115, it is advisable to include not only the actual launching state and the state from whose facilities or territory a space object is launched, but also the state procuring the launching. To this end the meaning of “procurement” should be clarified by adding the terms “state controlling a launching activity”. This would no doubt ease the possibility of also considering launching states those which authorise or supervise private space activities.

(b) Furthermore, and as recommended by UNGA Resolution 59/115, the concept of space object should also include parts of a space object, and the launcher.

(c) In addition, if such objects are included within that concept then objects that are technically or functionally independent parts of larger space objects should also be included.

(d) Space objects built in outer space using various parts or elements launched thereto for that purpose should be equally considered space objects.

(e) The expression “state of registry” should be fully introduced as meaning the launching state in whose registry a space object has been listed pursuant to Article II of the Registration Convention.

(f) In cases where more than one possibility for state of registry exists the states involved should establish, in accordance with the terms of their underlying agreements, which of them is to be considered the state of registry.

### **III. Duty to register**

Without getting involved in the subtleties of a discussion on the reach and implications of the terms “duty” and “obligation”<sup>(11)</sup> it is considered that, as enshrined in the Registration Convention, there are two aspects to this question.

- the national aspect, i.e. the entry into a national registry,
- the international aspect, which concerns registration of a space object, with all the required information, with the Secretary-General of the United Nations.

These duties are incumbent on the state responsible for the launch and, if and when the requirements laid down in Article VII of the Registration Convention are met, also on international organisations. In case of more than one launching state the states involved shall establish, by way of an inter-party agreement, which of them is to be the state of registry.

It should however be borne in mind that, in spite of the need for inter-party agreement, normal practice is dual notification. The UN registry normally takes account of this with dual references to the notifications.

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<sup>11</sup> For the purpose of these comments the word “duty” will be seen as synonymous with “obligation”.

#### IV. Contents of the UN Registry

Every state of registry shall submit the information listed in this section to the Secretary-General of the United Nations. In this context, and with the objective of avoiding significant delays, states parties to the Registration Convention should agree to consider the formula “as soon as practicable” embodied in Article IV as meaning 24-72 hours after the launch.

The above statement is, of course, without prejudice to certain realities. For example, some GEO satellites may take some time to reach final orbit position, particularly when using electric propulsion. Therefore final details will remain uncertain for a time. This is also the case for those and other GEO satellites that are purchased in orbit. In these circumstances the state having procured the launch does not own the satellite for many months after launch. The prevailing trend of the major launching states is to notify in batches, three or four times a year.

That said, and besides the information required by Article IV of the Registration Convention, information should be included on the designation of the space object made in accordance with the COSPAR standards, as well as the date and time of launch, the place and jurisdiction of the launch and the specific function of the space object. Kilometres, minutes and degrees are recommended as agreed standards.

The report of the UN Working Group underlines the need for additional information to be furnished in connection with the space object (Section 8, IV). In this respect it appears appropriate for the following additional information to be furnished to the Secretary-General of the United Nations.

- information relevant to mass of the space object.
- information concerning the owner and operator of the space object.
- information concerning a change of owner or state of registry.
- information concerning the use of nuclear power sources on board.
- information concerning the presence of astronauts on board.
- information in case of the non-functioning of a space object.
- date of decay of the space object based on GMT/UTC.
- information concerning a military satellite provided this does not affect strategic information.
- date of entry into a national registry.
- designation of the national authority for registration.
- any change of the mission or of the fundamental parameters of the orbits shall also be furnished to the UN Secretary-General.

Indeed, agreement on the need to provide the listed information, as described in the Report of the UN Working Group, would be an important step forward.

#### V. Details concerning the national registry

The requirements for national registries shall be established by states parties having in mind the current general practice and with a view to maintaining uniformity. In addition to the information furnished to the UN Secretary-General pursuant to Article IV of the Registration Convention, the following details should be provided in the case of national registries<sup>(12)</sup>.

- information relevant to mass of the space object.
- information concerning the owner and operator of the space object.
- information concerning a change of owner or state of registry.
- information concerning the use of nuclear power sources on board.
- information concerning the presence of astronauts on board.
- information in case of the non-functioning of a space object.
- date of decay of the space object based on GMT/UTC.
- information concerning a military satellite provided this does not affect strategic information.
- date of entry into a national registry.
- designation of the national authority for registration.
- any change of the mission or of the fundamental parameters of the orbits shall also be furnished to the UN Secretary-General.
- *in case of joint launches, the text of the relevant agreements.*

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<sup>12</sup> The suggested extra requirements for national registries are in italics.

- *details relating to insurance.*
- *precautions and measures concerning possible contamination resulting from the activity of the space object in question.*

#### **VI. Transfer in orbit**

This nowadays topical issue is covered by section 8 (ii) of the Report of the UN Working Group. It is important to have in mind that, in case of a transfer of ownership from one legal person to another, this should be informed by the state of registry to the UN Secretary-General. This information should contain every detail of the new legal situation.

#### **VII. Registry of payloads**

In case of transfer of payloads the launching vehicle and the payloads on board shall be registered separately. The launching vehicle shall be registered by the state meeting the requirements as launching set out in Article I of the Registration Convention. The registry of the payload on board the launching system is incumbent on the state procuring the launch or on the state under whose jurisdiction or control the launch is made.

#### **VIII. Nuclear power sources**

When a space object uses nuclear power sources on board in outer space, information relevant to the use of those sources, as required by the UN Principles on the Use of Nuclear Power Sources in Outer Space (1992), and its safety assessment, should be included in the registry.

#### **IX. Change of contents of the registry**

Any change in the information relevant to the registration shall be followed by a change in the registry. This is also the case when a space object leaves an orbit and re-enters the Earth atmosphere.

#### **X. International organisations**

International organisations not fulfilling the requirements of Article VII of the Registration Convention shall register objects on a voluntary basis pursuant to UNGA Resolution 1721 (XVI). Privatised international organisations (such as Intelsat and Inmarsat) shall be treated as private enterprises. The seat of a company or satellite organisation shall be the main point of reference for attributing responsibility to a seat state for exercising jurisdiction and control.

**Note:** these comments and suggestions were submitted to the UN for Outer Space Affairs Office in Vienna in September 2006. The Report of the LSC on its forty-six session (Doc.A/AC.105/891, acknowledged the ILA contributions on page 11, para 55, and page 19, para 121.

## **SPACE DEBRIS REVISITED**

This rather long-standing question has been kept under permanent review of this Committee since the adoption of the 'Buenos Aires Instrument on the Protection of the Environment from Damage caused by Space Debris' -hereinafter the 'Buenos Aires Instrument on Space Debris', the 'ILA Instrument on Space Debris' or, simply, the 'Buenos Aires Instrument'. It was adopted by consensus at the 66<sup>th</sup> Conference of the ILA held in 1994 in the city of reference.

At all subsequent ILA Conferences a word was said on this matter -in the framework of the Space Law Committee Reports- to assess whether the Buenos Aires Instrument remained consistent with the international scenario of the moment. The treatment of this matter in different circles, both on the national, regional and international fronts, was followed closely by this Committee and no great changes were considered necessary since the introduction of the Buenos Aires Instrument to the LSC and Full Committee of Copuos in 1995.

In the meantime this document began to gain support from the doctrine and to be quoted and recommended as a starting point, or useful tool, whenever the moment came for addressing space debris from a legal perspective and at governmental level. Even though the Scientific and Technical Subcommittee of Copuos (STSC) had dealt with the subject in different workplans, on the legal front it found pain, over the years, in working its way onto the agenda of the LSC.

The general opinion today concurs that space debris, as a threat to space, should be on the top of the list, followed by weaponisation and NEOs - meaning natural near-Earth objects such as asteroids, meteorites, etc.- which sometimes imply a serious risk of collision with planet Earth.

To recall what this Committee has been dealing with and holding since the ILA Warsaw Conference (1988), space debris is an increasing threat to security in space. In addition to active, inactive and abandoned satellites orbiting the Earth, small particles known as 'second generation debris' and originating from collisions between these objects imply an extremely serious risk of collision with active satellites, sometimes with untold consequences. Because of their size these small particles cannot be detected from Earth in the present state of the art. They travel at very high speeds and currently, in outer space, there are tens of thousands of those pieces.

*A recent milestone: the UN Guidelines on Space Debris Mitigation*

In 1999 the United Nations Committee on the Peaceful Uses of Outer Space (Copus) published a Technical Report on Space Debris<sup>13</sup> 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.

The matter was brought up during the presentation of the ILA Reports made by the chair of this Committee to the Legal Subcommittee of Copuos at its 46<sup>th</sup> session, 26 March-5 April 2007<sup>14</sup> as well as at its 47<sup>th</sup> session, 31 March-11 April 2008<sup>15</sup>. Previously, the former chair of this Committee, our distinguished member Professor Karl-Heinz Bökstiegel, had always included space debris, and the ILA Instrument, in his annual statements to the LSC.

During 2007, and with the Rio Conference in mind, attention was directed to the UN Scientific and Technical Subcommittee of Copuos (STSC) and, particularly, to the Guidelines on Space Debris Mitigation adopted by that UN Subcommittee at the end of its 44th session in February 2007<sup>16</sup>. As indicated in this Subcommittee's Report<sup>17</sup>, 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.

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:

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

The fact that the Guidelines reached the status of 'UN Guidelines on Space Debris Mitigation' following their adoption by UNGA Resolution 62/217 of 21 December 2007, plus the response given by a number of states concerning domestic measures taken in accordance with those Guidelines, was a powerful indication that the topic would be finally included in the agenda of the Legal Subcommittee of Copuos.

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<sup>13</sup> UN Publication, Sales N° E.99.1.1.7.

<sup>14</sup> Doc. A/AC.105.2/L.265. pp. 10-19.

<sup>15</sup> Doc. A/AC.105.105.2/L.270, pp.7-10.

<sup>16</sup> Doc.A/AC.105/890, Annex IV, pp. 42-6.

<sup>17</sup> Ibid., p. 42.

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

The latest development on this topic is the fact that the Legal Subcommittee of Copuos included, as a single item for discussion, a proposal at its 47<sup>th</sup> Session (31 March-11 April 2008) entitled 'General exchange of information on national mechanisms relating to space debris mitigation measures' for consideration at its 48<sup>th</sup> Session in 2009.

On these grounds it is suggested that space debris be given serious consideration, in the context of this Committee's Report to the 74<sup>th</sup> ILA Conference in 2010, with a view to assessing the development of state practice on the matter. This means analysing the various domestic mechanisms enacted by states under the UN Guidelines on Space Debris Mitigation. To this end the 1994 ILA Instrument on Space Debris should be the object of careful analysis so as to establish its consistency with the world of today.

It is also suggested to draw the Committee's attention to natural near-Earth objects (NEOs) which pose a real challenge from the legal standpoint. This question has been discussed for some time now by the STSC of Copuos but not, so far, by the LSC. The information from the former will no doubt provide a sound basis in the quest for a more precise legal framework for space security. And even though the legal treatment of NEOs is in its very incipient phases, the topic seems to be gaining a place on the agenda of various academic institutions dealing with international space law<sup>18</sup>.

#### **Links between the ILA Space Law Committee and the UN International Law Commission (ILC)**

Finally, and as noted in the last paragraph of the Introduction, the Committee has duly in mind the request made by the Legal Subcommittee of Copuos, both in its Reports on the 46<sup>th</sup> (2007) and 47<sup>th</sup> Session (2008)<sup>19</sup> of that UN body, in the sense of keeping them informed on the progress of our work in the ILA Study Group on the Responsibility of International Organisations, to which both the ILA Committee Chair and General Rapporteur belong.

The ILA Study Group, chaired by Eduardo Valencia Ospina who is also a member of the ILC, conducts its work on the above-mentioned topic in close cooperation with the latter, the Special Rapporteur being Giorgio Gaia from Italy. In this framework discussions surround two specific questions, i.e.

1. whether members of an international organisation that are not responsible for an international wrongful act of that organisation have an obligation to provide compensation to the injured party, should the organisation not be in a position to do so? And
2. the particular consequences of a serious breach of an obligation under peremptory norms of international law.

Prior to the 59<sup>th</sup> session of the ILC in 2007 both Prof Hobe and the present writer sent their contributions on these points directing their views, *inter alia*, to the sections of the UN Space Law Treaties addressing responsibility and liability of international intergovernmental organisations. These opinions were furnished to the Special Rapporteur of the ILC. A copy of the contributions is available upon request to the chair and rapporteur of the ILA Space Law Committee.

As announced last April in Vienna during the 47<sup>th</sup> session of the LSC, a careful examination of this matter will be pursued in August 2008 on the occasion of the 73<sup>rd</sup> Conference of the ILA.

## **PART II**

### **National Space Legislation and Registration of Space Objects**

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<sup>18</sup> *Inter alia*, 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 NEOs from a legal viewpoint.

<sup>19</sup> See Reports of the LSC on its 46<sup>th</sup> and 47<sup>th</sup> Session, Doc. A/AC.105/891, p. 11, paragraph 55 and Doc. Doc. A/AC.105/917, p. 12, paragraph 54, respectively.

**Professor Stephan Hobe (German Branch)  
General Rapporteur**

**1. Introduction**

This section of the Space Law Committee Report is dedicated to the current legal issues concerning national space legislation, with special emphasis on registration of space objects. The mandate for the Committee stems from the 2004 Berlin Conference. This mandate included the discussion of four “building blocks” concerning the authorisation of space activities, the supervision of space activities, the registration of space objects, and the regulation of compensation. At the 2006 Toronto Conference the Committee discussed the Report of the present Rapporteur. In particular, this included the evaluation of a questionnaire that had been sent to the Committee Members in preparation for the 2006 Toronto Conference. Special questions within this questionnaire included an overview of existing national space legislation and some discussion on national state practice with regard to remote sensing and registration. The present Report will sum up some of the findings and concentrate on possible consequences.

As to the future work plan, the Committee concluded in 2006 that it could be fruitful for the outcome of the deliberations of the Committee if corner stones for national space legislation could be elaborated in the form of guidelines for the drafting of future national laws.

**2. Previous activities regarding the topics under consideration**

Interestingly enough, the discussion in the Legal Subcommittee of the United Nations Committee on the Peaceful Uses of Outer Space for three consecutive years (2006-2008) had distinct agenda items dealing with problems of national space legislation. Moreover, the problem of national state practice with regard to registration of space objects was discussed.

a) In the 2006 meeting of the Legal Subcommittee of COPUOS (LSC) several questions referring to the practice of states and international organisations in registering space objects were discussed. Inter alia the concern was expressed that not enough states had ratified the Registration Convention and that there was a decrease in the number of registrations of space objects. There was a dispute over the question relating to the consequences of the transfer of ownership with regard to registration. In addition, the range of obligations to register with regard to the amount of objects launched into outer space was discussed.<sup>20</sup>

On that occasion, the Chairman of a Working Group on the practice of states and international organisations in registering space objects presented a report. He informed of the consensus of the Working Group with regard to recommendations, such as the obvious benefit of becoming a party to the Registration Convention, the contribution of states to uniformity relating to the information provided to the international register and the contribution of standard procedures for the registration of space objects as well as of the practice with regard to additional information concerning space objects. Concrete proposals as to the harmonisation of administrative procedures, the additional information to be furnished, and particularly in connection with the problems of transfer of ownership were included in this report.<sup>21</sup>

b) In the 2007 session of the Legal Subcommittee of COPUOS it was noted that Brazil had established a national registry of space objects in 2006. Indonesia and Kazakhstan had established national registries of space objects in 2006 as well. As in the previous year, the Chairman of the Working Group on the practice of states and international organisations in registering space objects<sup>22</sup> discussed some controversial questions. As a result thereof, both in the Legal Subcommittee and in the Full Committee of COPUOS, a resolution was drafted for adoption by the UN General Assembly. It has been adopted as UNGA Resolution 62/101 of 17 December 2007 and is entitled “Recommendations on enhancing the practice of states and international intergovernmental organisations in registering space objects”. This document basically calls upon states to ratify the Registration Convention, to move towards a harmonisation of the registration practice with regard to the type of information to be provided to the Secretary General and to furnish some appropriate additional information. Moreover, in cases of a joint launch, states are called upon to jointly determine which state or entity should register the space object. There is also a call upon states to the effect that, in cases of joint launches of space objects, each space object should be registered separately. Likewise, information should be made available following the

<sup>20</sup> UNGA Doc. A/AC.105/871 of 24 April 2006, 128-145.

<sup>21</sup> UNGA Doc. A/AC.105/871, Annex III.

<sup>22</sup> UNGA Doc. A/AC.105/C.2/L.266

change in supervision of a space object concerning the date of change, the identification of the new owner or operator and any change of the orbital position, as well as any change of function of the space object.

c) At the 2008 session, the Legal Subcommittee of COPUOS started a general exchange of information on national space legislation relevant to the exploration and use of outer space. Several countries presented their national regulatory framework concerning space activities or at least plans to create such framework on the national level. Such reports were submitted by Belgium, Brazil, Bulgaria, Canada, China, Colombia, France, Germany, Japan, The Netherlands, the Republic of Korea, the Russian Federation, South Africa, Ukraine and the United States of America.

Inter alia, the following comments were made on the progress of national space legislation:

France reported on its present legislative procedure that was based on three principles: (a) free access to outer space, (b) the interest to keep operational systems in an operational status, and (c) the legitimate interest to self-defence.

China focussed on the necessity to elaborate on the existing framework for commercial space activities and to come up with a Comprehensive Space Treaty.

Russia reported on the comprehensive system of its national space laws with currently 30 laws and decrees.

Both Russia and China emphasised the need to include provisions on the limitation of armament in outer space in their national space legislations.

Ukraine also focussed on its broad national space legislation.

South Korea reported on the development of the 2005 Space Development Promotion Act and other legal drafts for the regulation of problems of third-party liability.

Belgium focussed on its national space law adopted in 2005.

The Netherlands, likewise, reported on their national space law under consideration.

Summarizing, several issues are addressed by many national regulatory frameworks. These are the procedures for authorising and licensing national space activities, liability questions, the indemnification procedures, the problem of insurance, questions of intellectual property rights, the distribution of remote sensing data, the registration of objects launched into outer space, the establishment of national registers, the safety requirements for the conduct of space activities and the regulatory frameworks for national space agencies or other national entities responsible for carrying out and supervising space activities.

Moreover, the United Nations Office for Outer Space Affairs has established on its website a database on national space legislation and multilateral and bilateral agreements related to the peaceful exploration and use of outer space (<http://www.unoosa.org>).

### **3. Other Events Concerning the Topic under Consideration**

Besides the work of UNCOPUOS, there were specific events highlighting the importance of the adoption of national space legislation. In the first place, the Belgian Senate celebrated the entry into force of the Belgian national space law in 2005 in a ceremony that took place the following year. Several speakers were asked to discuss the importance of the adoption of this law.

In January 2007, the Centre National d' Etudes Spatiales (CNES) held a meeting in which options for French space legislation were discussed.

In late 2007, Germany adopted a law concerning satellite data protection. This was considered an important step towards a more general national space legislation to be taken up in a general discussion of the Government in due course.

### **4. Summarising Recommendations**

It may therefore be concluded that both subjects under consideration by this Committee are of major concern to the international community.

With regard to the registration practice, the work of the Working Group led to the adoption of a United Nations General Assembly resolution that helps to enhance the willingness of states to register their space objects. This resolution aims basically at a harmonisation of the procedure to register space objects in many respects concerning procedural questions as well as the contents of information.

With regard to national space legislation, there seems to be a growing willingness of states to enter into a more concrete discussion. Therefore, this Committee should seriously consider the elaboration of a

concrete model law based on the building blocks that have already been adopted by this Committee. Such law would serve as model for states wishing to embark in the process of drafting national space legislation.

*Note from the Chair*

*This contribution by Committee member Professor Vladimir Kopal (Czech Republic) is of clear relevance and therefore included as an Annex to the ILA Space Law Report adopted in Rio de Janeiro. Professor Kopal is currently Chair of the United Nations Committee on the Peaceful Uses of Outer Space - COPUOS (Legal Subcommittee).*

Annex to the Rio Report of the Space Law Committee

Some Comments on the Legal Aspects of the Privatisation and Commercialisation of Space  
Activities to be discussed at the meeting of the ILA Space Law Committee,  
Rio de Janeiro, 20 August 2008.

At the outset of these comments, I should like to appreciate the quality of the report, which offers an excellent basis for discussions of the Committee at the 73<sup>rd</sup> ILA Conference in 2008. The report brings not only an analytical summary of the efforts of the Committee during the recent period, but also a realistic outline for the next programme of its activities. In this connection, the outstanding presentation of the ILA at the sessions of the UN COPUOS Legal Subcommittee and other meetings held within and outside the United Nations should be mentioned. As a participant to the UN sessions, I have had the occasion to witness the high quality of the documents submitted by ILA and of the statements made by its representatives to the competent UN bodies.

From among the ideas and suggestions relating to the first part of the report, which deals with Remote Sensing, I consider as the most interesting the analysis of the possible role of satellite data in international and national litigation. In particular, I agree with the observation that the legal sector is still not adequately engaged in thinking about whether these technologies have the capabilities to provide new sources of valuable legal information. The elaboration of international rules or standards as one of the remedies, could indeed bring greater confidence within the legal sector in order to recognise the space means as a reliable form of evidence. The ILA Space Law Committee might concentrate on these aspects of the remote sensing issue during the next period.

As to the part of the report dealing with registration issues, it is possible to concur with its evaluation of the present situation, which emerged following the adoption of the General Assembly resolution 62/101 of 17 December 2007. The 1975 Registration Convention brought a resolution of the most impending questions, such as the definitions of the terms "launching state", "space object" and "State of registry". It also provided a set of legally binding rules for establishing national registries and the UN Register, and for the contents thereof, including the cases where there are two or more launching States of any space objects or when an international intergovernmental organisation conducts space activities. In this respect, the present report brought two specific suggestions that should be recalled here:

One concerns the interpretation of the formula "as soon as practicable", which is embodied in paras. 1 and 3 of Article IV, as meaning 24 - 72 hours after the launch. In my opinion, however, it is hardly possible to consider this specification as realistic in the light of actual practice and also with regard to actual needs. The diplomatic formula used in the Convention resulted as a compromise solution of different approaches to this issue during the negotiations on the Registration Convention, which probably have not been completely overcome up to now.

Another suggestion of the report concerns privatised international organisations, such as Intelsat and Inmarsat - and probably also Intersputnik - to be treated as private enterprises. In my opinion, though, this issue should be still analysed in greater detail, particularly in conjunction with Article VI of the Outer Space Treaty of 1967, which deals with international responsibility for "national activities in outer space".

Unlike the 1975 Registration Convention which is a legally binding treaty, the 2007 General Assembly resolution 62/101 remains a set of recommendations for guiding the practice of States and international intergovernmental organisations in registering space objects. It may be hoped that these recommendations will become obligatory some day, but they have been the maximum that could be done in order to reach an agreement on them.

I consider the section called "Space Debris revisited" as one of the most significant parts of the report. As correctly stated, an adequate legal regulation of this issue has been kept under review of the ILA Committee which produced, as a single international organisation, the Draft ILA Instrument on Space Debris, adopted by consensus at the ILA Conference in 1994. The recent developments in UN COPUOS should encourage ILA and its Space Law Committee to continue paying attention to this issue. The adoption of UN Guidelines on Space Debris Mitigation by General Assembly resolution 62/217 of 21 December 2007, which were developed during a long lasting negotiation by the COPUOS Scientific and Technical Subcommittee, must be welcomed as an important measure for protecting the space environment, particularly for its NEOs and the GEO. It is to regret that the guidelines were elaborated without any cooperation with the COPUOS Legal Subcommittee and the implementation thereof will depend only on voluntary steps to be undertaken by their addressees. As already mentioned in the report, the fact that an item relating to space debris appears on the agenda of the Legal Subcommittee for the first time has been a positive step in the right direction, notwithstanding that it should be only an item for discussion limited to "general exchange of information on national mechanisms relating to space debris mitigation measures". The ILA Committee should be well prepared for this deliberation and its representative should make a meaningful input to this discussion to be presented at the next session of the LSC. It is to agree that with due regard to the outcome of the UN Subcommittee deliberation, the 1994 ILA Instrument on Space Debris could be revisited during the 74<sup>th</sup> ILA Conference in 2010.

In the last part of the report, which was prepared by the General Rapporteur of the Committee and dedicated to the subject "National Space Legislation and Registration of Space Objects", I wish to support the idea of a concrete model for the drafting of future national laws. This endeavour, however, should be well coordinated with the progress in the consideration of the item proposing "the general exchange of information on national legislation relevant to the peaceful exploration and use of outer space in accordance with the work plan adopted by the Committee", which started at the 2008 session of the COPUOS Legal Subcommittee and should be completed in 2011. It should be also borne in mind that the UN General Assembly requested the UN Office for Outer Space Affairs, in its resolution 62/101, "to make available to all States and international intergovernmental organisations a model registration form reflecting the information to be provided to the Office for Outer Space Affairs, to assist them in their submission of registration information".

Finally, if the ILA Space Law Committee also embarks on a discussion on some perspective items for its future programme, I would like to draw its attention to one of the possible major topics, namely the legal regime of the exploration and use of the Moon and other celestial bodies, including the future exploitation of their resources. The 1979 Moon Agreement, which so far has collected only a limited number of adhesions and might be eventually reviewed in the light of practice and new projects, has already been a subject of interest of some other space law organisations and ILA should continue looking into this topic<sup>23</sup>.

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<sup>23</sup> Note by the Chair: The Report of the ILA Space Law Committee to the 70th Conference (New Delhi 2002) contains a detailed analysis of the Moon Agreement in the current international context made by committee member Frans von der Dunk (Netherlands Branch and Special Rapporteur on the topic) with comments by the Committee Chair as well. A Resolution was subsequently adopted by the 70<sup>th</sup> Conference stating that *'The common heritage of mankind concept has developed today as also allowing the commercial uses of outer space for the benefit of mankind, and that certain adjustments are suggested to Article XI of this Agreement concerning the international régime to be set up for the exploitation of moon resources, which will make it more realistic in today's international scenario'*, (Resolution 1/2002, p.14 of Report. Also part V of the Space Law Committee Report and ensuing discussion at the New Delhi working session).