IISL Colloquium on the Law of Outer Space -Beijing

Introduction

The 39th Colloquium on the Law of Outer Space was opened by the President, *Dr. N. Jasentuliyana,* on Tuesday 8 October 1996. The colloquium was attended by 50-60 persons, and many excellent papers were presented. A round-up discussion session was again organized and provided a useful opportunity for the exchange of views on topical space law issues; this session was so well attended that many had to stand outside the conference room to participate!

The colloquium also hosted the finals of the Fifth Manfred Lachs Space Law Moot Court Competition. The competition was made possible with the help of the Chinese Foreign Ministry, the University of Beijing, KLM Royal Dutch Airlines, Air China, the European Centre for Space Law (ECSL), the Association of US Members of the IISL (AUSMIISL) and NASA. Preliminary competitions had been organized in Europe and in the USA, and the winners of those preliminaries met in the final round in Beijing. The University of Helsinki (Finland) - who also participated in the 1994 Finals in Jerusalem - and the University of Wyoming (USA) competed in the case "*Parlivia v. Californium et al.*", concerning liability for commercial space endeavours. The honourable court was composed of *Judge Chr. Weeramantry* (President) *Judge G. Herczegh* and *Judge V. Vereshchetin* of the International Court of Justice. The team of the University of Helsinki won the competition. Its members were *Satu Heikkilä* and *Anna Markkanen.* The members of the University of Wyoming team were *Bastiaan Coebergh* and *Joseph Richer*. The case was written by *Pamela Meredith*. The case and the written briefs will be published in the IISL Proceedings. Each team also served as rapporteur for one of the sessions of the Colloquium. The final of the sixth Competition will be held in Turin, October 1997, after regional preliminaries to be held in the Spring of 1997 in Europe, the USA and, for the first time, Asia. The case, which deals with Very High Resolution (VHR) remote sensing systems, was written by *Harry Tuinder, Marco Ferrazzani* and *Frans von der Dunk*, and has been distributed to the various universities.

Session 1: The Legal Status of Property Rights on the Moon and Other Celestial Bodies.

Chairman: *Dr. He Qizhi* (China); Rapporteurs: *Ms. A. Markkanen* and *Ms. S. Heikkilä* (University of Helsinki Moot Court Team, Finland)

Chairman *He Qizhi* opened the first session by stating that this issue is of growing interest for mankind; the return to the moon is inevitable, and this time man will not only visit the moon, but will also carry out further research and use its natural resources.

The first speaker was *Dr. E. Fasan* (Austria), who presented his paper "Dominium Lunae, Proprietas Lunae". After having explained the different schools for the legal status of the moon and other celestial bodies (*res nullius, res omnium, res extra commercium,...*), he recalled that the Moon Agreement has been accepted by very few States, even though the UN General Assembly has called upon States to sign and to ratify the Agreement. At the same time the possible revision of the text of the Agreement is at least postponed. The author believes that it is vital to clarify the issue of the status of the moon, which currently hampers the progress of space travel to the moon and other celestial bodies. It is necessary to reconcile the interest of those States which can reach the moon and want to exploit its natural resources on the one hand, and the common interest of all nations in an appropriate sharing of those resources on the other. He pointed out that it would be detrimental to mankind if due to an

unclear legal situation the hiatus in expeditions would be extended too long, as well as it would be illogical to protect the natural resources of the moon more strictly than those on Earth.

The second speaker was *Amb. A.A. Cocca* (Argentina), on "Property Rights on the Moon and Celestial Bodies". He provided an extensive doctrinal overview of the subject, and noted the importance of the Outer Space Treaty and the Moon Agreement for the analysis of the legal regime of the moon. Dr. Cocca stated that the subject of space law is humankind as a whole, and that the benefits obtained belong to humankind, which embodies all human beings, a *condominium*. He proposed that, since there is no sovereignty on the moon and other celestial bodies, an international agency invested with sufficient authority, jurisdiction and control, should be created to organize and protect the free and full enjoyment of the common patrimony.

Dr. H. van Traa-Engelman (The Netherlands) advocated "Clearness regarding Property Rights on the Moon and Other Celestial Bodies". She emphasized that private enterprises will only be motivated to engage in space activities if the legal environment accommodates specific rights, such as property rights in general, and intellectual property rights in particular. She analysed the Outer Space Treaty and the Moon Agreement in relation to the subject. Regarding property rights, she noted that Article 8 of the Outer Space Treaty establishes the conditions for a legal regime based on quasi-territoriality, and that an intergovernmental agreement such as the one on the manned space station may solve questions of property rights connected with the commercial exploitation of the natural resources of the moon. She then observed that Article 11(2) of the Moon Agreement provides more clearness than the Outer Space Treaty, since it specifically prohibits appropriation of natural resources of the moon and other celestial bodies of any kind by anybody, while at the same time offering enterprises the possibility to establish property rights on natural resources when they are removed from the moon (unless the Article 11(5) provision regarding an international regime might be regarded as a *moratorium* on the exploitation of natural resources). She suggested that this problem might be solved by attaching an Understanding to the Moon Agreement, ensuring that whatever legal regime ultimately comes into being, the ability and right of states and private enterprises to use and exploit the natural resources of the moon will be recognized if carried out in accordance with the purposes as expressed in Article 11(7) of the Moon Agreement.

The last speaker of this session was *Dr. L. Tennen* (USA), who presented a paper written with *Dr. P. Sterns* and *Mr. G.H. Stine* (USA), on "Preliminary Jurisprudential Observations Concerning Property Rights on the Moon and Other Celestial Bodies in the Commercial Space Age". Regarding the non-appropriation principle, the authors noted that although the principle might inhibit commercial development, it also prevents armed conflict, and therefore at this time its abandonment does not appear justified. Nevertheless, rules must be established regarding the manner in which rights in property may be acquired and maintained. The authors then addressed the Moon Treaty and noted that some sort of jurisprudential framework is required, and that the right to use and exploit space should not be restricted to those who today have technological capabilities. Appropriate safeguards must be devised to protect the natural environment of celestial bodies and to prevent interference by one entity with the activities of another. They also emphasized the importance of effective dispute settlement. Concerning liability, the authors raised the question whether a limited liability regime should be applied to space activities, and mentioned the example of US

domestic law where *de facto* limited liability is achieved by requiring insurance and reciprocal waivers. Finally, regarding the creation of settlements on the moon, the authors stressed the importance of the principle of autonomy.

Session 2: Cases and Methods of Dispute Settlement in Space Law.

Chairman: *Prof. K.-H. Böckstiegel* (Germany); Rapporteur: *Ms. D. Crowther* (ECSL, France)

In his introduction to the session, Prof. Böckstiegel mentioned that over the years space activities have become more and more commercial, thus involving private enterprise. This means that different interests and opinions are at stake, and the result of these differences is the occurrence of disputes. States may be parties to disputes, but more often private enterprises will be involved. There are two major problems: first we need to know which rules apply to the disputes, and second there is a need for reporting on the cases that occur.

The first paper on "Liability for Copyright Infringement in the Case of TV transmission via Satellite (Essel Vision's Claim on Intersputnik)" was presented by *Dr. V. Veschunov* (Russia), and was written in cooperation with *Dr. G. Zhukov* (Russia). Essel Vision had claimed before the Bombay High Court that Intersputnik was jointly responsible with Asian United Media (AUM) for the breach of copyright of programmes transmitted via satellite, while Intersputnik had merely provided the technical means for AUM to broadcast the programmes and had nothing to do with the content of those programmes. The legal question therefore is whether the owner of telecommunication facilities is responsible for copyright matters in principle, including for the content of programmes and copyright observance by the programme customer. Dr. Veschunov stated that the international conventions dealing with programmes transmitted by satellite service providers/operators do not impose liability on them for the breach of third parties' rights. This solution was also confirmed in the contract between Intersputnik and AUM, which stipulates that Intersputnik shall not be liable for any copyright matters. It was noted that this contract also provides for a detailed arbitration procedure for any disputes that may arise between Intersputnik and AUM. In the author's view, this case indicates that negotiations on intellectual property rights will become more and more difficult, and also that arbitration is certainly the preferred way to settle this kind of disputes.

Dr. M. Hoskova (Germany/Czech Rep.) presented her paper entitled "Tendencies of Dispute Settlement in Present Eastern European Space Law". She analyzed different mechanisms of dispute settlement by analysing four categories of space cooperation agreements: (a) agreements with former COMECON states as parties (f.i. agreements between Russia and Germany, Japan, the USA or CNES, and agreements entered into by the CIS, such as the Minsk and Tashkent agreements), (b) agreements between international organisations and former COMECON states, such as those involving ESA and Intersputnik, (c) agreements between an international organization and Russian legal persons, and (d) agreements between legal persons. The analyses show that (1) consultation and (2) arbitration are the preferred means to resolve disputes. According to Dr. Hoskova, this general policy is aimed at safeguarding the implementation of common projects and at continuity of cooperation. She concluded that "informal problem management" continues to play its dominant role.

A third paper on "Cases and Disputes Settlement in Space Law", written by *Dr. H. Safavi* (Iran), was summarised by *Dr. P. Sterns* (USA). It compared various methods of

dispute settlement in air and space law, and suggested that international space law needs to be supplemented. The author specifically proposed a new international convention with rules and procedures to safeguard the security of spaceflight and to prevent the commitment of criminal acts against spacecraft, astronauts, passengers and cargo, and the establishment of an independent international organization for the management of outer space activities.

Session 3: Legal Aspects of Sharing Benefits from the Conduct of Space Activities.
Chairman: *Dr. S. Doyle* (USA); Rapporteurs: *Mr. B. Coebergh* and *Mr. J. Richer* (University of Wyoming Moot Court Team, USA)

The first paper in this session was written by *Mr. M. Fomtchenko* and *Mr. A. Movlyav* (Russia) and presented by the latter. It addressed "High Resolution Remote Sensing: New Aspects and Problems". The authors noted that the popularity of high resolution remote sensing is increasing and its field of application widening. Although there is no uniform definition for "high resolution remote sensing data", the authors held that it concerned data with a ground spatial resolution of less than two meters. The current and prospective situation of distribution of high resolution remote sensing data were addressed, as well as the creation of a specialized international organization. Space data will not only be used by governments, but also by non-governmental institutions and individuals, and the tendency of commercialization in this area must be noted. Legal regulation of the distribution of data is required, and the authors stressed that such legislation should protect legal rights and interests of not only governments but also private persons. The authors held that the time has come for the institutionalization of international cooperation in remote sensing, and that the most attractive models for such an institution are those used by Inmarsat, Intelsat, or ICAO. The first two provide an example of foundation documents and operation agreements, while the latter is a model for proper work organization for distribution of information and consulting for a wide array of questions.

"Sharing of Remote Sensing Data Concerning Environmental Protection for Public Benefit" was the topic presented by *Prof. G. Catalano Sgrosso* (Italy). The 1996 UNCOPUOS Draft Resolution entitled "Declaration on International Co-operation in the Exploration and Use of Outer Space for the Benefit and in the Interests of All States, Taking into Particular Account the Needs of the Developing Countries" states that outer space benefits can be enjoyed by all countries, especially the developing ones, only as a result of strengthened international cooperation. The author held that the environment should be seen as a specific field of international cooperation, as environmental protection is one of the most urgent problems in the modern world. Remote sensing allows faster, more effective, and at times less expensive intervention. Starting from the UN Principles on remote sensing, the author focused on the legal problem of how satellite data concerning the protection of the earth's environment can be distributed and used for the benefit of all states. After studying the policies of distribution and commercialization of data in the USA, France, ESA, and the EU, she concluded that the practice in this area is at present different from one country to the other. The USA have a policy of free access, often free of cost. This is favourable to the users, but has the purpose of ensuring the pre-eminence of the USA in the field. The French policy is more selective and aims at making the users participate in financing the costs of the observation systems. Many ESA member states have adopted a policy of data distribution which acknowledges the necessity of covering part of their financial investment in the Earth observation systems and also recognizes the necessity to maximize the return of investments

in a non-monetary sense. The author concluded that the general public has been awakened by a possible deterioration of the earth's environment and that the need to coordinate space activities is increasing

Next, *Ms M.A. Roberts* (USA) presented her extensively researched paper on "US Remote Sensing Data from Earth Observation - Law, Policy, and Practice". She gave an overview of the history and current situation of NASA's practice on distributing earth remote sensing data. NASA and the USA adhere to a uniform policy for all international participants: open, non-discriminatory data distribution to all scientific users at the cost of reproduction and distribution. This would maximize the use of the data and would also provide an easily recognizable tax payer return on NASA's investment. One basis for this policy is the "Open Skies" principle, affirmed in Article 2 of the 1967 Outer Space Treaty. The USA continues to assert this principle. Other nations dispute the theory, invoking a right of "national privacy" or "the sovereign right of a state to be let alone." The USA also tried to strike a balance between private sector commercial interests and scientific research goals in its LANDSAT system, but this has proven to be difficult. In 1984, Congress enacted the Land Remote Sensing Commercialization Act which mandated non-discriminatory access to LANDSAT data, even for private sector operators. In 1992, Congress repealed this Act in favor of the Land Remote Sensing Policy Act, which gave management of LANDSAT 7 to NASA and the DoD (Department of Defense). The goal of the USA is the accomplishment of a broad-based global Earth remote sensing program - one that fully utilizes all resources.

Mr. J. Huang (ICAO, Canada) addressed the issue "Sharing Benefits of the Global Navigation Satellite System within the Framework of ICAO". The USA and the Russian Federation have developed the Global Positioning System (GPS) and the Global Orbiting Navigation System (GLONOS). The author indicated that the development of Global Navigation Satellite Systems (GNSS) will bring a profound change to air navigation and greatly promote the safety and efficiency of civil aviation. Two major legal issues are presented: (1) state sovereignty in national airspace; (2) control over air navigation facilities. The options presented to the ICAO expert panel concerning the control issue were: establishment of a new agency (similar to INMARSAT) or leave the status quo and leave control to private arrangements laid down in contracts. A legal framework, preferably under the auspices of ICAO, is necessary in order to assure universal accessibility, reliability and continuity of GNSS services. The author recalled that under the Chicago Convention, ICAO has the power to make recommendations but these are non-binding. Nevertheless, this power may serve as a future legal basis for review. There are various possible roles ICAO could play: a judicial body, an administrator, or an arbitrator. The author concluded that ICAO may, within its institutional structure and competence, implement the principle that the exploration and use of outer space shall be carried out for the benefit and interest of all countries.

The next speaker was *Prof. M. Nakamura* (Japan), who presented his paper "Review of Article I of the Outer Space Treaty". The author analyzed and re-interpreted article I of the Outer Space Treaty from the viewpoint of sharing benefits from space activities. The article includes two significant provisions as to sharing benefits from space activities: "for the benefit and in the interests of all countries" and "the province of all mankind." Prof. Nakamura recalled that it is very difficult for many developing countries to employ the freedoms outlined in article I OST because they do not have the scientific skills and economic power. For these countries, international cooperation is needed to exercise these

rights. Such cooperation, however, is not clearly defined in the OST. The legal contents of the Moon Agreement are much stricter, especially since it takes into account the equity between present and future generations. The ITU's IFRB maintains a radio frequencies registration system according to the "first come, first served" principle. Many developing countries are worried about the possible exhaustion of radio frequencies by developed countries if this system is also applied to space communications. The developing countries argue that the GSO and radio frequencies are "limited natural resources" and therefore the principle of "equitable access" has been established instead of the principle of "first come, first served." Through this ITU regime, the "freedom principle" in Article I OST has obtained a more positive interpretation: every state has the right to begin space activities at any time when it acquires the technical and economical capability.

Prof. H.A. Wassenbergh (The Netherlands) presented his views on "The International Regulation of an Equitable Utilisation of Natural Outer Space Resources", and proposed that the international community should develop a new public international space law because the current legal structure is obsolete. The 1967 Outer Space Treaty was a product of the Cold War and is not well-suited to contemporary post-Cold War conditions. The author held that the space treaties regulate states, while they should regulate activities; nationality is on the decline. States can only regulate public interests, not private interests. Under any new approach however, governments must still be concerned with safety, security, navigation, the environment, and other public concerns. But commercially profitable activities should be left to private enterprise. On the topic of benefit-sharing, Prof. Wassenbergh raised the question "what are benefits"? In his view, elements constituting benefits include the ability to buy anything manufactured in space and access to information and technology.He seriously questioned the "Common Heritage of Mankind" concept; if it is a "heritage", then mankind will not benefit from it until all mankind is dead! In space, there is no legitimate share for each country; the only basis for sharing would be competitive strength and the weak states would die. Interstate competition should be replaced with competition among private enterprises. Corporations can cross borders and form cross-border alliances. Nationality is of little relevance. Finally, the author observed that the 1996 "Space Benefits" Declaration is a "should" document; it implores ethical conduct but is unenforceable.

Prof. J.F. Galloway (USA) then presented his paper "Privatizing an International Cooperative? The Case of Intelsat". In the present situation of privatization and commercialization, Intelsat must adapt to the competitive environment and needs to be reorganized. The author observed that some of Intelsat's services can be privatized and made subject to market forces, while other services which are more collective in nature will have to be organized differently. For example, collective goods, such as defense, are not suitable for privatization. The collective goods provided by Intelsat include satellite service to remote areas. The author believes that as competition among satellite systems and between satellite and fiber optic systems heats up, Intelsat will become just another actor in the global communications market. The emergence of IRIDIUM, a private LEO provider, and Inmarsat's ICO Global Communications, a quasi-public entity, foreshadow the competition to come.

Mr. D.J. O'Donnell (USA) then discussed his paper entitled "Benefit Sharing: The Municipal Model". He proposed that benefit sharing as mandated by the Outer Space Treaty and the Moon Agreement should be accomplished by an international trustee agency. The Lunar Economic Development Authority (LEDA), a municipal authority modeled after the

Castle Rock, Colorado, USA government, could serve as a relevant space governance paradigm. The author held that the current space law treaty system will fall under its own weight, and that the international community needs to set up a municipal entity to administer common resources at the source. The UN should have a role, but while UNCOPUOS works well as a "Senate", it would, according to the author, not be an effective executive organ. LEDA would function as less than a town, but more than a space agency. Mr. O'Donnell believed it would provide a mechanism for distributing common resources and managing risks and provide legal certainty in space development.

A paper on "Brazilian-Chinese Space Cooperation: an Analysis of its Legal Performance" was presented by *Mr. .J. Monserrat* (Brazil). The author indicated that although the Brazilian-Chinese cooperative space endeavour has experienced some setbacks, the two nations have learned from their mistakes and move forward. CBERS 1 and 2 were plagued with problems, but the process is maturing despite the delays. Brazil has now proposed CBERS 3. The first satellite could be launched by 1998 and the second by 2000. According to Mr. Monserrat, the bilateral agreements between the two nations have maintained different levels of respect; China has fulfilled the agreements better than Brazil. A two-year paralysis was caused by obvious failures on the Brazilian side, but the joint project continues and has good prospects.

Next, *Mr. B.L. Smith* (France) presented his paper entitled "Towards a Code of Conduct for the Exercise of Intellectual Property Rights (IPR) in Space Activities - Moderation of the Monopoly?". He stated that patent law leads the development of IPR in space. Under the patent clause of the US Constitution, patent holders enjoy a limited temporary monopoly. The US Space Bill of 1990 extends US patent law to US space objects. The Space Station Agreement also provides for patents in space. The author wondered whether there is a conflict between the 1967 Outer Space Treaty's benefit-sharing provisions and the concept of space IPR. If so, this legal uncertainty could deter private investment in commercial space activities. The author proposed to develop a Code of Conduct for space IPR: to promote science, to share benefits, and to develop a single uniform applicable law. To establish legal certainty, space must be treated as a single jurisdiction for IPR purposes. The World Intellectual Property Organization (WIPO) could serve as a single, universal enforcement body or Board of Arbitration for resolving space IPR disputes. Finally, the author noted that any proposed regime must be harmonized with existing treaties and that third-party licensing of space patents should conform with UNCOPUOS' 1996 draft resolution. In his view, the time may have come to consider the creation of a "Space Patent" enforceable under international law.

The last paper in this session was written by *Dr. M. Benkö and Dr. K.U. Schrogl* (Germany) under the title "The 1996 UN-Declaration on "Space Benefits" - Ending the North-South Debate on Space Cooperation". Dr. Schrogl gave an extensive overview of the history of this document, and mentioned that the UN General Assembly will vote on the text in December 1996. The authors held that the Declaration provides an authoritative interpretation of the cooperation principle in Article I of the Outer Space Treaty and effectively ends the North-South confrontation in shaping the international order for space activities. They predicted that the impact of the Declaration will be to confirm the freedom of exploration and use of outer space while requiring space-faring nations to conduct their activities for the benefit of all countries. This will foster international space collaboration, and intellectual property rights and freedom of commercial space operations will be secured.

States will be free to choose partners, and the North-South debate can be resolved at higher political levels. The authors hoped and predicted that thanks to the 1996 Declaration, the 1999 UNISPACE III conference will be non-political.

Session 4: Other Legal Matters

Chairmen: *Prof. T. Kosuge* (Japan) and *Dr. E. Fasan* (Austria); Rapporteurs: *Prof. Y. Hashimoto* (Japan) and *Prof. Abu Bakar Munir* (Malaysia)

The first paper was presented by one of the chairmen of this session, *Prof. T. Kosuge* (Japan). He spoke about "Global Information Infrastructure and Satellite Communication - How to Coordinate the use of GEO and non-GEO". He focused on the development of satellite communication in Asia, and highlighted the benefits of using LEO and the competition among the companies operating in Asia using different systems. He discussed Iridium, Odyssey, Globalstar and ICO, and wondered whether those new communication systems are beneficial at the global level. He concluded that none of the systems clearly stands out from the others, because each has its advantages and disadvantages, and the success of the systems can only be judged after 1998. He recommended that ITU should play a more important role to realize the 1996 Declaration of UNCOPUOS and advocated a policy oriented approach rather than market oriented.

Prof. M. Komar Kantaatmadja (Indonesia) spoke on the "Development of Broadcasting Laws Related to Satellite and Cable Television in the Asean Region". She indicated that the Asean member states are currently updating their domestic laws to reflect current space technology, especially in the field of broadcasting (cable and satellite TV). Prof. Kantaatmadja considered related regulations in Thailand, Malaysia, Singapore, The Philippines and Indonesia, and focused on two issues: (a) responsible authority, and (b) definition of broadcasting. Some regulations provide the participation of the private sector in broadcasting services, whereas others provide certain guidelines for the content of each program. Those vary per country, depending on the national policy on information distribution, but governments always play an important role in broadcasting in the Asean region. The author concluded that the region is 'broadcast friendly'.

The paper by *Prof. P. Larsen* (USA), entitled "GNSS Interference Testing: Legal Issues" was presented by *Prof. F. Lyall*. Prof. Larsen explained the implications of the decision of the US Government of March '96 regarding GPS management policy. In case of interruptions by the government (for the testing of possible illegal use of the GPS system by terrorist of unfriendly forces), the main GPS users may be fairly easily reached for information. The greater adverse effects of interference testing may be on the more remote civilian users such as surveyors, farmers and recreational users. The author discussed regulatory and liability issues, and then made three recommendations: (1) to schedule intentional interruptions so that they cause as little interference as possible; (2) to establish an effective communication tree to inform virtually all users of interruptions that may affect them; (3) to let potential liability act as a hammer to keep the GPS system operational virtually 100% of the time.

Then *Prof. F. Lyall* (UK) presented his own paper, entitled "Paralysis by Phantom: Problems of the ITU Filing Procedures". He described the present ITU system and its "first come, first served" principle, and the necessity of coordination for newcomers with phantom satellites. He criticised the abuse of the filing procedures and mentioned five major variants of the problem. The problem is currently being attacked by the Radiocommunication Advisory Group (RAG), which has suggested some solutions like due diligence by states in investigating proposals submitted to them, or a returnable or limited filing fee. The author suggested an additional method: recourse to the doctrine of "implied powers", allowing the ITU to refuse notification of systems that are unlikely to be implemented.

The paper written by *Ms. A.M. Balsano* (ESA) and *Ms. I. de Vries* (The Netherlands/Belgium) on "National Patent Laws in Europe and Space Activities", was presented by Ms. de Vries. She argued that European patent laws are not applicable in outer space, and recommended that the problem could be solved by amending the individual national patent laws in Europe, extending their scope to outer space activities like the US has done (US Patent Act of 1990). To date, Germany is the only European country which has made its patent law applicable to ESA registered elements of the Space Station (but not in general to all German space activities). Alternatively, she argued that at the regional level, the European Patent Convention (EPC of 1975/1989) and Community Patent Convention (CPC of 1989, not yet in force) could be amended, or that a Regulation or Directive could be adopted under the European Community Treaty. Action at the international level (WIPO, COPUOS) is also necessary. The authors further considered two questions; first whether patents are available in Europe for inventions made in outer space, and second whether inventions patented in Europe can be protected against unlicenced use in space. The authors concluded that for European patent laws to be applicable to outer space, there must be (a) an explicit provision making the law applicable to space activities, and (b) an appropriate connection between the European country and the space activity concerned.

Prof. L. Perek (Czech Republic) spoke on "Space Debris Discussions in the UN in 1996", and gave an extensive report of the deliberations in the Scientific and Technical Subcommittee, the Legal Subcommittee and the Main Committee. The main part of the work of the Scientific and Technical Subcommittee was the preparation of a Technical Report (to be completed in 1998), which includes the following statement: "It is understood that space debris are inactive man-made objects, such as spent upper stages, spent satellites, fragments or parts generated during launch or mission operations, or fragments from explosions and other breakups". Discussion also took place on the reorbiting of geostationary satellites into a disposal orbit, 300 or 500 km far from GEO. Dr. Perek also reported on the present situation of space debris and encouraged further study for removing debris from orbits. Space system operators' and space agencies' responsibility was also stressed. As for the Legal Subcommittee, debris was not on the agenda, but two of the future agenda items will deal with space debris: "Review of existing norms of international law applicable to space debris", and "Legal aspects of space debris". In the plenary meeting of COPUOS, the importance of debris reduction was recognized. An Inter-Agency Orbital Debris Coordination Committee (IADC) was invited to the next session. Dr. Perek made an appeal to the scientific community and organizations such as IAF, IAA, COSPAR, and IADC to try to find ways for removing space debris from space and to prevent or minimize it, and recommended that all methods should be assessed from the cost-performance as well as the legal point of view.

Mr. A. Golrounia and *Prof. M. Bahrami* (Iran) considered "The Draft of the International Law Association for a Convention on Space Debris (Buenos Aires)" and asked whether it can meet the needs of the 21st century. Mr. Golrounia mentioned some of the unclear points in the draft, and suggested appropriate amendments. Those points related to the definition of environment, national registration, the creation of an international regulatory body which can advise newcomers into this space activity field, the updating of useful data like environment hazards, technological abilities, etc. The authors concluded by stressing the need for an international regulatory body and expressed confidence that it will enjoy support from all parties to protect the space environment.

The next speaker was *Prof. Y. Hashimoto* (Japan) who presented his paper "Japanese Space Policy; where is she going?" He introduced the new Japanese Space Policy which was revised in January 1996 and compared it with the 1989 policy (i.e. the 1978 policy amended in 1984 and 1989). The new policy outlines the result of Japanese space development and identifies the future direction and framework for the next 10 years. He concluded that the 1996 policy successfully outlines the continuous and mid-term target of the Space Activities Commission. However, he argued that Japan's long-term vision and philosophy in space activities is not clear. He stressed the necessity of involving public opinion in the policy and law-making process and suggested the Japanese Diet as the appropriate forum.

The paper by *Mr. D. Burnett* and *Mr. D. Lihani* (USA) discussed "US National Space Policy and Bilateral Launch Service Agreements". Mr. Burnett briefly summarized the history of bilateral agreements between the USA and China, Russia and Ukraine, and explained the pricing policy in those agreements. He focused on the agreement between the USA and Ukraine concerning the sea launch project. He also discussed the recent "US National Space Policy", released on 19 September 1996. According to this policy, after the expiration of current space launch service agreements, free and open interaction of market economies will prevail.

An extra paper was then presented by *Mr. R. Oosterlinck* (ESA), on "Tangible and Intangible Property in Outer Space". He stated that property in space is becoming one of the most important issues for the future, not only in the context of classical forms of tangible property (minerals,..) but also of intangible property (orbital slots on the GEO, frequencies,...). In analyzing "tangible property", he gave an overview of Roman law concepts such as "res nullius" and "res communis omnium", and their application to outer space (property of celestial bodies, resources of the moon, asteroids). He observed that Article 2 of the Outer Space Treaty refers only to national appropriation but is silent as to appropriation by legal or natural persons, and raised the question whether the resources of outer space may be appropriated. In answering this question he analyzed the views of Prof. S. Gorove and Amb. A. Cocca and highlighted the history of article 2, and concluded that no consensus was reached on the matter. He observed that the question of the legal status of resources has become a major concern because mining may become feasible in the near future. On the subject of intangible property in outer space, Mr. Oosterlinck focused on the GEO, the frequency spectrum, and the LEO and MEO. He traced the development of the ITU Conventions and specifically article 33. He illustrated the problem of an "a posteriori" approach put forward by the developing countries by looking at the issue of TONGASAT. As for the frequency spectrum, the author stated that recent developments whereby part of the frequency spectrum have been auctioned tend to pave the way for commercial exploitation of the spectrum. He was of the view that this development presents certain dangers unless appropriate actions are undertaken. He suggested that it would be advisable to develop a set of rules in this field to avoid problems such as those encountered with the GEO. With regard to the LEO and MEO, he mentioned that several companies have started investing money and protecting their intellectual property. The author concluded that some forms of property were introduced by using legal means, and time has therefore come to review the matter, and to settle it in an appropriate legal form.

Prof. S. Courteix (France) then presented the last paper in this session, written in cooperation with *Dr. M. Bourély* (France), entitled "National Institutions Responsible for Space Activities: a Comparative Law Approach". Their paper reflects the result of studies

carried out by the Center for the Study and Research of Space Law in Paris and the European Centre for Space Law, which will be published. It first describes how states organize their space activities, and then how states intervene in the exercise of these activities. Concerning the first point, Prof. Courteix discussed the institutional framework of the various space agencies. She observed that the structure depends on the political and constitutional framework of the state concerned. In the USA, the deep involvement in space policy of the Department of Defense as well as the Department of State is a consequence of the specific characteristics of space activities. She also observed the trend to establish specialized bodies for space affairs in various states, and described the similarities and differences of those agencies. Regarding the second point, she asserted that states will continue try to keep direct control over certain activities, such as activities related to defense and space research, and recognised the trend of international cooperation in space undertakings between states through bilateral or multilateral agreements.

General Discussion Session

On the last morning of the IISL Colloquium, the Chairmen and Rapporteurs of each session gave a short summary of the papers presented and highlighted the issues that in their view merited further discussion. The IISL President, Mr. Jasentuliyana then chaired the discussions. Below, an attempt is made to reflect the points that were raised, but it is of course impossible to give a complete overview of everything that was said. It is also possible that some comments are omitted, or do not entirely reflect the speaker's intention. Nevertheless it is hoped that this short overview will give an indication of current concerns within the International Institute of Space Law.

Property rights on the moon and other celestial bodies

The discussions focused on the need of clear regulation before private enterprise would start acting and on the finding that we have to know what to regulate before clear regulations are possible.

Dr. E. Galloway was of the opinion that too much emphasis was placed on the regulation of the natural resources of the moon without defining what those natural resources really are. She noted that it is not clear how to make profit on the moon. Although such inventions as solar power satellites may be used to make profit, this is an expensive and risky business. Before we start regulating we have to know the scientific and technical facts. *Prof. J. Galloway* replied that profit can be made from resources brought back from the moon, such as Helium 3. He suggested that first clarification of present science and technology for space development should be sought, before starting the discussion on rights and obligations regarding the moon and other celestial bodies. On the contrary, *Mr. R. Oosterlinck* held that regulation should come first, before exploitation is possible.

Prof. M. Andem emphasized the importance of international law and treaties for regulating states as well as the private sector. He stated that clear rules are needed, and that the elaboration of existing treaties would be the best solution. He held the view that space law should not be seen as a separate area of law, but together with all other areas of law, bearing in mind the common heritage of mankind principle. He added that cooperation with scientists is necessary in order to know what to regulate.

Dr. W. Wirin noted that although there has been irresponsible exploitation of natural resources on Earth, under space law states remain responsible, and hence must control the

activity of private enterprises. On the other hand, some formulation or maximum charge for entrepreneurs is needed so that they can assess the risks of the endeavour; otherwise they will not engage in it. On the other hand, taking risk is inherent to commercial enterprise! He also agreed with Mr. Oosterlinck that waiting to know what we can find in outer space before regulating the exploitation simply denies the fact that we can find something in space. *Mr. N. Jasentuliyana* agreed on the need to take into account the interests of the private sector.

Dr. E. Galloway concluded these discussions by reminding that only 9 states have ratified the Moon Agreement because of the "common heritage of mankind" principle, and that this principle is NOT included in the Outer Space Treaty, as so many authors wrongly assert. She recommended that action be taken on the issue of the Moon Agreement.

Dispute settlement

Dr. Veschunov recalled that international satellite operators are subjects of public international law. The Brussels Convention of 1974 is important for this issue; it provides that a satellite operator as a provider does not bear responsibility for the possible violation of copyrights. There are mainly three entities involved in the process of providing a programme: (1) the manufacturer of the programme software, (2) the technical satellite operator, dealing only with the technical transfer of the signal from point to point, and (3) the distributor of the programme. Dr. Veschunov held that only the entities mentioned under (1) and (3) could be held liable. He also recalled that it is not impossible for an international organisation to be sued.

Sharing of benefits from space activities

Prof. F. Lyall recalled that the ITU system of "first come, first served" has been abused because people found out that they can make money out of it. *Mr. M. Nilsen* of Tongasat answered that in 1987, the motivation was that INTELSAT had not properly planned the repartition, and had not considered future needs. The positive impacts after the request of Tonga were transformed in negative ones from 1990 on. He stated that Tongasat was an adequate business solution in that area. *Prof. Lyall* held that among the more than 150 members of the ITU, not all have real needs for orbital positions, and *Mr. R. Oosterlinck* added that a good commercial success is not necessarily a good example of respect for the principle of sharing of benefits! Regarding the idea of a filing fee, *Mr. N. Jasentuliyana* believed that it might be useful, and added that if the fee is returnable, its amount is irrelevant.

Regarding Intelsat, *Prof. J. Galloway* stressed once more that public actors such as Intelsat must be price conscious. If Intelsat is privatized, it would result in an oligopoly. Thus, the Intelsat spin-off should be broken up. Mr. N. Jasentuliyana added that small nations will sell their shares in the Intelsat affiliate; this will result in privatization of the satellite market.

Space debris

Mr. A. Golrounia stated that in his view, the only way to realize protection of the environment in outer space is the introduction of fees. Those who launch a satellite could be required to pay a fee for the contamination they generate. The only way to realize this is to have an international forum which could adequately deal with the questions of private enterprises.

Dr. L. Perek added that concerning the prevention of pollution, two points must be stressed. The first concerns the participation of launching entities taking measures to limit the pollution. The scientific community is now in a position to check the pollution in outer space, and can thus verify whether regulations have been complied with or not. The adoption of a Code of Conduct between the UN and launching authorities may be an idea. The second point concerns the removal of actual debris from outer space (cleaning). At present, we do not know how to do that. The economic implications of the problem must be taken into account. In conclusion, Dr. Perek said that he was confident that cooperation will lead to limitation of debris. *Mr. N. Jasentuliyana* mentioned that technical standards rather than legal standards or SARPs are required to limit debris. *Mr. D. Burnett* proposed that insurance companies could give certificates in order to make sure there is money to clear up. The model already in force for the sea could be applied to outer pace. *Dr. Perek* replied that we would first have to determine how much the cleaning of outer space would cost!

Remote sensing

Dr. M. Vivod (Slovenia) proposed that some form of institutionalization of remote sensing is required.

Mr. D. Burnett (USA) expressed his concern that private space enterprises would not particularly welcome competition from a new public international organization. *Mr. N. Jasentuliyana* (UN/Sri Lanka) added that SPOT-Image and other private providers are already developing a world-wide market for space data.

Mr Vivod said that he did not specifically urge for a new organization, but only for the need for legislation in this field.

Legal framework for commercial space activities

Prof. H.A. Wassenbergh (The Netherlands) pointed out that a new approach to international space law is necessary. He illustrated his idea by referring to the Moot Court Competition on space law held the day before; it was striking that three judges of the International Court of Justice could find no solution to the problem (although that was of course not the purpose of the competition). In the case, we saw how the distinction between tort and contract law can be blurred. If absolute liability under the Liability Convention follows a satellite, current space law is inadequate to deal with reality. Therefore, we need new international space law. *Ms. T. Masson-Zwaan* (The Netherlands) reacted by agreeing that space activities are nowadays more commercially oriented, and it would be a good idea to complement existing law, but disagreed that current public international space law should be put aside. Bilateral contracts can supplement and clarify space law. *Prof. Wassenbergh* said that a distinction between governmental tasks and the commercial aspects is required. We can find the same distinction in the aviation field: ICAO adopts SARPs, and the economic problems are regulated through bilateral or open sky agreements. *Dr W. Wirin* (USA) was of the opinion that some restrictions on commercial activity are necessary, but agreed that governmental responsibility and regulation can stifle the emerging space industry.

Hereafter, the 39th Colloquium on the Law of Outer Space was closed on Friday 11 October 1996. The 40th Colloquium and celebration of the 30th anniversary of the Outer Space Treaty will be held in Turin, Italy, from 6-10 October, 1997.*

Tanja Masson-Zwaan**

IISL Secretary/ Colloquium Coordinator

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

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