

INTERNATIONAL LAW ASSOCIATION
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SPACE LAW

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Second Report

**LEGAL ASPECTS OF THE PRIVATISATION AND
COMMERCIALISATION OF SPACE ACTIVITIES
REMOTE SENSING AND NATIONAL SPACE LEGISLATION**

INTRODUCTION

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

Further to our last Conference in 2004 in Berlin¹ a number of experts of international renown have joined this Committee. Our very warm welcome to Steven Freeland (Australia), Joanne Irene Gabrynowicz (USA), Ram Jakhu (Canada), Sergio Marchisio (Italy), David Sagar (UK) and Kai-Uwe Schrogl (Germany).

The Committee regrets to announce the loss of one of its distinguished members, Professor Alexis Goh (Australia), who passed away in June 2005. Colleagues and friends shall ever remember Professor Goh for her friendliness, easy-going style and readiness to contribute to the work of the Committee with ideas of quality. Tribute was paid to her memory in ILA Newsletter N° 23 (July 2005).

The Committee's terms of reference for 2004-2006. Different stages

This Second Report of the Space Law Committee aims at highlighting the most controversial issues addressed in our work submitted to the Berlin Conference, with the purpose of laying down the pillars for concrete proposals on remote sensing (RS) and national space legislation (NSL), to be presented to the

¹ Hereinafter 'Berlin Conference'.

ILA 73rd Conference in 2008. Both topics -of an unquestionable evolving nature- appear, in today's international scene, very much linked.

As anticipated in Berlin under the heading "Future Work of the Committee"² of the Report, the Committee further notes that remote sensing and national space legislation are being increasingly related to the registration of objects launched into outer space, an activity governed by the 1975 Registration Convention. This Convention, however, has been only timidly supported by the international community and calls for adjustments in order to be consistent with the present time. In fact, the various shortcomings of this text are now becoming a matter of concern at all levels -governmental and private, domestic and international- in view of the decreasing number of space objects being registered with the UN Secretary-General, as statistics clearly indicate³.

Therefore, over the nearly two years elapsed between the Berlin and Toronto Conferences, the Committee sensed the need to include registration issues in the context of this Second Report and, to be practical, link them to remote sensing and national space legislation from the initial stages of our work. Consequently, and following our traditional practice of circulating a Questionnaire to Committee members before embarking on the preparation of the Conference Report, three sections were included therein dealing, in turn, with state practice relating to remote sensing, national space legislation and registration.

Registration is, by no means, an issue new to this Committee. As may be recalled, it was addressed and discussed in the framework of the London 2000 and New Delhi 2002 ILA Conferences, under the general heading *Review of Outer Space Treaties in View of Commercial Space Activities*, and on the basis of Professor Vladimir Kopal's Special Report on the subject. This distinguished member of our Committee identified a number of Articles of the 1975 Convention in need of urgent clarification⁴.

On 8-10 June 2005 the University of Cologne recognised the importance of registration issues by dedicating one of the sessions of its International Symposium on *Project 2001 Plus 1 - Global and European Challenges for Air and Space Law at the Edge of the 21st Century*⁵ to the discussion of "Common Issues in Air and Space Law. Envisaging future Aerospace Applications. The examples of Registration and Liability". On this occasion, marked by the presence of members of our Committee invited to participate in the Symposium in different capacities, the importance of national space legislation, and its link to registration, were reflected in the consensus reached at this session. As our General Rapporteur, Professor Stephan Hobe points out in Part Two of the present Report, the international *obligations*⁶ embodied in the 1967 Space Treaty and in the Registration Convention have not yet been grasped in their proper dimensions by the international community. This accounts for the problem gaining momentum.

A powerful indication of concern on the matter was shown by the Legal Subcommittee of the UN Committee on the Peaceful Uses of Outer Space⁷ in 2005, when setting up a Working Group on Registration under the chairmanship of our distinguished Committee member Niklas Hedman to carry out, on the governmental level, a three-year research programme on current state practice.

The following figures, provided by the Copuos Secretariat⁸, are very telling. Before the 1975 Registration Convention, and under UNGA Resolution 1721B (XVI), 129 objects were launched into outer space in 1972, all of which were registered (0 % unregistered objects). In 1990, 165 objects were launched into outer space of which 160 were registered (9 % unregistered objects). In 2002, 92 objects were launched into outer space of which 73 were registered (20 % unregistered objects). In 2004, 72 objects were

² See *Report of the Seventy-First Conference of the International Law Association - Berlin 2004*, 732-759, at 752-753, and Working Session, 760-772, Chapter on Space Law entitled *Report on the Legal Aspects of the Privatisation and Commercialisation of Space Activities - Remote Sensing and National Space Legislation* (ILA London, printed by Cambrian Printers, Aberystwyth, UK).

³ See UN Committee on the Peaceful Uses of Outer Space (Legal Subcommittee, 44th Session, April 2005), Doc.A/AC.105/C.2/2005/CRP.10, 14 April 2005 (English only) entitled *REGISTRATION STATISTICS FOR 1957-2004*, Note by the Secretariat.

⁴ See *Reports of the Sixty-Ninth (London) and Seventieth (New Delhi) Conferences of the International Law Association*, 571-603 and 192-227 respectively. (ILA London, printed by Cambrian Printers, Aberystwyth, UK).

⁵ The Proceedings of this International Symposium will be published shortly.

⁶ Italics of the present writer.

⁷ Hereinafter 'LS of Copuos' or, simply, 'LSC'.

⁸ See op.cit. in note 3 *supra*.

launched into outer space of which only 50 were registered (30.5 % unregistered objects). Indeed we are going downhill in this regard.

Hence the gist of our Questionnaire, as follows:

The ILA Space Law Committee Questionnaire ⁹
(circulated early 2005)

- I. State Practice on the 1986 UN Remote Sensing Principles (UNGA Resolution 41/65)**
1. Which of the Principles do not, in your opinion, reflect
 - general state practice?
 - the practice of your country?

It would be helpful if you could give reasons for your answer.
 2. In your opinion, should the Remote Sensing Principles be
 - discussed in new light without further implications

or

 - discussed with a view to modification? If so, which of the Principles need adjustments?
 3. If you consider it necessary to adjust the Principles, what kind of legal instrument would you recommend to that end?
 - a convention?
 - a new UNGA Resolution?
 - other?
 4. What is your view on the advisability of encouraging, at this stage, bilateral and regional agreements to cover imprecisions in the UN Principles?
- II. State Practice on National Space Legislation**
1. Does any national legislation on remote sensing activities exist in your country?
Is any such legislation being planned for the foreseeable future?
 2. Could you briefly describe the main features of your legislation?
 3. If there is no national space legislation in your country, would you recommend the adoption of laws on the topic?
- III. State Practice on Registration**
1. Is there any national legislation on the registration of space objects in your country?
 2. Does your country have a national registry?
 3. What are the registration procedures regarding
 - fees?
 - time span?
 - insurance requirements?
 - other?

The answers to this Questionnaire -which will be addressed in Part One of this Report- reflect a broad cross-section of opinion of great interest to the Committee's objectives. My special thanks to our General Rapporteur, **Professor Stephan Hobe** (German Branch) for outlining this useful Questionnaire in addition to producing a scholarly Second Report on national space legislation for the Toronto Conference. I am also very grateful to our members, **Joanne I Gabrynowicz** (USA Branch), **Mahulena Hofmann** (German Branch), **Niklas Hedman** (Swedish Branch), **Ram Jakhu** (Canadian Branch) in consultation with **Pat Gleeson**, **Armel Kerrest** (French Branch), **Vladimir Kopal** (HQ), **José Monserrat Filho** (Brazilian Branch), **David Sagar** (UK Branch), **Gabriella Venturini** (Italian Branch) and **Frans von der Dunk** (Netherlands Branch) for their most intelligent and useful contributions.

The Committee, as permanent observer to Copuos, was represented at the annual meetings of this UN body during 2005 both at the Legal SubCommittee and the Full Committee of the world organisation. The Committee is indebted to Mr. Niklas Hedman for presenting the ILA Space Law Committee's Reports and Resolutions to Copuos and explaining the advances and results of our studies. Professor Vladimir Kopal has kindly agreed to represent us at the 2006 Session of the LSC in Vienna (3-13 April).

⁹ Hereinafter referred to as 'The ILA Questionnaire' or, simply 'The Questionnaire'.

As customary, the Committee keeps the very topical subjects of space debris and dispute settlement under permanent review on the basis of (a) the *ILA International Instrument on the Protection of the Environment from Damage caused by Space Debris* (adopted in Buenos Aires by the 66th ILA Conference) and (b) the *Convention on the Settlement of Disputes related to Space Activities* (adopted by the 68th ILA Conference). The Committee Chair reports annually on the ILA work on space debris to the Yearbook on International Environmental Law (Oxford University Press).

The Committee has continued to work in cooperation with Copuos and the UN Office for Outer Space Affairs in Vienna. The Chair and the General Rapporteur of the Committee, together with some of its members, took active part in a United Nations / Brazil Workshop entitled *Disseminating and developing international and national space law: the Latin American and Caribbean perspective*¹⁰ (Rio de Janeiro, 21-25 November 2004). A fluid cooperation is equally maintained with the International Institute of Space Law of the International Astronautical Federation and the International Academy of Astronautics as well as with the European Centre of Space Law and other regional and national institutions around the world to which our Committee members are linked. These activities have been reported regularly and recorded in the ILA Newsletters.

In accordance with the objectives stated at the outset of this Second Report and following the methodology set forth for the preparation of the previous one (Berlin 2004) our General Rapporteur, Professor Stephan Hobe, continues hereby addressing national space legislation in Part Two of this Report. In Part One, the Committee Chair pursues the treatment of the various legal aspects underlying remote sensing activities. In both cases there shall be references to registration issues.

Future work of the Space Law Committee

The objective of the Committee is to finalise work on the legal aspects of remote sensing and national space legislation by 2008 with a view to submitting concrete proposals on both topics to the 73rd Conference of the ILA. In this context emphasis will be given, over the next two years, to registration issues focusing on (a) the progress of this matter at governmental level within the Legal SubCommittee of Copuos, and (b) a further comparative study of state practice in today's world. Some concrete suggestions are expected for this topic as well.

As usual, space debris and dispute settlement will continue under the permanent review of the Space Law Committee and the question of satellite imagery as evidence in court will be further addressed under the general heading of "remote sensing".

The Committee will follow closely any new developments in these fields with a view to making proposals for work in the aftermath of the 2008 Conference. It is suggested to have a brief exchange of views on this point in Toronto.

PART ONE

REMOTE SENSING, EARTH OBSERVATION SATELLITES AND REGISTRATION ISSUES

**By Professor Dr. Maureen Williams (HQ)
C o m m i t t e e C h a i r**

A. The 1986 UN Principles on Remote Sensing: twenty years on

Given the close connection between the topics involved in this Second Report of our Committee, a slight overlapping might sometimes occur. This was evident during the Berlin working session when one of our members referred to the possibility of the ILA drafting a "national model law on remote sensing"¹¹. In fact, when exploring the potential avenues of remote sensing activities and registration issues it may be necessary to touch upon national space legislation, and viceversa. In general, however, the perspectives should be different.

¹⁰ See *Proceedings of the United Nations/Brazil Workshop on Space Law*, ST/SPACE/28, Office for Outer Space Affairs (United Nations Office at Vienna, United Nations 2005).

¹¹ See op.cit. in note 2 *supra*, at 768. This view was voiced by Dr. M. Hofmann.

At the Berlin working session the Space Law Committee focused, *inter alia*, on a list of fourteen conclusions and recommendations on remote sensing submitted by this Chair. On general lines, and after an inspiring debate, this text was agreed upon at the meeting and the fourteen points were seen, at the time, as common denominators of the thinking in this field¹². What follows is therefore an overview and discussion of new developments, and their possible impact, further to the 2004 Berlin Conference. For practical reasons, the text of the 1986 UN Principles on Remote Sensing and the fourteen conclusions and recommendations (Berlin 2004) are included as Annexes 1 and 2 to this Report.

As the history of our Committee records, specialists from all lanes of international law and other sciences, including academics, practitioners and governmental and private institutions, were once again approached to assess the problem in today's context. Across this spectrum a rich variety of positions existed, ranging from the adamant advocates of the "surrender of sovereignty" stance, - as applied to remote sensing - to those proclaiming that these activities should be carried out in full freedom just as the data distribution and marketing of the data collected.

This disagreement - which, to some extent, may be identified with the positions of the developing and industrialised worlds- would appear to be slowly fading into the background if compared to the sharp confrontation which marked the first stages of remote sensing technologies. The reason, as observed in the Berlin Report, is the growth of space activities¹³ and the increasing access of developing countries to these technologies which meant their becoming sensing states as well. In-between these extreme positions different shades may still be detected, as revealed by the number and contents of regional and international agreements presently in force involving both groups of states. Indeed international cooperation has a crucial role in this field.

Similarly, some confrontation exists to date concerning the legal nature of the UN Principles on Remote Sensing. A majority sees them today as declarative of customary international law. Nevertheless, some authors show doubt, at least with respect to some of the Principles, further indicating the necessity for a thorough overview of state practice without delay.

Therefore, to be realistic, it is not unreasonable to suppose that the confirmation by state practice of the observance of these Principles is a merely coincidental fact. The Principles, *per se*, might not always be considered by some states when embarking on activities of the kind.

The doctrine generally concurs that there are gaps in the Principles, a number of them not possibly foreseen at the time of their adoption. Some gaps are being conveniently bridged by regional and international agreements which, due to their pragmatism, are easing the way to overcome this vagueness. Another group of Principles still remains obscure with the inevitable consequence of opening the door to divergent interpretations.

In this quest for greater legal certainty most of us have agreed, at different stages in the work of this Committee, that the political moment is unfavourable to the introduction of amendments to the Principles and, even less so, to the drafting of a binding international instrument to replace them.

The present author senses that the political will of sovereign states will not be changing in the years to come or, at least, in the more or less foreseeable future. Yet new -possibly unexpected- factors may well trigger a change of attitude and turn the tides.

However that may be, from our findings on the subject it is considered timely for the ILA to produce a set of guidelines or interpretation rules on the UN Principles. This simply means to examine the Principles in new light, as already agreed in Berlin, at least for the time being. A step forward would be, no doubt, a discussion of the Principles within the LS of Copuos.

A clear indication that things are moving in the right direction was given by the Symposium on Recent Developments on Remote Sensing, organised by the International Institute of Space Law (IISL) and the

¹² See the Report on Remote Sensing by the present writer, op.cit. in note 2 *supra*, 732-759, in particular Section D entitled *Comments and Suggestions from the Committee Chair*, 751-752 (included as Annex 2 to this Report). Suggestions 2 (drafting of guidelines) and 8 (enactment of domestic legislation) included in that list were considered of utmost importance by the Special Rapporteur of the Committee for the Berlin Conference, N. Hedman, 766.

¹³ On this point, however, see J.Gabrynowicz's comments below, when dealing with her answers to the Questionnaire.

European Centre for Space Law (ECSL)¹⁴ on 11 April 2005, in Vienna, on the occasion of the forty-fourth session of the LS of Copuos, and in which some of our Committee members participated.

I shall now move on to the comments and suggestions by our distinguished members and other experts in answer to the Questionnaire.

B. The outcome of the Questionnaire - Further perceptions on the need to revise the UN Principles

The present chapter and the following (chapter C) will focus on sections I and III of the Questionnaire, namely remote sensing and registration. The contributions will be taken in alphabetic order¹⁵.

1. Does State practice reflect the application of the 1986 UN Principles?

Professor Joanne Gabrynowicz (USA Branch), one of the Committee's newest members, addresses the topic with authority as publicist of note and present Director of the National Remote Sensing and Space Law Center of the University of Mississippi. This expert was not yet member of the ILA at the time of the Berlin Conference. Thus, her views are not registered in the Berlin Report. For this reason some of her most recent contributions on the subject will be taken into account herewith as well¹⁶.

In the first place, Gabrynowicz draws attention to an important new development in remote sensing activities whereby some developing nations have also become sensing states. The stark dichotomy between sensing/developed states vs. sensed/developing states is shifting and presents new opportunities in the further development of remote sensing law. Secondly, the changes undergone by remote sensing entities are brought to attention. In Gabrynowicz's own words when answering our Questionnaire, those entities are increasingly hybrid as a result of merging both government and private characteristics, civil and military functions, national interest and global functions.

The scenario depicted by this US specialist takes us to a rather familiar legal issue reminiscent of the initial days of Intelsat and Inmarsat, i.e. to determine the legal personality of these hybrid institutions and their ensuing accountability. In turn, this leads us to the sphere of sovereign immunity and its frontiers in the world of today. On this point, and as observed in Berlin by the present Chair, the activities of private entities in space weaken the principle of sovereign immunity and, therefore, dispute settlement procedures become more flexible¹⁷.

Gabrynowicz draws our attention to another interesting development in remote sensing, clearly perceived in the USA, whereby commercial systems have decreased from three to two and are already, or on their way to, becoming dependent on government customers. These facts raise the question as to whether or not these activities are growing, consolidating or shrinking. At the same time, the *Landsat* programme is back as a civil public good and is now the responsibility of NASA and the Department of Interior since attempts to commercialise it have failed.

The following provides a glaring example of the dynamic and evolving nature of remote sensing activities, as observed at the outset. In a Memo from the US Executive Office of the President, Office of Science and Technology Policy, dated 23 December 2005 -kindly provided by Gabrynowicz- it is stated that the Landsat follow-on as part of the National Polar-orbiting Operational Environmental Satellite System (NPOESS) no longer stands. It will be a "free-flyer" instead. However, *it remains* the goal of the

¹⁴ See *Proceedings of the IISL/ECSL Symposium on Recent Developments in Remote Sensing and the Desirability of Reviewing the 1986 United Nations Principles relating to Remote Sensing of the Earth from Outer Space*, Doc. A/Ac.105/C.2/2004/CRP.8, 11 April 2005. Speakers included ILA Committee members Dr M.Hofmann, Professor J. Gabrynowicz and Professor S.Marchisio.

¹⁵ The opinion of Committee members is personal and is not necessarily linked to the institutions to which they belong. Committee members are appreciative of Professor Gabrynowicz's very generous remarks, in other international fora, on the contents and conclusions of the ILA Berlin Report 2004.

¹⁶ See, *inter alia*, J. I. Gabrynowicz's comments on the discussion paper by M.Williams, on *Space Law and Remote Sensing Activities*, submitted to the UN/Brazil Workshop, Rio de Janeiro, 21-25 November 2004 (published in the *Proceedings of the Workshop on Space Law* quoted in note 10 *supra*, 143-159, and 121-136, respectively). Likewise, Gabrynowicz's presentation to the IISL/ECSL Symposium, cited in note 14 *supra*, *The 1986 United Nations Principles and current state practice in North America*, 13-26.

¹⁷ See *op.cit.* in note 2 *supra*, 736, concerning the weakening of the principle of absolute immunity in view of the growing activities of private entities in space, thus easing the way for future agreements. Also, UN/Brazil Workshop on Space Law, same author, *op.cit.* in note 10 *supra*, p. 121.

US Government to transition the Landsat programme from a series of independently planned missions to a sustained operational programme funded and managed by a US Government operational agency or agencies, international consortium, and/or commercial partnership.

Therefore, with the objective of not affecting the validity of the Principles by revision, this US writer recommends a realistic discussion on their applicability having in mind these trends¹⁸. Further illustrations thereof are *ImageSat International* and *Spot Image*, both of them reporting that the market could not support their business.

The present involvement of developing countries in sensing activities - which paves the way for establishing state practice in this respect - and the growth and coordination of global monitoring activities are factors to be equally considered in that context. Moreover, in a possible process of considering whether or not a revision of the Principles would be productive it would be practical to identify, beforehand, specific areas in which consensus is more likely to be reached¹⁹. This appears an essential pre-requisite if and when the LSC decides to revisit the Principles on the basis of a proposal made in 2004 by the delegations of Argentina, Brazil, Chile, Colombia, Cuba, Ecuador, Greece, Mexico and Peru²⁰.

The right of access enshrined in Principle XII, as seems from the Committee's answers to the Questionnaire, surfaces as tricky territory. Nevertheless, Prof. Gabrynowicz draws our attention to the new realities which, on this issue, may bring about winds of change. In her own words, "...The emerging trends of global monitoring systems and developing nations as sensing states are integrating developing nations into co-ordinated international space-based activities... Participation in these activities enables developing nations to take action that can establish evidence of state practice to enhance and protect the right to access data..."²¹.

Moreover, experience is showing that formal, consistent claims by sensed states on the basis of Principle XII may well establish international custom. For their part developing countries can, as sensing states, use this status to lay down evidence of state practice²².

This author concurs with the Berlin conclusions in the sense that bilateral, regional and multilateral agreements may be seen as a practical approach today²³.

Finally, a word on the role of equity in tailoring the relationship between sensed and sensing states, a question addressed by Gabrynowicz at the UN/Brazil Workshop on Space Law²⁴ to which she refers us in her answers above. Gabrynowicz quotes a thought-provoking remark from a letter to her, in 1992, by one of the space law pioneers, Judge Manfred Lachs, and which I, in turn, take the liberty to quote: "Equity is a bridge between man and the law. You may apply it to land and to sea (as I have done) but to outer space too!"

Mr Niklas Hedman (Swedish Branch), one of the Committee's Special Rapporteurs to the Berlin Conference, notes that some details in the Principles could be outdated and that, as the text should be applied and interpreted as a whole, it is hard to single them out. This is particularly so for Principles I, IV, XII, XIII and XIV. Concerning definitions, however, Principle I is not as narrow as appears at first sight as it speaks of "resource management and land use" which, in Hedman's view, is a topic wide

¹⁸ See Memorandum on the subject *Landsat Data Continuity Strategy Adjustment* from the Director of the Office of Science and Technology Policy, John H. Marburger III, for: the Secretary of State, the Secretary of Defense, the Secretary of the Interior, the Secretary of Agriculture, the Secretary of Commerce, the Secretary of Health and Human Services, the Secretary of Transportation, the Secretary of Homeland Security, Administrator, Environmental Protection Agency, Assistant to the President for National Security Affairs, Director of National Intelligence Administrator, National Aeronautics and Space Administration, Director, National Science Foundation. (Washington, 23 December 2005).

¹⁹ See J. Gabrynowicz, op.cit. in note 10 *supra*, UN/Brazil Workshop on Space Law, 145. The present ILA Committee Chair supported this idea in her paper *The 1986 UN Principles on Remote Sensing today* submitted to the 48th Colloquium of the International Institute of Space Law, Fukuoka, October 2005.

²⁰ See Doc. A/AC.105/826, 21, paragraph 125, Report of the LSC adopted on 8 April 2004.

²¹ See J. Gabrynowicz, op.cit. in note 10 *supra*, 150.

²² *Id.*, 151.

²³ *Ibid.*

²⁴ See op.cit. in note 10 *supra*, 157-8.

enough to include new areas of remote sensing applications. In the case of Sweden, state practice indicates that the Principles are being applied.

Dr Mahulena Hofmann (German Branch) answers both for her country of origin, the Czech Republic, and of residence, Germany. She enumerates a number of Principles which, in her view, are not practised by states on the international level, i.e. Principles IV, V, XII and XIII. When answering for Germany Hofmann added, to her list, Principles I, X and XI and XV. This author especially points out the shortcomings of Principle I in the present time, thus disagreeing with Hedman on the question of definitions. In the Czech Republic there is no major role for the UN Principles as these activities are based mainly on private law contracts. Speaking for Germany, Hofmann observes that Principle XIII reflects a situation of the eighties when remote sensing activities were essentially state-oriented²⁵.

Professor Ram Jakhu (Canadian Branch), in consultation with **Pat Gleeson**, direct their comments to Principle XII on the right of access of sensed states to the raw and processed data concerning their territories. Strictly speaking, this right appears as an "unqualified right of access". However, in the present time, states with domestic law on the subject tend to "reserve the right to deny access" to the said information, such as the proposed Canadian law will be proclaiming.

Professor Armel Kerrest (French Branch) coincides with Hofmann on the narrow implications of the definition on remote sensing activities in Principle I which, he points out, downgrades their interest. In general, this specialist considers that the UN text reflects state practice, both globally and in France. However, Principle XII is somewhat unclear when referring to "reasonable cost terms" as these cannot be confined to market costs only. This idea was put forward by Kerrest in the Berlin Report²⁶.

Professor Vladimir Kopal (HQ), in line with his thoughts on the subject expressed at the Berlin Conference and the UN/Brazil Workshop²⁷ (Rio de Janeiro, November 2004), indicates that the practice of states and other entities under their jurisdiction does not reveal the application of the UN Principles as a whole. In this sense, careful study should center on Principles IV, IX, XII and XIII. Furthermore, Principles X and XI should be revised in today's international context.

Professor José Monserrat Filho (Brazilian Branch), also Special Rapporteur on the subject for the Berlin Conference, champions the position of developing countries, a group which, as pointed out by Professor Gabrynowicz²⁸, does not necessarily coincide today with the category of "sensed states".

Consistent with his Berlin Introductory Report and later contributions on the topic²⁹, Monserrat considers that most of the UN Principles are not reflected in state practice today. In this sense Principles I, II, IV, V, IX, X and XII are listed. Furthermore, Principles V, VI and XIII lack proper international cooperation mechanisms to be effective whereas Principles XIV and XV show no state practice at all. Accordingly, in Monserrat's view, Principles I, IV, V, VI, VII, IX, X, XI, XII, XIII and XIV should be reviewed. The net result is, therefore, that for this expert only Principle III, whereby remote sensing activities shall be conducted in accordance with international law; the 1967 Outer Space Treaty and the ITU relevant instruments; Principle VIII, related to international cooperation, technical assistance and coordination of the activities; and Principle XV on dispute settlement should remain untouched for the moment. Indeed all three Principles, of an indisputable declaratory nature, are hardly controversial. Even though it is always possible to improve on them, they have not really been targeted for urgent revision by our Committee members.

The answers to the Questionnaire by **Mr David Sagar** (British Branch) reflect his rich Inmarsat experience and command of useful specific information. Remote sensing in the UK is closely linked with the licensing systems applicable to this activity. The British National Space Centre (BNSC) is responsible for implementing the 1986 UK Outer Space Act and for issuing licenses in respect of space activities under that Act. A license is issued on behalf of the Secretary of State for Trade and Industry (DTI). This

²⁵ For further elaboration on this topic see M.Hofmann, *The International Legal Framework of Remote Sensing in the Year 2005: Changed Conditions and Changed Needs?*, op.cit., loc.cit. in note 14 *supra*.

²⁶ See op.cit. in note 2 *supra*, 746.

²⁷ See note 10, *supra*.

²⁸ J. Gabrynowicz in her answers to the 2005 ILA Questionnaire.

²⁹ See Dr Monserrat Filho's comments on the discussion paper submitted by Professor Maureen Williams to the UN/Brazil Workshop on Space Law (details in note 10 *supra*), entitled *Space Law and Remote Sensing Activities*, 137-142 and 121-136 respectively.

author agrees with the BNSC - whose policy has always been to encourage remote sensing - that all the UN Principles are reflected in UK state practice and should not be seen as imprecise. If in doubt, the *travaux préparatoires* are looked at so as to establish the intention of the drafters, in accordance with Article 32 of the Vienna Convention on the Law of Treaties.

To date, the BNSC has considered each licensing application for a scientific satellite in the context of the space mission proposed. The commercial policy will be developed in line with project needs and take into account practices such as those applied by the US National Oceanic and Atmospheric Administration (NOAA).

In practice, Sagar observes, the BNSC requires general compliance with the UN Principles as a condition for issuing licenses for remote sensing satellites. So far, he adds, one such license has been issued for a natural disaster monitoring satellite and another application for an optical observation satellite is being processed.

Compliance with Principle XII is essential insofar as licensing is concerned and the BNSC considers that access to data by the sensed state on reasonable cost terms is the main obligation of the licensee. The term "reasonable costs" - a matter of concern to some of our Committee members, expressly pointed out by Kerrest and Montserrat in Berlin - means for the BNSC "the lowest commercial price available for the data". If unreasonable, the licence of the satellite operator could be terminated³⁰. The responsibility of the UK government under Principle XIV is made effective through the licensing provisions in the 1986 UK Outer Space Act.

As noted in Berlin under "Comments and Conclusions on Remote Sensing" (points 8 and 9) of the present Chair's Report, and subsequent contributions to the UN/Brazil Workshop³¹ and the IISL 48th Colloquium in Fukuoka³², the UK experience is yet another illustration of the close relationship between remote sensing activities and national space legislation, as well as of the importance of enacting domestic laws and specific licensing procedures to ease the application of these technologies.

Professor Gabriella Venturini (Italian Branch), in carrying forward her views detailed at the Berlin Conference, points out that the wording of each Principle is often the result of a compromise between very divergent positions. This makes them flexible enough to be applied, to some extent at least, in current practice. Principle II, however, when using the phrase "in the benefit and in the interest of all countries" is reflecting a very ambitious goal. Principles VIII and IX, in practice, have not given the UN much of a central role, particularly given the growth of remote sensing programmes carried out by non-governmental actors. This has weakened the requirement of notification to the UN Secretary-General and, at the same time, entailed a closer collaboration with other fora, such as the CEOS and IGOS partnerships, the GMES Programme and the integration with global earth observation systems like GEOSS. As far as right of access is concerned (Principle XII) Venturini believes it would be better protected by means of cooperative agreements than by reference to the Principles. This specialist is therefore confirming the Berlin conclusions in the sense that bilateral, regional and international agreements are a realistic means to interpret the gaps in the Principles and assure full respect of the rights proclaimed.

Principle XIV (obligation of states to carry out remote sensing activities in accordance with the Principles) is likewise examined by Venturini who observes that, in some cases, states might not have effective control over private entities carrying out activities under their jurisdiction.

The following comment takes us back, almost naturally, to the obligation embodied in Article VI of the 1967 Space Treaty concerning authorisation and supervision of private activities in space. This, as indicated earlier, is a mandatory provision which has not been really understood by states in its proper dimension³³.

³⁰ See BNSC website at www.bnsc.gov.uk.

³¹ See op.cit in note 10 *supra*.

³² See op.cit. in note 19 *supra*.

³³ See p.2 of the present Report. Professor Hobe has emphasised this point in recent years, in the clearest of terms, *inter alia*, in 2002 in the New Delhi Conference Report, in the 2005 International Symposium organised in Cologne on 'Project 2001 Plus - Global and European Challenges for Air and Space Law at the Edge of the 21st Century', and

Dr Frans von der Dunk (Netherlands Branch), our Committee's Special Rapporteur on national space legislation for the Berlin Conference, has shown firm views on remote sensing throughout these years. State practice, he says, has generally reflected the UN Principles and, to his knowledge, no state has acted openly in breach thereof. As many of our members have done, von der Dunk centers his attention on the right of access, thus seeing Principle XII as a key principle in this context. First, he highlights certain imprecisions in the wording of this Principle, pointing out that the terms "on a non-discriminatory basis", as applied to the right of access of sensed states, is by no means synonymous with "non-discriminatorily". Secondly, he pauses on the implications the term "discrimination" may have in the context of Principle XII. This expert makes clear that, even though the Netherlands has no independent remote sensing capacity, it is involved in the activity as member of the European Space Agency (ESA) and EUMETSAT. It may therefore be considered that state practice in the Netherlands has duly respected the UN Principles.

2. On the need for further discussion and /or adjustment of the Principles

Only **Ram Jakhu and Pat Gleeson** squarely opposed this idea observing that a step of the kind might result in the weakening of the Principles in view of the present political environment in the USA.

Nevertheless, a majority of our members considers that, in the present stage, a discussion of the text in new light, without further implications, would be useful. Some of them suggest the elaboration of "ILA Interpretation Guidelines". Others feel that this discussion should lead to proposals on a number of somewhat obscure questions and most of them coincide that Principle XII is crucial in this context. From a strictly legal standpoint it cannot be denied that a binding international instrument would be the best goal. However, in the awareness that this possibility would run counter to the political will of states, the Committee appears inclined towards a UNGA Resolution or a separate protocol laying down interpretation guidelines. Many of our members and other experts consulted concur that a fresh discussion of the Principles in the framework of the LS of Copuos appears a realistic goal. There is general agreement on the role played by regional arrangements in filling, in practice, some of the gaps in the Principles but some caution is needed.

Let us now glance through the answers. In a more careful approach designed to prevent the weakening of the Principles, **Joanne Gabrynowicz** recommends a practical course of action, namely the identification of areas on which consensus is more likely, before getting involved in a revision of the Principles. **Niklas Hedman** stresses the need to concentrate on the language of the Principles and its consistency twenty years later, given the fact that the military and, in general, dual uses of remote sensing are now a reality. It is premature at this stage to think of adjusting the Principles, whether by means of a binding or non-binding international instrument. **Mahulena Hofmann** holds that the Principles should be revisited at this stage with a view to modification considering that, when agreed upon, they were intended for state activities alone. This should be done either by means of a non-binding ILA Instrument, following the example set forth by the ILA Instrument on Space Debris (1994), or by a code of conduct which could be later turned into a UNGA Resolution. In this light, Principles X and XII, on the obligation to inform, should be extended to the activities of "other entities under state supervision". The encouragement of international agreements on the topic, she adds, is already addressed in Principle VI. **Armel Kerrest** equally agrees on the need to complement the Principles although he recognises the difficulties inherent to this task. From an academic point of view he considers it desirable to enlarge the Principles to cover all remote sensing activities, including the military and/or dual uses. Yet, the harsh facts of reality make it very unlikely. For similar reasons Kerrest believes that an UNGA Resolution is preferable to a convention. Contrary to Hofmann's view, he feels that the encouragement of bilateral and regional agreements may be useful in this field.

In responding to this question **Vladimir Kopal** believes it justified to discuss the Principles today. Once this stage is over it will be more realistic to decide whether the set of principles needs to be revised and/or supplemented by a special UNGA Resolution along the lines of Res. 59/115 on the application of the concept of "launching State". As to bilateral and regional agreements on international cooperation, this expert states that they might help improve state practice in the field. **José Monserrat Filho** fully supports the idea of revision of the Principles which, for the time being, should be contained

in an UNGA Resolution. Likewise, he considers the value of regional agreements to further state practice on remote sensing and mentions all the Principles, except III, VIII and XV, as being in need of clarification. **David Sagar**, in line with the opinion of the British National Space Centre - which is based on recent practices in the UK - does not, as pointed out earlier, consider the Principles imprecise or in need of changes. However, their implementation should continue under discussion in light of new and evolving developments. This, he adds, does not necessarily mean modification.

In similar position, **Gabriella Venturini** considers that a discussion of the Principles would be useful without this meaning changes or adjustments thereto. She suggests, *inter alia*, addressing the following questions: (a) Principle I, as remote sensing today covers a much wider range of activities, such as verification of disarmament and arms control treaties, and the monitoring of environmental agreements; (b) Principle III, referring to international law, as a result of the relationship between civil and military remote sensing which may entail breaches thereof; Principle XII, on the right of access of the sensed state, especially in connection with commercial activities and intellectual property issues and (d) Principle XIV on the relationship between state responsibility and domestic or international liability for unlawful use of data. Venturini sees with favour the drafting of an "ILA Updated Commentary" on these points which could also address other questions not covered by the Principles. **Frans von der Dunk** is strongly in favour of a substantial discussion of the Principles with a view to modification, especially because there is too much of a focus on the sensed-state vs. sensing-state dichotomy, which no longer stands. There should be specific provisions on the role of commercial/private remote sensing activities. Furthermore, the definition of the activity should be made broader. To this end von der Dunk prefers a convention for reasons of clarity and transparency. However, having in mind the political arena, a UNGA Resolution would be easier to negotiate but it should not replace the existing one. Rather, it should be a supplement to cover issues left untouched by UNGA 41/65. As to the role of bilateral and regional agreements to bridge lacunae in the Principles, von der Dunk recommends certain caution since they could tend to disrupt any existing global coherence of the system.

3. Comments by the Committee Chair

To sum up, the lowest common denominator drawn from the answers and proposals received would be an agreement to discuss the Principles, or simply to talk about them, without further implications for the moment except for the possibility of drafting some ILA Guidelines on Interpretation. Initially, it appears wise to single out the questions where consensus appears more viable and decide which Principles to address and in which order. In this overview, almost every Principle has been the object of comments. However, at the moment, Principle XII seems one of the most controversial. As Gabrynowicz points out, the fact that many developing countries are now sensing states is a hopeful indication of progress in this field because further practice will be generated. Second in line is possibly Principle I and the narrowness of its definition, targeted by many of us. In brief, our Committee members have shown exceptional skill in identifying outstanding issues and their complexities as well as envisaging the most sensitive and controversial areas to be negotiated in the field.

Another main common denominator is the fact that dual uses are now a reality, as is the military use of remote sensing. To this we may add the need to prompt a further awareness of states in connection with the authorisation and supervision of the activities of non-state actors within their jurisdictions. This could be implemented by enacting national laws to this effect which would duly cover licensing issues.

In assessing the validity of the Principles there are two main approaches: one is to determine whether they are part of customary international law as reads Conclusion 1 of the Berlin Report³⁴. The other, which we have chosen to follow in this Report, states the key issue in reverse, that is to say, does state practice reveal that the Principles are being observed? Or, rather, does the practice of all entities, governmental and private, indicate that the Principles are, in fact, being taken into account when using these technologies? Be that as it may, in accordance with the foregoing overview the answer would be, predominantly, in the affirmative, regardless of the very subjective challenge of establishing whether this is just a coincidence or an *opinio juris* that is beginning to grow.

The prevailing opinion, possibly the soundest, is that the Principles do reflect, in great measure, international custom. A general practice no doubt exists and the psychological element -coincidental or otherwise- shows as well.

³⁴ See op. cit. in note 2 *supra*, 751.

Whether it is states or non-state actors carrying out remote sensing activities, in the medium term general practice should be providing more legal certainty. It should be borne in mind that, ultimately, it is states that will be called upon to respond and shall be held accountable for the practices of private entities, involved in space activities, under their jurisdiction. States are therefore expected to gradually become more careful when authorising and supervising the remote sensing practices of these entities. In this manner, the obligation embodied in Article VI of the 1967 Space Treaty would be more adequately fulfilled.

Consequently, if and when the Committee embarks on the drafting of the suggested interpretation guidelines, it should never lose sight of the present international scene, together with all its interacting components, the dynamic nature of the remote sensing activity, and its different applications today.

Should a larger number of non-governmental entities become involved in remote sensing, even with governments as customers, this must be welcomed inasmuch as dispute settlement procedures become more agile by the application of mechanisms well-grounded in the field of private international law without the potential risk of states bringing up, at some stage, sovereign immunity clauses.

C. Remote Sensing and Registration

Section III of the Questionnaire, as noted earlier, deals with registration issues. Further to my comments on this matter at the outset, it is important to point out that registration is a topic not only tied in with remote sensing and national space legislation but with other areas of space law as well. First and foremost is the definition and delimitation of outer space, a topic on which the LSC has established a Working Group to revisit the problem, with **José Monserrat Filho** acting as chairman. Just as relevant are the questions surrounding space traffic management. Both are extremely topical today but lie outside our terms of reference for Toronto. In the field of registration proper it is fair to say that UNGA Resolution 59/115, on the application of the concept of "launching state", will be helpful to overcome a - so far - important hurdle.

That said, let us now have a look at the comments and suggestions from Committee members. The year 2006 marks the second year of the task of the UN Working Group on Registration set up at the 44th Session of the LSC of Copuos in 2005. The Working Group will be focusing, during the 45th Session of the LSC, on a Background Paper prepared by the Secretariat³⁵ as well as the following issues: (a) harmonisation of practices (administrative and practical); (b) non-registration of space objects; (c) practice with regard to transfer of ownership of space objects in orbit and (d) practice with regard to registration/non-registration of "foreign" space objects. Likewise, a conference room paper containing statistical information (quoted at the beginning of this Report) was also being considered³⁶ and the idea is to invite states to send information on their registration practices. As this LSC meeting is scheduled for 3-13 April 2006, i.e. after the time this Report is put on the ILA website, the proceedings and results shall be a matter of discussion at the Space Law Working Session of the forthcoming ILA Toronto Conference.

In the meantime, I shall highlight some points of interest made by **Mr Hedman** on the **Swedish system**. The Decree of Space Activities (1982:1069) defines the role of the Swedish National Space Board with regard to the authorisation and supervision of space activities and the managing of the Swedish national registry, and sets forth the national requirements for the registration of space objects where Sweden is considered the launching state in accordance with the 1975 Convention. Certain aspects of remote sensing activities, such as the handling of databases, are included in an Act (1993:1742) dealing with the protection of information on land use and the setting up of an archive of the remote sensing data is now beginning to be discussed. Hedman adds that there are no fees for registration and the time span for a licence is around 2-4 months from the date of application. No compulsory insurance exists to date. The **US**, according to **Professor Gabrynowicz's** statement, has detailed regulations on commercial remote sensing since 2000, issued pursuant to the Land Remote Sensing Policy Act of 1992³⁷. There exists a national registry as well as domestic legislation on registration, the procedures of which vary for public and private entities. In **Germany**, pursuant to **Dr Hofmann's** answers, no national legislation on remote sensing or registration is yet in force. The German registry for space objects is part of the Aviation Registry, under the Federal Aviation Office. The average unofficial time span for a license is three months. **Professor Kopal** explains that in the **Czech Republic** a national registry was created by means

³⁵ See Doc. A/AC.105/C.2/L.255 and Corr.1 and 2.

³⁶ See A/AC.105/C.2/2005/CRP.10.

³⁷ See op.cit. in note 10 *supra*, 151 *et seq.*

of an administrative procedure and is in the hands of the Institute of Atmospheric Physics, Academy of Sciences of this country. This Republic is a party to the 1975 Registration Convention and information on all space objects launched by the former Czechoslovakia, and the Czech Republic as her successor, has been recorded in the UN Register. There are no specific national laws on remote sensing, nor is this possibility foreseen for the immediate future. In **Canada**, as stated by **Professors Jakhu and Pat Gleeson**, there is no specific legislation on remote sensing but there are presently proposals before the Canadian Parliament. The Department of Foreign Affairs and International Trade maintains a national registry.

France, as **Professor Kerrest** informs, has no national law on remote sensing to date. At the moment a report is in progress within the Conseil d'État where these activities, as well as registration, are being considered. France does have a national registry and, on this point, Kerrest underlines the necessity of drawing a line between registration and licensing, the latter being much wider than the former. He points out that, according to Art. I of the Registration Convention, a state may be liable as a launching state and still not be the state of registration. Insurance requirements, he adds, should be connected to licensing procedures and not to registration. No fees are required in this country for the registration of a space object which, in Kerrest's view, is appropriate as fees are established for the licensing thereof. The time limit for registration is not altogether clear in France (the text of the relevant provision reads "when a space object is launched" which, in this author's view, should be done "immediately"). Kerrest summarises a number of useful remarks in three main points, (a) the obligation to register stemming from Article 2 of the Convention: States *shall*³⁸ register, which in turn raises another problem, i.e the transfer of ownership in orbit; (b) every space object should be registered, which should be interpreted in a broad sense to include non-functional objects, as practice indicates in the US and France. This, Kerrest adds, would be a good way to mitigate space debris as it would mean an effort to launch only one spare part with each satellite, and finally (c) the data to be included in the registration procedure should be made more precise in the Registration Convention (Article 4). This suggestion is in line with the ILA New Delhi Report and Conference Resolution adopted on the recommendation of its Space Law Committee on the basis of the proposal made by the Special Rapporteur, Prof. Kopal, and widely supported by the doctrine. As Kerrest observes, there is an obligation to inform the UN of any change in the interest of precision. Here again, a better knowledge of space debris could be attained.

In **Brazil**, a rather dated regulation on remote sensing may be found. As **Professor Monserrat Filho** notes, it applies to remote sensing from aircraft which is an entirely different area. However, it is now being replaced with new law. A recent step was taken when, on 20 February 2006, the Brazilian National Congress decided to accede to the Registration Convention. This decision was confirmed by the Federal Senate and the decree was promulgated and published in the Official Gazette on 22 February. The Registration Convention will become effective for Brazil the day the instrument of accession is deposited with the UN Secretary-General. Brazil does not have any domestic laws on registration but, in these new circumstances, the issue is expected to be addressed shortly. During the nineties, Monserrat explains, a number of satellites were anyway registered by this country pursuant to UNGA Resolution 1961, such as the first Brazilian Satellite for Data Collection (SCD-1), the first scientific satellite (SACI-1), both registered on 24 February 1993, and the first Chinese-Brazilian Earth Resources Satellite (CBERS-1), registered on 14 December 1999. Conversely, CBERS-2, launched on 21 October 2003, has neither been registered by Brazil nor by China. The same applies to Brasilsat, the Brazilian telecommunication satellite. Indeed, this situation could lead Brazil, as launching state, to be responsible for any damage caused thereby. This country has not set up a national registry so far but this stage should follow shortly, according to Monserrat, in the framework of the Brazilian Space Agency (AEB). Finally, this specialist suggests that our Committee explore further regional and bilateral cooperation programmes on remote sensing as a means to overcome political barriers and open new alleys for really effective cooperation. In the **United Kingdom** the 1986 Outer Space Act is applied to remote sensing activities and registration, as explained earlier, and, as **Mr Sagar** has indicated, is currently under review. Section 7 of this Act provides that the government shall maintain a register of space objects containing the details it deems necessary for compliance with its international obligations. The UK has also a Registry of Space Objects in respect of which the UK is a "launching state" within the meaning of the 1975 Registration Convention. There is, in addition, a Supplementary Registry of Space Objects in respect of which the UK has granted a license under the 1986 Act (for Inmarsat satellites, for example, which had not been licensed by the UK government prior to their transfer to a UK private company in 1999). This thinking is equally applicable to the transfer of the ownership of a satellite after launch, and whilst in orbit. The

³⁸ Italics of the present author.

current fee for each licence is in the region of £ 6500 plus administrative costs for processing licence applications. A rise in those fees is to be expected. In addition, licensees are required to obtain insurance cover of £ 150 million per licence and to name the UK government as an "additional insured". This liability is confined to cover liability during the launch phase and does not necessarily extend to in-orbit liability. Finally Sagar draws attention to certain EC legislation affecting the use by member states of remote sensing: (a) member states have the option of using remote sensing for monitoring claims for Common Agricultural Policy as well as (b) to use remote sensing for monitoring fish catches. The first option has been chosen by the UK to monitor in the agricultural policy field. Concerning fish catches the use of remote sensing is governed by national law of which the primary legislation is the Fisheries Act 1981 and a number of regulations, schemes and orders adopted in 2004.

In the case of **Italy**, **Professor Venturini** reports that a bill on the ratification and implementation of the Registration Convention was submitted to the Italian Parliament on 1 July 2004. The bill contained detailed provisions on the registration procedures entrusted to the Italian Space Agency which will maintain the national registry. The latest news is that the whole procedure has now gone through and, consequently, on 8 December 2005 Italy became a party to the Registration Convention. **Dr von der Dunk**, on the **Netherlands**, explains that there is yet no specific law on remote sensing in this country but a draft is currently underway, dealing with a licensing system and procedures for private space activities, and which would include remote sensing. As to registration, an interim procedure is being established to be appended to a future national space law if and when adopted.

Information concerning **Argentina** is added hereunder by the Committee Chair. The National Space Agency (*CONAE - Comisión Nacional de Actividades Espaciales*) comes under the aegis of the Ministry for Foreign Relations. Dr Conrado Varotto is the Executive and Technical Director thereof and, at the moment, presides over the Committee on Earth Observation Systems (CEOS). The country's National Space Programme for 2004-2015³⁹, whereby space activities are established as a national priority, is focusing mostly on the use of earth observation satellites. In spite of the country, so far, lacking national space legislation this idea is gradually gaining ground. The UN Principles are being observed and applied at the moment in the framework of regional agreements on international cooperation, sometimes covering aspects on which the Principles remain silent. The possibility of setting up a regional space agency, along the lines of ESA, is envisaged by the above-mentioned National Space Programme as is the establishment of a station in Antarctica for the collection of satellite data.

CONAE maintains a national registry for space objects, created on 19 July 1995 by Decree N° 125/95. This Decree is implemented by CONAE Resolution N° 260 (1999) which establishes, *inter alia*, the fees to be paid for the registration of space objects (approximately US\$ 180 per satellite). The Registration Convention was approved in 1992 by a law of the Argentine Congress⁴⁰ and is, therefore, part of the law of the land. Registration with CONAE is mandatory and attributes to Argentina national jurisdiction and control over the space objects registered in the country. Entries in the registry must include a large number of details which go far beyond the requirements laid down by the Registration Convention⁴¹.

The National Council for Scientific and Technical Research of Argentina (Conicet) has been running a number of space law projects - streamlined by an interdisciplinary dialogue - conducted by the present writer and dealing with different aspects such as space debris, environmental risks, responsibility and liability for space activities, dispute settlement and remote sensing. On the latter, Project "Earth

³⁹ This *Plan Espacial Nacional*, called '*Argentina en el Espacio 2004-2015*', was enacted on 24 May 2005 by a presidential decree. Dr Conrado Varotto is an active participant in the Copuos Sessions in Vienna as well as in the International Astronautical Federation Congresses and other related meetings.

⁴⁰ National law N° 24158 (Argentine Congress).

⁴¹ The following information is mandatory in accordance with Argentina's national registration procedures: (1) in case of joint launches with other countries, the text of the corresponding agreements; (2) name of the object; (3) date and place of launching, date envisaged for recovery or loss of contact or desintegration of the space object and date of termination of the mission or lifespan of the space object; (4) Basic orbital parameters; (5) General function established for the object; (6) Name and address of the proprietors and/or operators of the space object; (7) companies responsible for its construction; (8) providers of launch services; (9) Insurance; (10) location and characteristics of the telemetry, telecommand and control station of the satellite; (11) frequency and power of transmission of the space station on board; (12) mass details; (13) lifespan; (14) precautions relating to contamination; (15) date of registration.

Observation Satellites and their applications by the industrialised and developing world"⁴² is well underway.

Noteworthy for its results in the last five years, and as sound example of international cooperation⁴³, is a national scientific mission being developed by SAC-C. This satellite - as its predecessors SAC-A and SAC-B which have already concluded their missions - was built in Argentina by a local state company called "Invap S.E." as main contractor. SAC-C was launched and positioned in low orbit by NASA on 21 November 2000. The resulting images are being used for agricultural purposes, the protection of the environment and emergencies in general. The mission is using French technology (ICARE-NG) to study the influence of solar particles and is expected to be followed by SAC-D/Aquarius in 2009, presently under construction. This new satellite, likewise equipped with French technology, i.e. ICARE-NG plus three SODAD detectors, will be able to identify and study micrometeorites and debris in the space environment, to perform "clouds" analysis, understand kinetics of space damage and evaluate orbital population and its evolution⁴⁴. Another development of importance is SIASGE, based on an agreement signed in 2003 between Argentina and Italy, focusing on the management of emergencies and natural disasters as well as the monitoring of natural resources. In this framework Argentina is responsible for the construction of two of the satellites composing the constellation (i.e. SAOCOM 1A and 1B)⁴⁵.

D. Remote sensing data in international litigation

This question, unfolded in the New Delhi Report⁴⁶, was examined in the Berlin Report⁴⁷ and Working Session thereof where strong views were voiced on the need to articulate solutions. The problem was subsequently revisited by the present author in a discussion paper for the UN/Brazil Workshop⁴⁸ on which Professors Monserrat and Gabrynowicz made pointed comments directed to the dangers and suspicion arising from digital imagery given the deficiencies in the authentication methods⁴⁹. On 6 April 2005 our Space Law Committee was represented at a ECSL Conference at Surrey University (UK point of contact) entitled "Current Issues in Earth Observation", where the topic of satellite imagery in court was especially addressed. The subject was followed up at the 48th Colloquium of the IISL in Fukuoka in October 2005⁵⁰.

The crux of this problem is, no doubt, one of substance. As Prof. Kerrest was observing in Berlin, unlike aerial photographs, digital images -which are in fact a collection of data- can be easily modified without possibility of detection. This situation runs counter to the use of satellite imagery in court, particularly in international boundary disputes. The International Court of Justice, throughout the nineties, provided glaring examples thereof, as described in the Berlin Report. Consequently, the advantages - particularly the precision - offered by this new possibility are being downgraded and sometimes lost.

Manipulation of digital data is today affecting other areas as well. It has become quite troublesome for science in recent times, particularly in the field of biology, with some very unfortunate recent illustrations concerning human embryonic stem cells. In fact, 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.

⁴² See Conicet at www.conicet.gov.ar, *Proyecto de Investigación Plurianual - PIP N° 5718 (2005-2006) on "Los satélites de observación de la Tierra y sus aplicaciones en el Derecho Internacional Contemporáneo. Países industrializados y en desarrollo"*, under the direction of the present author.

⁴³ The institutions involved are NASA (US), CONAE (Argentina), INVAP S.E. (Argentina) and CNES (France). SAC-C, together with Landsat 7, EO-1 and Terra (US) are part of the "am constellation" for observation of the Earth.

⁴⁴ Information provided by Conae, Argentina.

⁴⁵ Furthermore, satellite SAOCOM 1 - A is presently under construction, also with INVAP S.E. as main contractor. This satellite is integrated into the Italian-Argentine Satellite System for Emergency Management (SIASGE), as informed in our Berlin Report (see *op.cit.* in note 2 *supra*, at p. 737, note 6), together with COSMO-Skymed constellation (ASI). Saocom is a new generation of satellites able to collect information under all meteorological conditions and time of the day since its operation does not require sun illumination and the radar is not affected by clouds, fog or rain as are optical cameras.

⁴⁶ See *op.cit.* in note 4 *supra*, 212.

⁴⁷ See *op.cit.* in note 2 *supra*, pp. 748-751 and discussion at the Berlin Working Session, 760-772.

⁴⁸ See *op.cit.* in note 24 *supra*, 132-135.

⁴⁹ See J. Gabrynowicz, *op.cit.* in note 10 *supra*, 158.

⁵⁰ See *op.cit.* in note 19.

This situation is prompting a response from scientific journals. *The Journal of Cell Biology* (US), for example, is using a test whereby the manuscripts are run through Photoshop⁵¹, a procedure which has revealed extensive photo-manipulation and mis-representation of data in breach of the Journal's guidelines.

Back in our field, efforts should be aimed at giving this question a more positive spin. An agreement on international standards concerning authentication and reliable methods for the production of satellite imagery should not be postponed. It is imperative to supervise the manner in which the data is being interpreted. Indeed, the control of the whole process of data collection, from the very first stage (raw data) up to the time it is transformed into digital data and the end product made use of, is a basic requisite for the transparency of this technology, its mechanisms and applications. Next to these suggestions, the various sources consulted indicate the advisability of drawing up a list of highly qualified experts to which both the parties to a dispute, and the courts and tribunals, may be able to resort for interpretation of satellite data.

The problem remains outstanding and the doctrine divided. Lawyers and judges have conflicting views on the subject, many of them showing mistrust where satellite imagery as a means of evidence is concerned. Hence it would be useful for this Committee to round up a few conclusions on the matter for the 2008 ILA Conference, together with the concrete proposals, announced at the outset, on remote sensing and national space legislation.

Buenos Aires, February 2006

Annex 1

Principles Relating to Remote Sensing of the Earth from Outer Space (UNGA Res. 41/ 65)

Principle I

For the purposes of these principles with respect to remote sensing activities:

- (a) The term "remote sensing" means the sensing of the Earth's surface from space by making use of the properties of electromagnetic waves emitted, reflected or refracted by the sensed objects, for the purpose of improving natural resources management, land use and the protection of the environment;
- (b) The term "primary data" means those raw data that are acquired by remote sensors borne by a space object and that are transmitted or delivered to the ground from space by telemetry in the form of electromagnetic signals, by photographic film, magnetic tape or any other means;
- (c) The term "processed data" means the products resulting from the processing of the primary data, needed to make such data usable;
- (d) The term "analysed information" means the information resulting from the interpretation of processed data, inputs of data and knowledge from other sources;
- (e) The term "remote sensing activities" means the operation of remote sensing space systems, primary data collection and storage stations, and activities in processing, interpreting and disseminating the processed data.

Principle II

Remote sensing activities shall be carried out for the benefit and in the interests of all countries, irrespective of their degree of economic, social or scientific and technological development, and taking into particular consideration the needs of the developing countries.

Principle III

Remote sensing activities shall be conducted in accordance with international law, including the Charter of the United Nations, the Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies, and the relevant instruments of the International Telecommunication Union.

Principle IV

⁵¹ If an object is enlarged beyond the proper resolution, Photoshop may generate extra pixels. If the object is rotated, another set of pixels is generated in a characteristic pattern. See *The Buenos Aires Herald*, Vol. 6, N° 258, 'On Sunday with the New York Times', 20.

Remote sensing activities shall be conducted in accordance with the principles contained in article I of the Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies, which, in particular, provides that the exploration and use of outer space shall be carried out for the benefit and in the interests of all countries irrespective of their degree of economic or scientific development, and stipulates the principle of freedom of exploration and use of outer space on the basis of equality. These activities shall be conducted on the basis of respect for the principle of full and permanent sovereignty of all States and peoples over their own wealth and natural resources, with due regard to the rights and interests, in accordance with international law, of other States and entities under their jurisdiction. Such activities shall not be conducted in a manner detrimental to the legitimate rights and interests of the sensed State.

Principle V

States carrying out remote sensing activities shall promote international cooperation in these activities. To this end, they shall make available to other States opportunities for participation therein. Such participation shall be based in each case on equitable and mutually acceptable terms.

Principle VI

In order to maximize the availability of benefits from remote sensing activities, States are encouraged, through agreements or other arrangements, to provide for the establishment and operation of data collecting and storage stations and processing and interpretation facilities, in particular within the framework of regional agreements or arrangements wherever feasible.

Principle VII

States participating in remote sensing activities shall make available technical assistance to other interested States on mutually agreed terms.

Principle VIII

The United Nations and the relevant agencies within the United Nations system shall promote international cooperation, including technical assistance and coordination in the area of remote sensing.

Principle IX

In accordance with article IV of the Convention on Registration of Objects Launched into Outer Space and article XI of the Treaty on Principle Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies, a State carrying out a programme of remote sensing shall inform the Secretary-General of the United Nations. It shall, moreover, make available any other relevant information to the greatest extent feasible and practicable to any other State, particularly any developing country that is affected by the programme, at its request.

Principle X

Remote sensing shall promote the protection of the Earth's natural environment. To this end, States participating in remote sensing activities that have identified information in their possession that is capable of averting any phenomenon harmful to the Earth's natural environment shall disclose such information to States concerned.

Principle XI

Remote sensing shall promote the protection of mankind from natural disasters. To this end, States participating in remote sensing activities that have identified processed data and analysed information in their possession that may be useful to States affected by natural disasters, or likely to be affected by impending natural disasters, shall transmit such data and information to States concerned as promptly as possible.

Principle XII

As soon as the primary data and the processed data concerning the territory under its jurisdiction are produced, the sensed State shall have access to them on a non-discriminatory basis and on reasonable cost terms. The sensed State shall also have access to the available analysed information concerning the territory under its jurisdiction in the possession of any State participating in remote sensing activities on the same basis and terms, taking particularly into account the needs and interests of the developing countries.

Principle XIII

To promote and intensify international cooperation, especially with regard to the needs of developing countries, a State carrying out remote sensing of the Earth from Space shall, upon request, enter into consultations with the State whose territory is sensed in order to make available opportunities for participation and enhance the mutual benefits to be derived therefrom.

Principle XIV

In compliance with article VI of the Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies, States operating remote sensing satellites shall bear international responsibility for their activities and assure that such activities are conducted in accordance with these principles and the norms of international law, irrespective of whether such activities are carried out by governmental or non-governmental entities or through international organizations to which such States are parties. This principle is without prejudice to the applicability of the norms of international law on State responsibility for remote sensing activities.

Principle XV

Any dispute resulting from the application of these principles shall be resolved through the established procedures for the peaceful settlement of disputes

Annex 2

ILA Berlin Conference 2004 - Comments and conclusions from the Chair (Berlin Report, p.751)

In the following draft conclusions I shall attempt to draw some common denominators from the views and proposals submitted during the last two years.

1. The UN Principles on Remote Sensing (1986) are, at global level, the only international instrument providing specific rules and criteria on the subject. Most of them are nowadays declarative of customary international law and therefore binding .
2. Given that remote sensing technologies are today a commercial activity *par excellence*, and that space activities carried out by private entities are unrelentingly growing, it appears appropriate to begin the drafting of guidelines to cover certain gaps in the Principles and provide interpretation criteria to shed light on some of the general principles.
3. The definitions laid down in Principle I are not consistent with the present international context. The Principles are silent on significant aspects of remote sensing in today's world, *inter alia*, the distribution, dissemination and commercialisation of data collected by earth observation satellites and subsequently processed.
4. The Principles make no mention of the scope and implications of certain terms embodied therein such as, for example, "access to data on the part of sensed states", "needs of developing countries", "reasonable costs", "consultations" and "state responsibility".
5. There is no consensus within the Space Law Committee -nor within the doctrine at large- on the need to have a binding international instrument on remote sensing.
6. The general feeling, particularly at the inter-governmental level, is that premature solutions should be avoided , especially as no serious claims have been raised so far.
7. Consequently the political arena does not appear favourable for drawing up binding rules.
8. Thus a realistic course of action at this time would be the enactment of domestic law on remote sensing coupled with a revision by governmental bodies and private institutions of the most controversial and/or incomplete aspects of the UN Principles.
9. Domestic legislation should address, in a first stage, issues relating to the protection and distribution of data and licensing procedures, with a view to giving greater transparency to remote sensing activities.
10. Industrialised and developing countries provide today examples of national space legislation and bilateral and regional agreements on remote sensing, addressing issues on which the UN Principles remain silent.
11. As to the protection of data obtained by remote sensing it seems advisable that national laws, in the light of Article VI of the 1967 Space Treaty, deal with questions relating to the authorisation and supervision of private activities in space.

12. Having in mind the high number of States Parties to the 1967 Space Treaty, Article VI thereof may be seen as part of the domestic legislation of a good number of members of the international community.

13. International cooperation is called upon to play a major role in carrying out remote sensing activities, particularly in the ironing out of differences between industrialised and developing countries.

14. It appears timely, within the framework of commercial space activities and their various applications, to start considering guidelines and suggestions on the value of data collected by earth observation satellites and its value as evidence in international and national litigation. In this way the International Law Association would be making an important contribution to a debate which, in the first years of this millennium, is gradually gaining momentum.

PART TWO

NATIONAL SPACE LEGISLATION AND REGISTRATION OF SPACE OBJECTS

Professor Dr. Stephan Hobe (German Branch)

General Rapporteur

1. Introduction

The present section of the Space Law Committee Report (Part Two) is dedicated to current legal issues with regard to national space legislation, with a special emphasis on the registration of space objects.

Under the theme “Legal Aspects related to the Privatisation and Commercialisation of Space Activities. Remote Sensing, National Space Legislation and related questions”, the ILA Space Law Committee is continuing its work with a concrete mandate from the 2004 Berlin Conference. With regard to national space legislation the Berlin mandate was a recommendation that the Committee should discuss the four “building blocks” concerning

1. authorisation of space activities,
2. supervision of space activities,
3. registration of space objects and
4. regulation of compensation.

With a view to conducting a realistic legal assessment, it was considered appropriate to examine current state practice in the field of national space legislation, with special emphasis on the registration of space objects.

In order to have a further insight of current state practice with regard to national space legislation and registration of space objects, the Space Law Committee distributed a Questionnaire in December 2004 as a pre-stage to the preparation of the Committee's Report for the 2006 ILA Conference in Toronto. Thus, the evaluation of the answers from the Committee members to this Questionnaire shall constitute the core of this Report, followed by concrete recommendations for a future work programme.

2. Past Work of the Committee with Regard to National Space Legislation and Registration of Space Objects

At the New Delhi Conference in 2002, Resolution 1/2002 on the “*Review of Space Law Treaties in View of Commercial Space Activities*” was adopted by consensus at the Plenary Session. The Space Law Committee had recommended certain changes to the present space law treaties in force, to be carried out without modifying the original text of the treaties, but resorting to separate legal instruments instead.

In the Resolution and the corresponding Report, additions to Article VI of the Outer Space Treaty, in particular the introduction of an obligation to enact national space legislation, were suggested. Another proposed addition to the Outer Space Treaty refers to its Article VIII and an obligation to register space objects both with a national and an international register.

With regard to the Registration Convention, the introduction of a separate protocol or UNGA Resolution dealing with the unification of national registries and the clarification of certain terms (such as “launching state”) was recommended.

At the meeting of the International Law Association in Berlin 2004, the Space Law Committee found that the search for practical solutions for current issues in national space legislation was of great importance⁵². Current state practice concerning national requirements for private space activities was considered a major item which needed to be clarified before the Committee started drafting concrete suggestions for the framework of a possible model law.

3. Project 2001 Plus Workshops of the University of Cologne and DLR on National Space Legislation and Registration

The results of the Project 2001 Plus Workshop “*Towards a Harmonised Approach for National Space Legislation in Europe*”, held in Berlin in January 2004, were already summarised in the Committee’s Report for the 2004 ILA Conference in Berlin⁵³. The conclusion of the workshop was that the next step should be the drafting of a model law, addressing in particular the four building blocks mentioned above as well as additional regulation in the field of “fair competition”.

Building upon the respective results of their common workshop on national space legislation, the Institute of Air and Space Law of the University of Cologne and the German Aerospace Center (DLR), in the framework of Project 2001 Plus, jointly organised a workshop on “*Current Issues in the Registration of Space Objects*” which took place in Berlin in January 2005⁵⁴. The workshop was divided into four sessions, dealing with the following topics:

Session 1: Introduction

Session 2: Policy Issues

Session 3: Specific Issues

Session 4: Other and Future Issues

In Session 1, workshop participants agreed that the UN register is and should remain the main source of information provided by governments and international organisations on all types of space objects. In order to strengthen the role and function of the UN register, all states involved in the launch or operation of space objects should become parties to the Registration Convention. The necessity and importance of national registration was also emphasised in a way that all data contained in the international register should appear in the national registry as well.

Session 2 of the workshop examined current policy issues and particularly addressed the problem of the information provided by registering states considerably varying in format and content. Another significant point was the identification of the fact that the interpretation of the “procurement” of a launch according to Art. I a) of the Registration Convention leaves room for interpretation, especially in those cases where private entities are involved in the launch or operation of a space object. For instance, the UK and the Netherlands have declared explicitly that in case of space objects launched by private entities they consider themselves neither the ‘launching state’, nor ‘state of registry’ nor ‘launching authority’ for the Registration Convention, the Liability Convention or the Rescue Agreement⁵⁵. Taking into account these declarations, it seems questionable whether such states would enact national space legislation treating the issues of registration and liability effectively. It was suggested that member states to the Registration Convention should study their respective national practices in order to identify the crucial areas in need of harmonisation and improvement.

In Session 3 specific issues such as the transfer of ownership of objects in space and the role of ‘inter-party agreements’ according to Article II (2) of the Registration Convention were discussed. If there were two or more launching states, such inter-party agreements become necessary in order to establish the state of registry. It was also stressed that the registration of launcher and payload seems to require individual registration in certain cases.

In the framework of Session 4, international experts underlined the absence of a proper relationship between the UN Register provided by the Office for Outer Space Affairs (OOSA) and the catalogues

⁵² See the *Report of the ILA Space Law Committee to the 2004 Berlin Conference*, Space Law Committee: *Report on the Legal Aspects of the Privatisation and Commercialisation of Space Activities*”.

⁵³ See Hobe/Schmidt-Tedd/Schrogl (editors), *Towards a Harmonised Approach for National Space Legislation in Europe*, (Proceedings of the Project 2001 Plus Workshop on 29/30 January 2004 in Berlin, Cologne 2004).

⁵⁴ See Hobe/Schmidt-Tedd/Schrogl (editors), *Current Issues in the Registration of Space Objects*, (Proceedings of the Project 2001 Plus Workshop, January 2005 in Berlin, Cologne 2005).

⁵⁵ For further details see the following papers in the workshop proceedings: O. Ribbelink, *The Registration Policy of the Netherlands*, 53 *et seq.* and Tremayne-Smith, *UK Registration Policy & Practices*, 59 *et seq.*

provided by COSPAR and ITU. It was proposed that links should be established through the OOSA website to other international registers containing information on space objects, such as that of the ITU. Experts also agreed on the fact that the strengthening and improvement of the Registration Convention was of essential relevance for developing a comprehensive system for space traffic management in the future.

4. International Symposium in Cologne in June 2005

The international symposium “*Project 2001 Plus – Global and European Challenges to Air and Space Law at the Edge of the 21st Century*”, jointly organised by the Institute of Air and Space Law of the University of Cologne and the German Aerospace Center (DLR), took place in Cologne from 8 to 10 June 2005. At the same time the Institute –as the oldest institution of its kind in the world- celebrated its 80th birthday. Session 1 was dedicated to “*Perspectives for more National Space Legislation*” and underlined that harmonised national space legislation was necessary in order to achieve a regulated playing field for commercial entities. Although some means for action on the part of the European Union were identified, it was suggested to implement these aspects by cooperation and coordination, including international agreements among states.

In the present state of the law, according to Article VI OST, states are liable and responsible irrespective of the implementation of national space legislation. National space legislation should serve the functions of both controlling and supporting space activities. Experts stressed the necessity of international agreements between the space- faring states in order to ease the implementation of national space legislation. Other issues of concern were the lack of a requirement for private UN register information, the issue of licence shopping and the definition of the term “appropriate state”.

In Session 4 “*Common Issues in Air and Space Law: Envisaging Future Aerospace Applications – The Examples of Registration and Liability*” participants concluded that effective registration of space objects required national space legislation with clear standards for the required information on the national registry. The participants in the Symposium also outlined parallels and differences that can be established between air transport and transportation of passengers in outer space with regard to registration, liability, certification and unruly passengers.

5. Current Discussions in COPUOS Legal Subcommittee

In the year 2004 the Legal Subcommittee of the United Nations Committee on the Peaceful Uses of Outer Space (UN COPUOS) began a work plan on the “*Practice of States and International Organizations in Registering Space Objects*”. The work plan should on the one hand encourage States to adhere to the Registration Convention, improve its application and enhance the effectiveness of the Convention and, on the other, assist in developing and strengthening national legislative norms relating to the registration of space objects⁵⁶.

During the meeting of the Legal Subcommittee in Vienna in April 2005, delegates expressed the view that in recent years there had been a steady decrease in the registration of space objects and that the failure to register those objects undermined the outer space treaties. It was also suggested that the implementation and application of the Registration Convention would be enhanced if the form and content of the information transmitted to the United Nations by States was harmonised into certain fixed standards. Furthermore, delegates put forward the proposal that the Subcommittee should consider questions relating to the uniformity of information transferred into the UN Register, to international adjustments which are made when more than one State is involved in the launch of a space object, and also to registration of space objects within a certain time-limit following their launch.

In 2006, the working group on the “*Practice of States and International Organizations in Registering Space Objects*” intends identifying common practices and making recommendations for increasing adherence to the Registration Convention. In particular, the issues of harmonisation of practices, non-registration of space objects, practice with regard to transfer of ownership of space objects in orbit, and practice with regard to registration of “foreign” space objects are listed for further discussion.

6. Evaluation of the Questionnaire: national space legislation and registration (Items II and III)

⁵⁶ See the *Report of the COPUOS Legal Subcommittee on its 44th session* (Vienna from 4-15 April 2005, UNGA Doc. A/AC.105/850, 20).

On the basis of the past work of the Committee, the workshops and the Symposium of Project 2001 Plus and the working plan of the COPUOS Legal Subcommittee the conclusion follows that more national space legislation is needed in order to fill the existing gaps in the international legal framework, especially as regards the Outer Space Treaty, the Registration Convention and the Liability Convention. It is the clear objective of the ILA Space Law Committee, in accordance with the mandate of the 2004 Berlin Conference, to make a proposal for cornerstones on national space legislation and to ensure that the legal requirements for an effective national implementation of the Outer Space Treaty and the Registration Convention are clearly defined. In order to be able to make concrete suggestions for a future work plan, current state practice with regard to national space legislation needs to be analysed.

National space legislation so far exists in the United States, the Russian Federation, the Ukraine, Norway, Sweden, the United Kingdom, Belgium, Australia and the South African Republic. Other countries, such as Brazil, have enacted administrative regulations for special aspects of space activities. Yet, in other countries like Canada, Germany, Italy and France, negotiations have started on the adoption of national space legislation and a complete draft has already been presented to the national legislative branch. In fact, the ILA Questionnaire emphasises issues of national space legislation with regard to remote sensing activities and registration of space objects.

Ten Committee members from ten different countries (*Professors. Monserrat Filho* from Brazil, *Jakhu* from Canada, *Kopal* from the Czech Republic, *Kerrest* from France, *Dr Hofmann* from Germany, *Professor Venturini* from Italy, *Dr von der Dunk* from the Netherlands, *Mr Hedman* from Sweden, *Mr Sagar* from the United Kingdom and *Professor Gabrynowicz* from the United States of America) have responded to the ILA Questionnaire and forwarded their answers to the Committee Chair and the General Rapporteur. The feedback was impressive both in substance and regional variety. The support and intellectual impact of Committee members were greatly appreciated and the General Rapporteur sincerely thanks all those who participated in this initiative and also encourages all Committee members to actively contribute to the future work schedule with initiatives and ideas.

Under the next heading, Part II of the Questionnaire dealing with questions on national space legislation and Part III, dealing with questions on registration of space objects, will be analysed. These sections provide an overview of answers and opinions expressed in their respective context.

a) State Practice on National Space Legislation

Does any national legislation on remote sensing activities exist in your country? Is any such legislation planned for the foreseeable future? Could you briefly describe the main features of your legislation.

Specialised national space laws on remote sensing activities continue to be remarkable exceptions and rarely exist. So far, only the United States has a specialised system of rules which exclusively apply to remote sensing. Other countries are in the process of drafting specialised remote sensing legislation, e.g. Germany where the draft legislation is expected to enter into force in 2006. As *Dr Hofmann* reported to the Committee, operators will have to apply for a licence to operate an advanced remote sensing system in Germany. Operation and supervision of the satellite, downlink of the information, etc., will be regulated in the legislation.

Canada has adopted certain access control policies for commercial remote sensing activities. According to *Professor Jakhu's* Report, an Act governing the operation of remote sensing space systems is currently before the Canadian Parliament. The proposed legislation establishes a comprehensive licensing regime for all operators having a substantial connection to Canada. It is expected that the provision will be included stating that raw data and unenhanced sensing products shall be provided to the governments of sensed states within a reasonable time and on reasonable cost terms (thus confirming Principle XII of the UN Remote Sensing Principles) but subject to any kind of restriction the Minister may impose (thus running contrary to the UN Principles). Moreover, it is envisaged that the distribution of raw data will be restricted.

Generally, national space legislation on remote sensing should address the topics of authorisation and licensing, operation and supervision of the satellite, data policies and access control.

Countries such as the United Kingdom, Sweden, Norway, the Russian Federation, Australia, Argentina and Brazil have enacted general national space legislation or at least administrative regulations on the issue. Some of those laws include remote sensing activities while others do not. For instance, *M. Hedman*

explains that the Swedish Act on Space Activities does not apply to remote sensing activities. In Sweden, certain aspects of the handling of remote sensing activities, such as database handling, are included in an Act covering the protection of information on land use. The Act on Space Activities includes rules on national jurisdiction, authorisation procedure, licensing, supervision and control, and liability and criminal jurisdiction.

Other countries are currently working on general national space legislation, e.g. the Netherlands. As *Dr von der Dunk* reported, the Dutch Ministry of Economic Affairs has started to design a framework national space law, which would include a licensing system and registration procedure for private space activities, including remote sensing activities. The licensing system itself is supposed to include provisions on safety and security as well as on liability and, probably, insurance.

Still, the problem is that many countries, to date, lack national space legislation and, among them, important space-faring nations, in particular France. According to *Professor Kerrest*, a report dealing with space law issues, including remote sensing, is being prepared for the French Prime Minister.

b) State Practice on Registration

Is there any national legislation on the registration of space objects in your country? Does your country have a national registry? What are the registration procedures regarding fees, time span, insurance requirements, other?

Among the various topics that need to be addressed by national space legislation, issues concerning the registration of space objects are of special importance. The international obligations codified in the Outer Space Treaty and the Registration Convention have not yet been adequately acknowledged by states. The majority of those Committee members who answered our Questionnaire reported that in their countries there was no special national legislation on registration, but that a national registry was maintained. National registries are being operated by different authorities through, for instance, a national space agency or space board, the Ministry for Foreign Affairs and/or International Trade or even by federal aviation offices.

If we look at the administrative registration procedure, the duration of the registration and authorisation procedure are important both for the respective state authorities and for the registering entities that aim at doing business. Still, only in the United States is there a rule dealing with the maximum duration of the authorisation procedure. The licensing procedure for a launch licence issued by the FAA should be terminated 180 days after the receipt of an accepted application. In European jurisdictions, no comparable provisions exist.

When referring to current state practice in Sweden, *Mr Hedman* pointed out that the period between the time of application for a licence and the submission of registration information to the United Nations was around two to four months. Taking into account the international dimension of the registration process, this time span seems reasonable. In other countries, e.g. Germany, there is a comparable average time limit of approximately three months; in the UK it is between two and six months. In the Russian Federation, the licensing procedure is not expected to last more than two months. It is evident that the duration of an authorisation procedure is closely connected to and dependent on the amount of compulsory authorisation requirements.

It should also be kept in mind that the duration of the registration procedure does not necessarily equal the duration of the authorisation procedure. The decision whether an authorisation should be granted may take place before the registration procedure starts. As *Professor Kerrest* noted with regard to the required time-limit for registration, the Registration Convention does not provide for a strict set of rules but leaves room for a possible delay (“as soon as practicable”). According to *Professor Kerrest*, the first delay should be interpreted with care, but the second one should be limited.

Furthermore, the existence and costs of registration fees may considerably influence private entities in their choice of where to register a space object. *Mr Hedman* pointed out that no registration fees were charged in Sweden. Also in France, no fees are currently required for registration. As *Mr. Hedman* further reported, there were no insurance requirements for the registration procedures in his country. Although the Swedish government might attach conditions to a licence, in practice no insurance is contracted by the Swedish Space Corporation in connection with the control of geostationary and polar-orbiting satellites. However, for the launching of satellites, a launch service provider will typically provide for launch and early orbit third-party insurance cover, including the operator as an insured party.

Professor Kerrest emphasised that, generally, insurance requirements and other obligations, such as paying fees, should be connected to the licensing process, not the registration. States should be reminded

that registration is a legal obligation according to the Registration Convention. It serves both national and international identification purposes and, according to Article VIII of the Outer Space Treaty, the state of registry shall retain jurisdiction and control over those space objects recorded in its national registry.

Besides this obligation, a right to register should be considered as well, for instance in the crucial case of transfer of ownership of a space object. According to *Prof. Kerrest*, an *ex post facto* registration would contribute to legal certainty and ease the transfer of ownership of space objects as the legal questions on liability, jurisdiction and control would be unlikely to cause further considerable problems.

Other states do not even have a national registry, which is in clear breach of the respective obligations laid down in the Outer Space Treaty and the Registration Convention. As *Prof. Monserrat Filho* explained, Brazil had not a national registry did it have a law on registering space objects, until February 2006 when this country became a party to the Registration Convention. The objective of the commercialisation of the Brazilian Alcantara Launch Centre is to simplify the registration process as much as possible in the future. In this framework, a legal definition of adequate insurance requirements is indispensable.

When submitting information on current state practice in Italy, *Professor Venturini* reports to the Committee that a bill concerning the ratification and implementation of the 1975 Registration Convention was presented to the Italian Parliament in July 2004. The draft bill includes very clear provisions with regard to the registration procedure. Following this, in December 2005 Italy became a party to the Registration Convention. The registration of space objects will be entrusted to the Italian Space Agency, which shall establish and maintain the national registry. The registry refers to objects launched into outer space by Italian individuals or entities or from Italian territory or facilities.

7. Conclusion and Recommendations for a Future Work Plan

Naturally, the Committee cannot determine what kind of provisions states should include in their national space laws. However, the Outer Space Treaty (especially Articles VI, VII and VIII) and the Registration Convention provide for a binding framework of international obligations which need to be respected by all Member States. Any successful future work of the Committee on the topics of national space legislation and registration of space objects has to include the definition of clear legal requirements for an effective national implementation of the international legal obligations codified in the Outer Space Treaty and the Registration Convention. Such cornerstones for national space legislation might serve as guidelines for the drafting of future national laws and ensure that the respective provisions of international space law are being respected by the international community.

From the results of the Questionnaire a general idea may be derived whereby there is a need for the adoption of national space legislation for various reasons, as follows.

In particular, the great differences in current state practice with regard to registration, licensing, fees and insurance requirements encourage the problem of “licence shopping”. Private entities might choose the applicable legislation by changing various factors of their business environment or, due to the given environment, might be bound by more than one national legislation.

At the 2004 ILA Conference in Berlin the Committee recommended that, with regard to national space legislation, four building blocks (1. authorisation of space activities, 2. supervision of space activities, 3. registration of space objects and 4. regulation of compensation) should be discussed. The present Questionnaire is a first step in the suggested discussion. It has confirmed the view that many states are not fully aware of their international legal obligations and therefore have a tendency to neglect the authorisation and control of national space activities.

In that respect, the Committee may also coordinate future activities with the Legal Subcommittee of the United Nations Committee on the Peaceful Uses of Outer Space (COPUOS). As stated above, the Legal Subcommittee currently has the issue of “*Practice of States and International Organizations in Registering Space Objects*” on its agenda and may collect information of a special value for the ILA Space Law Committee. It is suggested that the Committee should carefully study the subsequent reports issued by the COPUOS Legal Subcommittee.

As to the next step for a future work plan, this Rapporteur recommends that the Committee should contribute to the strengthening of the Outer Space Treaty and the Registration Convention by identifying and clearly defining those provisions which have to be made more specific by national laws. In that way, certain minimum standards for national space legislation could be generated and, conversely, those

countries which have not yet enacted legislation on the identified issues may become aware that they are currently in danger of breaching public international law.