PROCEEDINGS

United Nations/Republic of Korea Workshop on Space Law

United Nations Treaties on Outer Space:

ACTIONS AT THE NATIONAL LEVEL



UNITED NATIONS

ST/SPACE/22 Office for Outer Space Affairs United Nations Office at Vienna

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United Nations/Republic of Korea Workshop on Space Law United Nations Treaties on Outer Space:

ACTIONS AT THE NATIONAL LEVEL



UNITED NATIONS New York, 2004

This document has not been formally edited. All papers in these proceedings are the personal work of the authors and in no way represent the views of the United Nations.

Foreword

The proceedings of the Workshop on United Nations treaties on outer space: Actions at the national level are being produced in printed and electronic format.

The printed version contains all papers submitted to the Office prior or immediately following the conclusion of the workshop. Due to reproduction limitations, power point presentations could not be incorporated.

The full proceedings of the workshop, including power point presentations, are available on a CD-ROM in pdf format.

Introduction

In 1999, the Third United Nations Conference on the Exploration and Peaceful Uses of Outer Space (UNISPACE III), held in Vienna, from 19-30 July 1999, called for action to promote the development of space law to meet the needs of the international community. The Conference also emphasized the importance of the United Nations treaties on outer space and invited States that had not yet done so to ratify or accede to the treaties.

A review by the Committee on the Peaceful Uses of Outer Space and its Legal Subcommittee revealed that one of the likely reasons for the low level of ratification of some of the treaties is a lack of awareness of the benefits of adherence to the Outer Space treaties.

The continuous increase in space activities has led to a greater number of States giving priority to the development of space laws and policies. The development of effective laws and policies on space activities, not just on an international level but also on the national level in a country relies on the presence of suitable professionals.

The Action Plan of the United Nations Strategy for an Era of Application of International Law calls on every office, department, programme, fund and agency of the United Nations, to "review its current activities and consider what else it might do, within its existing mandate and given existing resources, to promote the application of international law, and to provide technical assistance to help Governments implement their commitments under the treaties to which they are or might wish to become parties."

In order to address these needs the Office for Outer Space Affairs, together with the Republic of Korea, organized the Workshop on Space Law entitled "United Nations Treaties on Outer Space: actions at the national level", that was hosed by the Republic of Korea, from 3 to 6 November 2003 in Daejeon, Republic of Korea. This workshop was the second in a series of workshops being organized to build capacity in space law and the first for the Asia and Pacific region.

The workshop provided an overview of the United Nations treaties and principles on outer space and discussed the implementation of the treaties on the national level.

The objectives of the Workshop were:

- (a) To promote understanding, acceptance and implementation of the United Nations treaties and principles on outer space, especially in the Asia-Pacific region; and
- (b) To discuss the implementation of the United Nations treaties on outer space on the national level.

The programme of the workshop was divided into two segments. The government official segment was structured to especially benefit government officials, particularly from Ministries of Foreign Affairs and Justice. This segment provided a detailed briefing on the United Nations treaties and principles on outer space, as well as national registries and licensing regimes. The space law specialist segment was aimed at participants with advanced knowledge in space law and allowed them to discuss specific issues related to the United Nations treaties on outer space.

In addition, introductory and welcoming statements by representatives of the Netherlands, the Ministry of Foreign Affairs and Trade and Ministry of Science and Technology of the Republic of Korea, the Korea Aerospace Research Institute and the United Nations Secretariat, were held. The workshop also heard presentations on the national space policies and institutions of Australia, China, India, Indonesia, Japan, Malaysia, Morocco, Republic of Korea, Thailand and the United States of America.

The government official and space law specialist segments focussed on the Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies (the Outer Space Treaty), the Agreement on the Rescue of Astronauts, the Return of Astronauts and the Return of Objects Launched into Outer space (the Moon Agreement), the Convention on International Liability for Damage Caused by Space Objects (the Liability Convention), the Convention on Registration of Objects Launched into Outer Space (the Registration Convention) and the five United Nations Principles on Outer Space.

The last session of the workshop was devoted to finalizing observations and conclusions of the workshop.

In total, twenty-six papers were presented by invited speakers from both developing and developed countries.

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Opening Statements

H.E.C. Koets

Counsellor and Deputy Chief of Mission Royal Netherlands Embassy

Ladies and gentlemen,

It is my pleasure to be here in Daejeon, on behalf of the Government of Kingdom of the Netherlands, to this second United Nations Workshop on Space Law Capacity Building, and I am grateful to the Government of the Republic of Korea and the organisers of this event for giving me the opportunity.

Just a year ago, the Dutch Government had the pleasure of hosting the first such workshop in The Hague at the Ministry of Foreign Affairs, in co-operation with the United Nations Office for Outer Space Affairs in Vienna, and the International Institute of Air and Space Law in Leiden.

The Netherlands has always placed special emphasis on the role of law in international relations, including space activities, which are among the most international activities imaginable. In order to maintain outer space for peaceful uses and to ensure that all nations and peoples will properly benefit from space activities, the continuing development of legal norms and principles at the international level is crucial. For instance, while it is generally agreed that private initiative and private enterprise can in many ways contribute to the peaceful exploration, use and exploitation of outer space, fair and transparent rules should be developed to ensure a proper and just balance between the private interests at issue and the general public interest.

The Netherlands, in its international relations, has also consistently stressed the need for countries to learn from each other, making good use of the knowledge and expertise available elsewhere in the world. Hence, our special interest in the overriding purpose of these workshops is to give us a chance to educate one another on the role and importance of space law in the conduct of space activities, and to further the development of that body of law.

The Hague workshop was attended by some one hundred participants from all over the world, including many from countries, which had not yet been involved in space activities to any appreciable extent. The workshop consisted of three sessions of presentations followed by extended discussions, dealing with the international legal regime for outer space, national law relevant to space activities, and educational programmes in space law.

A fourth session was entirely dedicated to drafting conclusions and recommendations. Some eighteen recommendations were subsequently presented to the Legal Subcommittee of the United Nations Committee on the Peaceful Uses of Outer Space at its most recent session in Vienna, in April of this year. On that same occasion, a special presentation was given to the members of the Legal Subcommittee to convey the success of the workshop. At the close of the workshop in The Hague the delegation from the Republic of Korea offered to host the next workshop, demonstrating its special commitment to this initiative and to the advancement of space law and space activities. This generous offer met with great enthusiasm and as a result, we are now assembled here in Daejeon. Special thanks are due to the representatives of the Republic of Korea and the Office for Outer Space Affairs, who, with the help of the International Institute of Air and Space Law, have been working hard ever since the first workshop to make this event a reality.

And so, on behalf of the Government of the Kingdom of the Netherlands, I am very happy to pass the baton, so to speak, to the Government of the Republic of Korea. I wish you all an interesting, pleasant and productive workshop. And above all, I hope that this workshop too will be a great success, so that next year the Republic of Korea can pass the baton to a third host State!

Thank you.

Kak-soo Shin

Director-General Ministry of Foreign Affairs and Trade

Distinguished participants, Ladies and Gentlemen,

It gives me a great pleasure and honour to extend a heartfelt welcome to all the participants and guests who gathered here in Daejeon to participate in the second UN Workshop on Space Law.

I would like to express my sincere thanks to Dr. Sergio Camacho-Lara, Director of the Office for Outer Space Affairs and his staff, for their support and cooperation, without which organizing this Workshop would not have been possible. My deep appreciation also goes to the many renowned speakers and discussants, which are here to share their knowledge and experience with us at the Workshop.

With special focus on the Asia-Pacific region, this Workshop follows up on the achievements of the first UN Workshop held in the Netherlands last November. In this regard, I would like to commend the timely initiative taken by the Government of the Netherlands in holding the Workshop. It contributed a lot to furthering understanding of the key space law instruments and the development of space law on the national level. We hope to continue this momentum at this year's Workshop and beyond.

Ladies and Gentlemen,

It is a natural human instinct to try to reach out to and explore our environment. In the last few millennia, humankind has made the most astonishing discoveries about the cosmos and our place within it. This year marks the centennial of the Wright Brothers' historic first flight in 1903, which was the very first step towards humankind's quest to explore the world beyond the Earth's atmosphere. Recently, for the first time in Asia, China's astronaut returned safely to Earth after a 21-hour mission in orbit.

Today, we live in the age of human space travel and exploration of the universe. Use of outer space is no longer a daydream but everyone's reality. We enjoy its benefits in our daily lives - in telecommunications, weather forecasting, direct broadcasting and the Global Positioning System (GPS), to name but a few. Though States had been exclusive actors in this field, we are now witnessing a tremendous rise in commercial space activities by private actors.

These new realities present unique legal issues. It is our common duty to ensure that we use outer space for the benefit of all humankind. The four UN treaties on outer space and related UN General Assembly Resolutions have provided a fundamental legal framework to deal with various challenges that space activities pose. Nonetheless, a poor number of state parties to the

key treaties, new developments in space technology and the rapid growth of commercial space activities require us to revisit the current state of national and international law on outer space.

Against this backdrop, I sincerely hope that this workshop will provide space-faring and non-space-faring nations alike with a precious opportunity to promote the understanding of outer space law and encourage the early ratification of the treaties.

Ladies and Gentlemen,

Taking this opportunity, I would now like to briefly outline the recent progress Korea has made in its space program. As a latecomer in the field of space exploration, the Republic of Korea aims to become a fully-fledged space-faring nation in the near future. Since the launching of our first experimental satellite in 1992, we have endeavoured to build satellites with our own technology. Last September, the first Korean science satellite of indigenous design, called STSAT, was successfully placed into the orbit. Under the 'National Long-Term Plan on Space Development, we will build a space centre in the southern part of the Korean peninsula for the launching of small satellites using Korean-made launch vehicles by the year 2005.

Having acceded to four of the five UN outer space treaties, the Government of the Republic of Korea is aware of the growing need to enact domestic implementing legislation. To this end, we find it timely to hold this Workshop to share experience and benefit from the expertise of other nations.

Ladies and Gentlemen,

To conclude, I would like to reaffirm my government's full commitment to the collective efforts of the international community to achieve a sound and just legal regime on outer space that benefits all humankind.

I wish all of you an enjoyable stay in Daejeon.

Thank you.

Cha-dong Kim

Director General of Research and Development Bureau Ministry of Science and Technology

Distinguished guests, ladies and gentlemen,

It is my great pleasure and privilege to make welcoming remarks at the United Nations and Republic of Korea Workshop on Space Law. First and foremost, I would like to thank Dr. Yeon-Seok Chae, President of Korea Aerospace Research Institute, for bringing together this distinguished workshop, and my colleagues at the Ministry of Foreign Affairs and Trade and the Office for Outer Space Affairs in the United Nations for their genuine dedication to the success of this workshop.

This workshop is dedicated to augmenting our awareness on the general issues related to space development activities and to promoting understanding, acceptance and implementation of the United Nations treaties and principles on outer space particularly in the Asia-Pacific Region. The workshop will also identify common changes that national legal systems may have to undergo when becoming party to the United Nations treaties on outer space, especially any changes that apply to both space-faring and non-space-faring countries.

Distinguished guests, ladies and gentlemen:

A century has passed since 1903, the year in which the Wright Brothers marked history with the first human air flight, and in this century human beings have made remarkable advances in space science and technology.

In particular, with the first satellite launched in 1957, we have witnessed the great development of space technologies, now having reached the level in which space technologies are parts of our daily life. By simply looking around ourselves, we easily recognize the significant role satellites play in changing our lives and extending our limits as human beings.

Since 1996, Korea has focused on the development of space technologies by pursuing its National Space Program. Under this long-term program, we plan to construct a space centre and develop a launcher for micro satellite in the near future. Our present aim is to launch 20 satellites by year 2015.

Korea has developed space technologies rapidly and successfully so far. Throughout this process, we have come to recognize the necessity of establishing the national legal system in harmony with the Untied Nations treaties on outer space.

Therefore, I firmly believe that this workshop will not only serve to establish the domestic legislation and implement the United Nations treaties on outer space, but will also allow

us to take another big step in our pursuit of further advanced space activities through multilateral cooperation in the Asia-Pacific region.

Finally, I would like to take this opportunity to thank all the fellow participants in attendance today for their assistance. For our foreign participants, I sincerely hope that you will have the chance to experience Korean culture and traditions during your stay here.

Thank you.

Yeon-seok Chae President Korea Aerospace Research Institute (KARI)

Distinguished guests, ladies, and gentlemen,

It is a great privilege and pleasure to welcome you to the United Nations/Republic of Korea Workshop on Space Law. May I take this opportunity to thank the Office for Outer Space Affairs in the United Nations, the Ministry of Science and Technology and the Ministry of Foreign Affairs and Trade of the Republic of Korea for organizing this Workshop. I would like to particularly welcome Dr. Kim Cha Dong, Director General of the Research and Development Bureau in the Ministry of Science and Technology, and Dr. Shin Kak Soo, Director General for Treaties Bureau in the Ministry of Foreign Affairs and Trade of the Republic of Korea. I am pleased that the Korea Aerospace Research Institute is able to provide the venue.

Exploitation of Outer Space

We are all interested in exploiting space. It is our final frontier. We have many good reasons and, inter *alia*, a philosophical imperative in our trials and aspirations to expand our arena into space. At the same time, we share a common understanding on the need of legal regime applicable to the use of outer space, which would ensure that exploited and not-yet exploited benefits do not turn into adversity.

To construct an effective legal regime, we need an effective forum where the differences in views and interests of sovereign states can be resolved. I hope that this workshop will contribute to that end.

Korean Dimension

The Korea Aerospace Research Institute was created in 1989 with the mission to conduct the National Space Programme. In 2002, the National Space Program brought a number of activities to fruition and laid the groundwork for initiatives for coming years. The successful launch of a liquid-fuelled rocket KSR-III marked a major advancement in domestic satellite launch capability. As a sequel to this success, a new project for KSLV-I was initiated: a space launch vehicle for hoisting small satellites of 100kg in low-earth orbit. KOMPSAT-1, the first of a series of Korean Multipurpose Satellite, was launched successfully in 1999, and has been performing its mission beyond its designed life span. KOMPSAT-2 project continues to progress. In addition, Communication, Ocean Monitoring & Meteorological Satellite Programme (COMS) has begun this year.

As a space faring country and a responsible member of the international community, Korea fully adheres to the causes of the United Nations Treaties on outer space.

Closing Remarks

I believe that this is a good time to address the issue of the promotion of understanding and implementing United Nations treaties on outer space on the national level, particularly in the Asia-Pacific region, where space activities have been especially visible and active over the past few years. This is also a good time to address the concerns of developing countries in the region, whose voices are relatively under-represented in the international arena.

I anticipate the speeches and presentations both in the "Government Official" and "Space Law Specialist" segment will elicit much response and lively discussion.

Thank you.

Takemi Chiku

Chief, Committee Services and Research Section United Nations Office for Outer Space Affairs

Ladies and Gentlemen,

It is my pleasure to welcome you all to the second United Nations Workshop on Space Law in Daejeon, which is being organized jointly with the Republic of Korea.

I would first like to thank our co-sponsors in the Republic of Korea, who have made this event possible: the Ministry of Foreign Affairs, in particular Mr. SHIN, Kak-soo; the Ministry of Science and Technology, in particular Mr. KIM, Cha-dong and of course Mr. CHAE, Yeon-seok of the Korea Aerospace Research Institute (KARI). The Government and KARI have provided essential support to the Office in organizing the workshop, by supporting the participation of a number of experts, organizing special events for the participants and providing the excellent meeting facilities here. I would also like to take this opportunity to express my appreciation to Mr. H. Koets of the Netherlands who kindly agreed to join us for the opening of the workshop and to say a few words on behalf of the Government of the Netherlands, who hosted the first workshop on space law in The Hague last November.

My sincere thanks also go to our speakers and chairpersons for spending their time and providing their expertise to ensure that the participants enjoy maximum benefit from this workshop. Without their substantive contributions, this workshop would not have been possible.

Ladies and Gentlemen,

This workshop on space law is the second in a series of workshops that the Office intends to continue in the coming years to build capacity in space law, particularly for the benefit of developing countries. In recent years, we have seen an increasing number of developing countries participate, including using space-based services and systems. It has become increasingly important to ensure that space law and policy, including the ratification of the United Nations Treaties on Outer Space, is considered as a matter of priority by all countries involved in space activities.

I should also like to recall the Action Plan of the United Nations Strategy for an Era of Application of International Law, which was disseminated by the Secretary-General in June 2000 to senior managers in the United Nations. The Action Plan calls on all offices of the United Nations to promote the better implementation of international law in a particular subject area in which they work. Important components of the Action Plan include encouraging participation in multilateral treaties and assisting States in preparing the necessary implementing legislation.

It is within this context that, together with the Republic of Korea, we have organized this workshop to address the United Nations Treaties on Outer Space: Actions at National level. It is the first regional workshop being convened for the benefit of countries in the Asia-Pacific region. We plan to hold other regional workshops in 2005 and subsequent years.

The Office hopes that this workshop will contribute to increasing understanding and acceptance of the United Nations treaties on outer space, particularly in the Asia-Pacific region. As many of you may already know, the Office serves as the Secretariat for the United Nations Committee on the Peaceful Uses of Outer Space. Through this Committee the United Nations developed five treaties on outer space: the historic Outer Space Treaty of 1967; the Rescue Agreement, the Liability Convention, the Registration Convention and the Moon Agreement. These treaties will be discussed in more detail during the workshop. Over years, the General Assembly has urged States that have not yet become Party to these treaties to consider ratifying or acceding to them, as well as incorporating them in their national legislation.

The United Nations treaties on outer space establish an international legal regime for outer space. It provides a number of benefits to countries that become party to the treaties, and many are relevant in practice to all countries, whether developed or developing, and whether "space-faring" or "non-space-faring". Raising awareness of the United Nations treaties on outer space within national governments is therefore an important step towards further increasing their level of participation.

Finally, briefly on the structure of the workshop, two groups will meet during the course of the workshop. The Government Official Segment is being structured to benefit especially government officials, particularly those from Ministries of Foreign Affairs and Justice. This segment will provide a detailed briefing on the United Nations treaties on outer space, as well as national registries and licensing regimes. The Space Law Specialist Segment has been designed for participants with advanced knowledge in space law. In this segment, the participants will be invited to discuss specific issues related to the United Nations treaties on outer space.

I hope that this workshop will be able to identify specific and feasible actions that could be recommended to help build capacity in space law. We would like to ensure that this workshop is useful and relevant to your work after you return to your countries. As we believe many of you would act as important sources of information on space law in your countries, we are distributing several reference documents, including a compilation of existing national space laws, for you to take back home.

A number of legal texts are also available on the web site of the Office for Outer Space Affairs. These include not only the texts of the United Nations treaties, legal principles developed by the United Nations and other General Assembly resolutions on outer space matters, but also texts of national space laws, bilateral and multilateral agreements, and documents prepared by the Office on issues before the Legal Subcommittee. You can find the Office's Web address on some of the information documents that we have handed out today.

The Office also began to build an information network for professionals interested in or actively involved in the development of space law. We will be adding the names and contact details of all participants of this workshop to a mailing list of the Office, for the purpose of disseminating updated information on space law in the future. We look forward to staying in touch with as many of you as possible, and will do our utmost to meet any requests for information in the years ahead.

Thank you for your attention; I look forward to fruitful discussions in the next few days.

National Space Policies and Institutions

United States National Aeronautics and Space Act

Origins, Scope, Application



E. Jason Steptoe Associate General Counsel NASA

The Space Act



 Application of the National Aeronautics and Space Act (Space Act)
42 USC Sec. 2451, et seq.



Space Act Origins – Political Climate

- October 4, 1957: USSR launched Sputnik (first artificial satellite); galvanized American opinion
- Throughout mid-1950's: danger of Soviet surprise attack; strategic warning was considered vital to counter or warn of it
- "Open Skies" proposal of Eisenhower outer space free to all, where spacecraft of any state may overfly all states for reconnaissance purposes



Space Act Origins

U.S. public concerned with Soviet leadership in outer space

- April 2, 1958: Eisenhower declaration for a unified national space agency
- President determines civilian control of space activities essential
 - Except for national defense space operations for which DOD is responsible



Space Act Origins – Civilian Space Agency

- July 29, 1958: Congress declared NASA to be a **civilian** agency, "headed by an Administrator who shall be appointed from civilian life by the President" Sec. 202(a)
- Section 102 (a): "... it is the policy of the United States that activities in space should be devoted to peaceful purposes for the benefit of all mankind"
 - Special legislation required in 1989 for President to appoint Rear Admiral Richard Truly as Administrator. Although Truly retired from the Navy before being sworn in as Administrator, the waiver was necessary because he remained an officer on the retired list and was subject to recall
 - Also true for Feb. 2002 nomination of former NASA astronaut and Asst. Dep. Administrator Maj. Gen. Charles F. Bolden, U.S. Marine Corps, to be Deputy Administrator



Space Act Origins – NASA's early days

 By end of 1959, NASA's long range plan included "making feasible the manned exploration of the moon and nearby planets"

- Called for first human flight to the Moon sometime "beyond 1970"
- Broad legislative authority was essential to accomplish this objective



Scope of the Space Act

- Act carefully and knowingly crafted with broad powers
- Act has enabled NASA, through practice in exercising its authority, to use the lineage of such practices to help interpret the outer limits of the Act
- Paul G. Dembling, General Counsel of NACA and later NASA, participated in drafting the Space Act



Space Act: Objectives

Sec. 102(d): "The aeronautical and space activities of the United States shall be conducted so as to contribute materially to one or more of the following objectives:"

- Expansion of human knowledge of the Earth and of phenomena in the atmosphere and space
- Improvement of usefulness, performance, speed, safety, and efficiency of aeronautical and space vehicles
- Development and operation of vehicles capable of carrying living organisms through space
- Establishment of studies of benefits from and problems involved in utilization of space for peaceful and scientific purposes
- Cooperation with other nations in work done pursuant to this Act and peaceful application of results



Space Act: Variety of Applications

Hire and retain critical personnel

- Leverage NASA property for Agency benefit
- Cooperate in research and development
- Use force to secure NASA installations
- Accept unconditional gifts or donations
 - Special legislation required for the Endeavour fund: Sec. 208 "Donations for Space Shuttle Orbiter" authorized the Administrator to accept donations and gifts for construction of a space shuttle orbiter (expired by its own terms Oct. 30, 1992)



Scope of Space Act: International Cooperation

Cooperate internationally

- Sec. 205: NASA, under foreign policy guidance of the President, "may engage in a program of international cooperation"
 - President Eisenhower, upon signing the Act in 1958, stated that this section authorizes Treaties as well as less formal arrangements for cooperation."

Perform "other transactions" as needed

Elaborated below, Sec. 203(c)(5)



Section 203(a): NASA shall:

- Conduct aeronautical and space activities
- Arrange participation by scientific community
- Provide widest appropriate dissemination of information about its activities and results
 - NASA TV, Public Affairs, and Education initiatives
- Seek and encourage fullest commercial use of space
 - ISS Commercialization
- Encourage USG use of commercially provided services and hardware
 - Requirement to procure commercial land remote sensing data
 - 15 USC 5807: No competition with private sector



 Section 203(b): more particular direction from Congress

- (b)(1): NASA shall initiate, support, and carry out research, development and related activities of ground propulsion technologies, for Electric and Hybrid Vehicle Research (1976)
- (b)(2) NASA shall initiate, support and carry out research, development and related activities in solar heating and cooling (1974)



 Section 203(c)(3): permits NASA to acquire (by purchase, lease or otherwise), construct, improve, operate, and maintain laboratories, research facilities, aeronautical and space vehicles, and other real and personal property, or any interest therein



- Section 203(c)(5): provides NASA with flexible authority to enter into "other transactions." Commonly referred to as "Space Act Agreements" which constitute the primary instrument for NASA's collaborative research
- Also allows NASA to retain cost reimbursements
- As broad as is necessary to perform the functions of NASA and fulfill the overall purposes of the Space Act



- Section 203(c)(5): confers upon the Administrator the authority to execute various commitments necessary to accomplish NASA's mission, including: contracts, leases and cooperative agreements.
- However, most contracts are executed in accordance with the Armed Services
 Procurement Act (10 U.S.C. 2303) and the Federal Acquisition Regulations


Application of Space Act

 Section 203(c)(6): allows NASA to use services, equipment and personnel of "Federal and other agencies with or without reimbursement" and requires each department and agency of the Federal Government to "cooperate fully" with NASA in making its personnel available to NASA.



Application of Space Act

Section 300: Miscellaneous

- Transfer of functions among other agencies
- Unitary wind tunnels
- Security related provisions
 - Access to restricted information
 - Civil and criminal penalties
- Property rights in inventions, patents, awards
- Insurance and indemnification
 - Contractors, entities with which NASA has cooperative agreements, X-vehicles, cross-waivers of liability
- Trademark protection
- Section 400: Upper Atmospheric Research



Conclusions

Space Act well conceived; provides NASA with considerable discretionary authority

- Agency generally has authority necessary to accomplish its mission
- When NASA requires additional authority, NASA approaches Congress with suggested amendments
 - Space Act amended numerous times
 - For example: Recently amended to provide Administrator with authority to indemnify contractors for experimental aerospace vehicles



China's Space Policy

Wenjuan Yin Ministry of Foreign Affairs of China Department of Treaty and law

As a developing country, China's fundamental task is to develop its economy and continuously push forward its modernization drive. The Chinese government has all along regarded the space industry as an integral part of the State's comprehensive development strategy, and believed that the exploration and utilization of outer space should be for peaceful purposes and benefit the whole of mankind.

China persistently supports activities in the field of peaceful uses of outer space and maintains that international space cooperation shall be conducted on the basis of equality and mutual benefit, mutual complementary and common development, and the generally accepted principles of international law.

The priority aim of international space cooperation is to simultaneously increase the capability of space development of all countries, particularly the developing countries, and enable all countries to enjoy the benefits of space technology. It is very important that the function of the United Nations Office of Outer Space Affairs (OOSA) should be consolidated and the outer space application programs of the United Nations should be backed up. China firmly supports initiatives and efforts to achieve the above goal and contributes greatly in the process.

China's participation in international space cooperation started in the mid-1970s. In the last three decades, China has joined bilateral, regional, multilateral and international space cooperation in different forms, such as a commercial launching service, which have yielded extensive achievements.

In terms of regional space cooperation, especially. In the Asian-Pacific region, the Chinese government attaches great importance to this kind of cooperation. In 1992, China, Thailand, Pakistan and some other countries jointly sponsored the "Asian-Pacific Multilateral Space Technology Cooperation Symposium". Thanks to the impetus of such regional cooperation, the governments of China, Iran, the Republic of Korea, Mongolia, Pakistan and Thailand signed the "Memorandum of Understanding on Cooperation in Small Multi-Mission Satellite and Related Activities" in Thailand in 1998.

China also supports space cooperation in other regions of the world. As you may know, just a week before, the second Earth resources satellite developed jointly by China and Brazil was successfully launched atop a Long March IV B carrier rocket from the Taiyuan Satellite Launch Centre on 21 October, which demonstrates China's determination to enhance and expand its space cooperation with both developed and developing countries and sets a good example of South-South cooperation in the peaceful use of outer space.

As this workshop focuses on the implementation of space law, especially the universal application of the United Nations treaties and principles on outer space, let me take this opportunity to outline what we have done in China in this field.

In June 1980, China dispatched an observer delegation to the 23rd Meeting of the UN Committee on the Peaceful Use of Outer Space (COPUOS) for the first time, and on November 3, 1980, China became a member State of this committee. Since then, China has participated in all the meetings of COPUOS. In 1983 and 1988, China acceded to the four core UN treaties on space law: the Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies on 30 December 1983; the Agreement on the Rescue of Astronauts, the Return of Astronauts and the Return of Objects Launched into Outer Space on 14 December 1988; the Convention on International Liability for Damage Caused by Space Objects on 12 December 1988.

On the domestic space legislation side, efforts were initiated around 1994. Nevertheless, more comprehensive work on China's space legislation went ahead only after 1998, when the Chinese government carried out reform on the administration system of industries. China's National Space Administration (CNSA), as the competent authority for national space industry and civil space activities, is responsible for preparing space legislation, formulating policies for space industry and technology, making plans for space development and setting standards in this area.

In order to implement the treaties on space law to which China has become a party, and promote its national space efforts, CNSA joined by other government agencies concerned, undertook studies on space law legislation in China, through which a general regulatory framework and sound legal regime would be set up.

Space legislation is among the highest priorities on the agenda of the CNSA and a special task force is established for this purpose, drawing on expertise from space law professors, expert officials from related government agencies as well as people from the space and space-related industries. In the meantime, some institutional regulations or single directives were elaborated such as the "Provisions and Procedures for the Registration of Space Objects", "Interim Provisions on Licenses for Civil Space Launching Projects", as well as "Provisional Regulation on Liability for Damage Caused by Space Objects" on 8 February2001, "Provisions and Procedures for the Registration of Space I and entered into force on that very day. On the licensing of space launching projects, China adopted the "Interim Provisions on Licenses for Civil Space Launching Provisions on Licenses for Civil Space dot the "Provisional Regulation of space Objects" was officially pronounced in the form of an institutional regulation and entered into force on that very day. On the licensing of space launching projects, China adopted the "Interim Provisions on Licenses for Civil Space Launching Projects" on November 21, 2002. The "Provisional Regulation on Liability for Damage Caused by Space Objects" has been placed on the agenda of this year.

As it is known to all, China's first manned space mission Shen Zhou V safely returned to the Earth last month. During a live television broadcast from 340 kilometres above the Earth, Mr. Yang Liwei, the astronaut commanding the spacecraft, displayed a small-size flag of the United Nations along with a flag of China. This is to demonstrate China's firm commitment to exploring and using outer space for peaceful purposes and for the well being of the whole of mankind.

JAPAN AEROSPACE EXPLORATION AGENCY



United Nations/Republic of Korea WORKSHOP ON SPACE LAW 3rd November 2003

Outline of JAXA

- Type of organization: Independent Administrative Agency (IAA)
- Establishment: 1st October 2003 (under the legislation concerning the Japan Aerospace Exploration Agency, Law No.161 of 13th December 2002)
- Location of Main office: Tokyo, Japan
- President: Mr. Shuichiro Yamanouchi (former NASDA President)
- Purpose of JAXA:
 - to facilitate development of academic research at universities or other institutes
 - enhancement of the level of space-related science and technology
 - enhancement of the level of aeronautics science and technology
 - promotion of space development and utilization

JAXA Organizational Structure



Long-term Plan, Medium-term Goal and Medium-term Plan

- Long-term Plan for Space Development worked out by the Space Activities Commission (Aug 2003) and stipulated by the competent Ministers (1st Sep 2003).
- Competent Ministers set the Medium-term Goal
- JAXA sets the Medium-term Plan to achieve targets set in the Medium-term Goal.
- JAXA to be evaluated by the competent Ministries' Evaluation Committee for Independent Administrative Agencies, on the degree of achievement of the Medium-term Goal, at the end of the Medium-term period (Mar 2008).

Medium-term Plan (Services to the Public)

-measures to be taken for achieving the objectives of improving services provision to the nation and the quality of operations



Basic Policy for Space Development & Utilization

- Contribute to National economy and welfare through promoting space development & utilization as one of the National Strategic Fields in Science & Technology.
- Ensure the world leading status by acquiring the international level of technological capability, and realize the intellectual and authentic nation by performing world-class space science.
- Sustain and develop technological capability for maintaining autonomous space activity, and expand space utilization to a wide range of new fields.

Principles for Consolidation

- Prioritize activities for promoting distinct and unique space development & utilization in Japan
- Reinforce basic technology especially required by prioritization
- Form optimum organization to support efficient and effective R
 & D activities
- Establish appropriate management system for conducting toplevel space science research
- Foster better & reliable connections with Industry through collaboration & cooperation

JAXA's Pivotal Activities

- Realization of Space Transportation System with the Highest Reliability in the World
- Contribution to Global Environmental Issues
- Fostering Space Technology Closely Related to Daily Lives
- Promoting World Top Level Science Mission
- Supporting the Development of Domestic Aircraft

Next Generation Main Launch Vehicle

Option

T

- A user-friendly space transportation system, whose reliability will be dramatically improved and whose cost will be drastically reduced, to be created within 10 years.
- Major goals :
 - -Double reliability compared with current H-IIA vehicle.
 - -50 % reduction in cost from H-IIA.
 - -Launch capability that can efficiently meet domestic transportation demand without pursuing the trend of larger launch vehicles.





Earth Environmental Observation



Using Space Technology to Help our Daily Lives





Supporting the Development of Domestic Aircraft



National Space Budget in FY2003



Launch Schedule



Space Activities in Korea

Ministry of Science and Technology



I. Space related Organizations and Institutions

II. National Space Projects

III. Long-term Space Plan

IV. Current Issues

I. Space related Organizations and Institutions



Governmental Bodies

- ► NSTC (National Science & Technology Council)
 - Supreme legislative organization for S&T policies and R&D investment
 - Established in 1999 by "S&T Framework Law"
 - Chaired by the President
- ECSD (Expert Committee for Space Development)
 - Review and consultation for NSTC in the space field
 - Chaired by Vice Minister of Ministry of Science & Technology

MOST (Ministry of Science and Technology)

- As the secretariat for the NSTC, responsible to coordinate S&T policy among the ministries
- Planning the long-term national R&D Program and projects including space technology
- Responsible for Space development
- MIC (Ministry of Information and Communication)
 - Responsible for commercial telecommunication satellites and services

Other Ministries (MOCIE, MOMAF, etc)

Support, funding for the related space projects

Research Institutions and Private Companies

► KARI (Korea Aerospace Research Institute)

- Established in 1989, government-funded research institute
- Responsible for general R&D of satellites, space launcher, space application & aircrafts
- Responsible for execution of national space projects (KOMPSAT-2, KSLV-1, Space center)

SaTRec (Satellite Technology Research Center)

- University-based research center established in 1989, for development of S&T satellites
- Plays a key role of training in the field of satellite technologies

► ETRI (Electronics & Telecommunications R. I.)

- Established in 1976, government-funded research institute
- Responsible for general R&D of Broadcasting, Telecommunication, Computer & software, Information Technology

ADD (Agency for Defense Development)

Government-funded research institute under the Ministry of Defense

Private Companies

- KAI (Korea Aerospace Industries, Ltd.)
- Hanwha, Korean Air, Doowon Heavy Industry
- Hyundai MOBIS, etc

= II. National Space Projects

Past Projects

KITSAT-1

'92

Rocket

Satellite



KSR-1

KITSAT-2



KSR-2

'94



KOMPSAT-1



KITSAT-3

,98



KSR-3



STSAT-1

'02

'00

KITSAT-I, II, III & STSAT-I

► Main mission

- Scientific experiments
- Enhancing the capability of earth observation (Resolution : 400m => 200m => 13.5m)
- To train and educate through these projects

Responsible organization : KAIST SaTRec

- Developed its own model of the micro satellite (weight : 50~100kg)
- Participants : KAO, Universities (Kyung-Hee, UC Berkerly, etc)

KOMPSAT (Korea Multi-Purpose Satellite) - I

- ► General
 - Period : Nov. 1994 ~ Dec. 1999, launched by Taurus
 - Weight : 470kg, Orbit : 685km, Configuration : D 1.4m × H 2.2m

► Payload

- Electro-Optical Camera for earth observation (resolution : 6.6m)
- Ocean Scanning Multi-spectral Imager (resolution : 1km)

Responsible organization : KARI

- Developed with TRW
- Localized about 60% of the bus system

KOMPSAT - I





KOMPSAT - I

OSMI Image





KOREASAT – I, II, III

► Main mission

Commercial telecommunication service (Geo-stationary orbit)

Payload : Transponders

- I & II : 3 for broadcasting, 12 for communication
- III : 6 for broadcasting, 27 for communication

No.	Weight	Launch	Life Span
Ι	1,464 kg	Aug. 1995	4.5 yr
II	1,464 kg	Jan. 1996	10.0 yr
III	2,800 kg	Sep. 1999	12.0 yr

Responsible organization : Korea Telecommunication

Developed with GE Astro

KSR (Korea Sounding Rocket) - I, II, III

► General

No.	Weight	Length	Propellant	Stage	Launch
Ι	1.2 ton	6.7 m	Solid	Single	Jun. 1993
II	2.0 ton	11.0 m	Solid	Two	Jul. 1997
III	5.6 ton	14.0 m	Liquid (LOX, Kerosene)	Two	Nov. 2002

Responsible organization : KARI

Developed 100% by itself with all the items developed inland

Current Projects



KOMPSAT - II

► General

- Period : Dec. 1999 ~ Jan. 2005, to be launched by Rockot (Russia)
- Weight : 800kg, Configuration : D 1.85m × H 2.6m

► Payload

- Multi-Spectral Camera for earth observation (resolution : 1m panchromatic, 4m color)
- Joint development by KARI & ELOP (Israel)

Responsible organization : KARI

- To develop with technical support of Astrium (Europe)
- To localize over 80% of the bus system
KOMPSAT-I image

KOMPSAT-II image



Geo-Stationary Satellite

KOREASAT - V

- ► General
 - Weight : 4.5 ton, life span : 15 yr, to be launched in 2006
 - Responsible organ. : KT, prime contract : Alcatel Space (France)
- COMS I
 - ► General
 - Weight : 2.5 ~ 3 ton, life span : 7 yr, to be launched in 2008
 - ► Payload
 - Transponders (Ka band)
 - Ocean color imager, meteorological imager

► Responsible organization : KARI, ETRI, KORDI, METRI

STSAT - II

► General

- Weight : 100 kg, life span : 3 yr
- Period : Oct. 2002 ~ Dec. 2005, to be launched in 2005
- Responsible organ. : KARI, SaTRec

Launch Vehicle

- KSLV(Korea Space Launch Vehicle) I
- Being developed by KARI from Aug. 2002 to Dec. 2005

Launching site

- Space Center being constructed by the year 2005 by KARI
- Located in the southwest coastal area of the Korean peninsula

Launching Site



III. Long-Term Space Plan



National Goal

- ► Launch of micro satellite within Korean territory by 2005
 - Related with STSAT-II, KSLV-I, and Space Center
- ► Enter into the top 10 advanced space countries by 2015
- **Overview**
 - Additional development of 16 satellites
 - 5 STSAT's, 7 KOMPSAT's, and 4 Geo-stationary satellites
 - Development of SLV's step by step
 - 100kg payload by 2005 🖙 1 ton by 2010 🖙 1.5 ton by 2015

IV. Current Issues

Space Law

► Korea is a member of UN treaties on the space development.

- Treaty on the exploration and Use of outer space(1967)
- Agreement on Astronauts Rescue(1968)
- Convention on Liability for Damage(1972)
- Convention on Registration(1976)

National space law is not fully prepared for implementation of the UN Treaties.

Korea is under feasibility study to enact the national space law consistent with the UN Treaties.

➡ Enactment of national space law by 2005

Participation in ISS Project

- ► Korea tried to participate in ACCESS Module.
 - Evaluated Korean capability positively by NASA team
 - Cancelled due to budget problem
- Under discussion with NASA & Boeing for alternatives

Participation in Galileo Project

- ► Korea is reviewing the possibility of participation.
 - Not decide on our policy
- Plan to decide by this year

Future National Scheme for Space Development

► MOST : Responsible Department

- Only one division deals with all things related with space.
- Space and Aeronautics Technology Division" in MOST
- Need to reinforce the administrative body
 - Short term perspective : Division level Bureau level
 - Long term perspective : Establishment of independent administrative body such as NASA, CNES, and JAXA

THE NATIONAL SPACE PROGRAMME OF MALAYSIA

Mazlan Othman National Space Agency

CURRENT SCENARIO

- Uncoordinated activities
 - capacity building
 - research
 - applications
 - technology development and acquisition
- Under-developed industry
- Limited technological capability

THE FUTURE

- Coordinated activities
 - National Aerospace Council
 - National Space Agency
- Indigenous technological capability
- Fully developed applications
 - security
 - civil
 - commercial
- Viable industry

RELEVANT ISSUES

- Legal and administrative infrastructure
- Technology development
- Applications
- Industry development
- Capacity building
- Opportunities for international cooperation

LEGAL INFRASTRUCTURE

Goal : To provide the legal infrastructure that will optimise the exploitation of benefits derived from space activities

- Regulations
 - licensing
 - spectrum management
- Domestic space law

- International space law
 - liability
 - registration
- Foreign national laws
- International regimes

ADMINISTRATIVE INFRASTRUCTURE

Goal : To provide the administrative infrastructure that will optimise the exploitation of benefits derived from space activities

- Policy
 - remote sensing
 - positioning and navigation
 - technology acquisition
 - strategic issues
 - industry

- Institutional
 - National Aerospace Council
 - National Space Agency

NATIONAL SPACE AGENCY

Mandate

- National Space Policy
- National Space Programme

Development of space science, technology, industry and applications

NATIONAL SPACE AGENCY

Implementation of mandate

- Space Advisory Council
- Resource Management
- Support Institutions
- Coordination mechanisms

INTERNATIONAL COOPERATION

Goal: To strengthen synergies and forge effective partnerships through international cooperation

- Partners
- Markets
- Diplomatic objectives

UNITED NATIONS/REPUBLIC OF KOREA WORKSHOP ON SPACE LAW

Australia's Space Policies and Institutions

Michael Davis

Partner, Adelta Legal, Australia 3 November 2003

















Australian Space Legislation

- Passed by Australian Parliament in 1998
- Established clear legislative and regulatory framework for the establishment of a commercial launch industry
- Increasing emphasis on safety and protection of property and other strategic assets

The Space Activities Act

The objectives of the legislation were:

- to establish a regulatory regime for commercial space activities carried out in Australia and by Australian nationals
- to establish a compensation regime for third party damage caused by space launch activities
- to make provision for the Government to implement its obligations under the UN Space Treaties

The Space Activities Act

- Implemented in domestic law Australia's responsibilities under the space treaties
- Imposed an obligation on launch operators to indemnify the Government against its international liability for loss and damage, subject to certain limits
- Established stringent launch safety standards and detailed launch insurance cover regime under Regulations made pursuant to the Act

Space Licensing & Safety Office

Responsible for licence approvals of launches, launch facilities carried out

- from Australia
- by Australian
 nationals outside
 Australia

SLASO has licensed

- Experimental scramjet launches at Woomera in 2001 and 2002
- Launch of Fedsat from Japan in 2002
- Launch of the Optus communications satellite in 2003

Australian Government Policy Framework for Space Engagement (2003)

'The Australian Government does not support a centrally funded 'space office' or 'space program'

'There is no dedicated space industry support program because space industry development issues are similar to those faced by other high technology areas (e.g. aerospace, electronics, advanced manufacturing, systems and software engineering, defence industries) and are addressed by available generic programs'

Australian Government Space Forum

- Department of Industry has prime responsibility for 'civil space' issues
- Other departments include Defence, Communications, Science & Education
- Coordinates with other government agencies involved in space to
 - Exchange information about policies, programs and activities
 - Encourage a collaborative approach to space issues and programs

Australian Government Policy Framework for Space Engagement (2003)

- 1. Ensuring access to space services (communications, GPS, Earth Observation
- 2. Supporting science and space-related research
- 3. Promoting the growth of private sector industries
- 4. Safeguarding national security

Ensuring Access to Space Services

- Communications & Broadcasting
 - 'Substantially a commercial activity'
- Global Navigation Satellite Systems
 - Strategic policy launched in 2002
- Earth Observation
 - International cooperation in meteorology and remote sensing
- Space Weather

Supporting Science and Space Related Research

- Earth observation data
- Astronomy
- Geomagnetic observation
- Ionospheric observation
- Space propulsion research Hyshot
- Small satellite development Fedsat

Growing the Private Sector

- Satellite operations and services
- Launch services
- Signal and data processing
- Space instrumentation
- Ground stations
- GPS applications
- Insurance and legal expertise
- Consultancy services
- Industry assistance

Australia as a Centre for Space Education & Training

- Significant expertise in teaching and research
- Expertise in regulatory and policy issues and market studies
- Host of the Regional Finals for the Manfred Lachs Space Mooting Competition
- Host of the International Space University SSP Program in 2004 (27 June to 27 August in Adelaide)
India's Space Policy and Institutions

C. Jayaraj Secretary General Indian Society of International Law

Introduction

The present paper seeks to recapture the historical evolution of the Indian policy and institutions relating to space since India's Independence and highlights the present and the future policy perspectives.

It is not an overstatement to say that India has come of age in space technology as well as converting scientific and technological skills in this area for socio-economic development of the Indian people. From the humble beginning of 1960s, it has emerged into a truly space-faring nation. However, this achievement was based on the clarity of thought and policy on this field by the Indian government. Speaking on science policy for the nation, the first Prime Minister of India, Pandit Jawaharlal Nehru, stated in 1958:

"Science alone could solve the problem of hunger and poverty, insanitation and illiteracy, of superstition and deadening custom and tradition, of vast resources running to waste, of a rich country inherited by starving people".

While articulating India's commitment to international co-operation in space explorations, the then Indian Prime Minister stated in a message to UN Secretary General in 1968:

"The peaceful uses of outer space, particularly in the fields of telecommunications and meteorology, promise to confer great benefits to developing nation. India looks forward to expanding areas of international collaboration and would take initiatives as she has at the United Nations sponsored International Rocket Launching Station in Trivandrum and at the Experimental Satellite Communication Earth Station"

Dr.Vikram Sarabhai (considered as the father of Indian space programme) drew up a strategy for space programme of India in the early sixties and stated:

"There are some who question the relevance of space activities in a developing nation. To us, there is no ambiguity of purpose. We do not have the fantasy of competing with the economically advanced nations in the explorations of the moon or planets or manned space flights. But we are convinced that if we are to play a meaningful role nationally and in the comity of nations, we must be second to none in the application of advanced technologies to problems of man and society, which we find in our country".

He further stated:

"And we note that the application of sophisticated technologies and the methods of analysis to our problems is not to be confused with embarking on grandiose schemes whose primary impact is for show rather than for progress measured in hard economic and social terms".

One may infer, from the above, that India's vision on its space program was comprehensive and people oriented. Further, the objectives of space program were clearly stated in the introduction to the decade plans of 1970-80, including the need for becoming self-reliant as follows:

"The principal objectives of the space program in India are to develop indigenous competence in designing and building sophisticated hardware involved in space technology including rockets and satellites for scientific research and practical applications, the use of these systems for providing point to point communications and a National TV hook up through a direct broadcast synchronous satellite and the application of satellites for meteorology and for remote sensing of earth resources"

I. Indian Space Programme: Organizational/Institutional structure

The space efforts started in the sixties with the investigation of ionosphere by establishing the Thumba Equatorial Rocket Launching Station near Trivandrum. The most important and umbrella organization, the Indian Space Research Organisation (ISRO) was established in 1969 under the Department of Atomic Energy. However, having realized the need for an independent department, the Government of India established the Department of Space (DoS) in 1972, along with a Space Commission. The Department of Space is directly under the Prime Minister of India, since its inception. The Space Commission comprising scientists and administrators formulates the functional policies and the technical strategies to realize the felt needs of Indian space program. The DoS is responsible for implementing the policies framed by the Space Commission. In turn, ISRO is responsible for implementing the programmes at the field level.

An impressive array of institutions have been established in India under the supervision of ISRO:

- 1. National Remote Sensing Agency (NRSA)
- 2. Physical Research Laboratory (PRL)
- 3. National Mesosphere-Stratosphere-Troposphere Radio Facility (NMRF)
- 4. Vikram Sarabhai Space Centre (VSSC), Thiruvananthapuram
- 5. ISRO Satellite Centre (ISAC), Bangalore
- 6. Space Application Centre (SAC), Ahmedabad
- 7. SHAR Centre, Sriharikota, Andrapradesh
- 8. Liquid Propulsion Systems Centre (LPSC) with facilities at Bangalore, Thiruvanathapuram and Mahendragiri
- 9. Development and Educational Communication Unit (DECU), Ahmedabad
- 10. ISRO Telemetry, Tracking and Command Network (ISTRAC), with stations at Bangalore, Sriharikotta, Lucknow, Nicobar and Mauritius.
- 11. INSAT Master Control Facility (MCF) at Hassan, Karnataka

India has made laudable achievements in using space technology in the fields of telecommunications and remote sensing. There are two types of satellite system currently in

operation: the Indian National Satellite System (INSAT) and the Indian Remote Sensing Satellite (IRS)

1. Indian National Satellite System (INSAT)

This system is in service of telecommunications, television broadcasting and meteorology, including disaster warning. Under this series, India has launched 15 satellites from 1982–2002. However, at present only five satellites are operating in the series, namely, INSAT-2C, INSAT-2DT, INSAT-2E, INSAT-3B and INSAT-3C.

2. Indian Remote Sensing Satellite (IRS)

IRS series of satellites form an operationally maintained and updated civilian remote sensing satellite offering earth observation data, which would be useful for many developmental activities. At present, India has the largest constellation of remote-sensing satellites in space today and they include IRS-1C, IRS-1D, IRS-1D, IRS-P3, IRS-P4 (Oceansat) and TES (Technology Experiment Satellites).

October 17, 2003, was a glorious day for the Indian space community as well as for the users of space science, when India launched its Resourcesat and put it in its precise orbit of 821 kilometres above the earth. The Resourcesat is the World's most sophisticated remote sensing spacecraft. It is said it has a combination of finest earth observing cameras. Resourcesat will be helpful in determining the health of crops, locating groundwater availability, surveying whether the spread of lakes and ponds are shrinking, assessing the severity of droughts, real-time monitoring of floods, mapping wasteland, studying the destruction of forests, detecting the death of coral reefs, and landslip-prone areas.

Moreover, the remote sensing data is integrated with other relevant data through a common program called Integrated Mission for Sustainable Development, in order to derive comprehensive developmental plans with the participation of local communities. The space data is also used in support of disaster management in India. For instance, in areas of flood monitoring, drought assessment and land slide hazard, etc. A remarkable benefit for an average citizen in India from space research and data is the concept of Tele-medicine. The telemedicine facilitates expert medical consultations to reach rural and remote areas by connecting hospitals and health centres in those locations with super specialty hospitals in major towns and cities. For instance, the Tele-medicine project has been implemented in the far-flung areas like Andaman and Nicobar Islands, by connecting it with a super specialty hospital at Chennai.

II. Indian Space Programme: Present and Future Policy Trends

To date, the Indian initiatives in space research were based on the following perspectives:

- 1. Societal role for meeting welfare objectives and needs of a secure society, with public funding support.
- 2. Promoting economic benefits, through commercial activities
- 3. Role of space as a driver for technological innovations

India's present and future space activities are envisaged to meet the following policy requirements

- 1. *Strengthing of Space Communications*: which include positioning and promoting Indian satellite systems, including those by private sector for meeting commercial, social and government requirements.
- 2. *Excellence in Earth Observation*: to meet national imaging demands and supporting National Natural Resources Management System, Disaster Management System, improved weather and ocean state forecasting
- 3. Space Transportation
- 4. *Space Science Enterprise*: developing facilities, instrumentation and research, strengthening of planetary sciences program
- 5. Promoting international cooperation and partnerships
- 1. New Policy Initiatives
- 1.1. Satcom Policy

The Government of India has formulated and approved a Satcom policy in the form of "Norms, Guidelines and Procedures for Implementation of Policy Framework for Satellite Communications in India", in January 2000. Major features of the policy are:

- 1. Authorize INSAT capacity to be leased to non-government (Indian and foreign) parties
- 2. Allowing commercial activities on INSAT system
- 3. Allow Indian parties to provide services including TV up-linking through Indian satellites
- 4. To enable establishment of the "Indian Satellite Systems" and networks by the Indian private parties.
- 5. The operations from Indian soil using the foreign satellites, under certain conditions (enabling Indian participation in such ventures)
- 1.2. Remote Sensing Data Policy

The government of India has approved and adopted a Comprehensive Remote Sensing Data Policy (RSDP) for acquisition and distribution of satellite remote sensing data from Indian and foreign satellites for civilian users in India. It is a policy that sets guidelines for satellite data acquisition and distribution in the country as well as for licensing the IRS capacities to other countries. Permission from the government will be required for operating remote sensing satellites from India and for distribution of satellite images in India. RSDP streamlines the distribution of high-resolution data to government users, private users involved in developmental activities including academia and foreign users. RSDP would help in regulating the process of image distribution so that Indian users are not denied access to valuable satellite based imageries, which can be used in the development of natural resources.

1.3. Industrial Participation Policy

ISRO and the Department of Space is in the process of bringing about an "Industry Participation Policy".

The trust areas of the proposed policy are:

- 1. ISRO will realize higher levels of aggregates in system/stage level supply from industry
- 2. ISRO will encourage industry to invest in the future production facilities
- 3. The production level of supply quantities will be committed to industry by ISRO on a long term basis
- 4. ISRO will evolve suitable guidelines for the deputation of ISRO experts to work in industry
- 5. ISRO will develop adequate provision to safeguard its own intellectual property rights, as well as the IPR of joint developments
- 6. ISRO will consider incentives to encourage commercial development of space system and support services, including, to a certain extent, financial support in the form of Venture Capital.

1.4. Human Resource Development Policy

ISRO is following the Personnel Policy for the development of human resources. Key features of the Policy include, flexibility in the career growth prospects; rewards and incentives for the talented employees; and opportunities for the experts to interact with their counterparts elsewhere in the country, and also with the experts from other space agencies.

1.5. Commercialization Policy

The Antrix Corporation is the marketing wing of the Department of Space. The Corporation makes commercially available the data collected from its remote sensing satellites. Its tie up with Space Imaging, USA, is a growing business. The company also supplies various IRS specific hardware and software items. It has successfully executed several export orders received from major spacecraft/satellite manufacturers for spacecraft/satellite systems, assemblies and components.

The corporation also intends to use commercially the Polar Satellite Launch Vehicle (PSLV) for launch services. For instance, PSLV was used to launch the Korean satellite KITSAT-3 and a German satellite. In view of this commercial use of its space products and services, the country is earning a good amount of valuable foreign exchange. The present policy also aims at playing an active market role globally.

1.6. International Cooperation

India's policy on international cooperation is based on its view that by its very nature, space activities have global reach with implications for coordination, cooperation and responsibility. Demonstrating its desire for international cooperation, India has entered into Memoranda of Understanding (MoU) or Agreements with several countries, namely, Australia, Brazil, Brunei Darussalam, Canada, China, EUMETSAT-1, European Space Agency (ESA), France, Germany, Hungary, Indonesia, Israel, Italy, Mauritius, the Netherlands, Norway, Peru, Russia, Sweden, Syria, Thailand, U.K., Ukraine and USA. ISRO has also entered into agreements with organizations, namely the Brazilian Space Agency, the National Institute for Aeronautics and Space of Indonesia, the Israel Space Agency, the National Aeronautics and Space Administration and the National Oceanographic and Atmospheric Administration of the USA.

India plays an active role in several international bodies, such as the United Nations Committee on the Peaceful Uses of Outer space (UNCOPUOS), UN Economic and Social Commission for Asia and the Pacific (UN-ESCAP), the international COSPAS-SARSAT system for search and rescue operations, the International Astronautical Federation (IAF), the Committee on Earth Observation Satellites (CEOS), the Committee on Space Research (COSPAR), the Inter Agency Debris Coordination Committee (IADC), the Space Frequency Coordination Group (SFCG) and various other bodies.

Having signed the International Charter for Space and Major Disasters, along with other space agencies, ISRO is committed to providing satellite data for disaster management. India has established the Centre for Space Science and Technology for Asia and the Pacific under the initiative of the UN Office for Outer Space Affairs. It offers ten-month Post Graduate Diploma courses in Remote Sensing and Geographical Information Systems, Satellite Communication, Satellite Meteorology and global climate, space and atmospheric studies. So far, 405 candidates from 27 Asia-pacific countries and 36 from other countries have benefited.

1.7. Citizen's Charter of Department of Space

The Department of Space (DoS), has the primary objective of promoting development and the application of space science and technology to assist in all-round development of the nation. With this end in view, DoS has evolved the following programmes:

- 1. INSAT programme for telecommunications, broadcasting, meteorology, developmental education, etc.
- 2. Remote Sensing programme for application of satellite imagery for various developmental purposes
- 3. Research and development in space sciences and technology for the purpose of national development
- 4. Launch Vehicle Programme having indigenous capability for launching spacecraft.

The DoS is committed to providing national space infrastructure for the telecommunication needs of the country; satellite services required for weather forecasting, monitoring etc.; satellite imagery required for the developmental and security needs of the country; satellite imagery and specific products and services required for application of space science and technology for developmental purposes to the Central Government, State Governments, Quasi Governmental Organizations, NGOs and the private sector; proof of concept demonstration of space applications; and promoting research and development in space sciences and technology.

While implementing the above objectives, the Department of Space will provide required transponders and facilities out of its own capacity as well as by hiring additional capacity, if need be; register the Indian Satellite System for public and private sectors; and provide its products and services in a prompt and efficient manner to all the users/clients.

III. India's Policy and Practice on Outer Space Law

India was one of the active participants in outer space law making through the General Assembly and UNCOPUOS and its Legal Subcommittee. Shri. Krishna Rao of India in one of the first UN meetings on Outer Space Law stated:

"Outer space was a new field and there were no vested interests to prevent the international community from embarking on a regime of co-operation rather than conflict. The problems of outer space were fortunately not those of modifying an existing regime but of fashioning a new pattern of international behaviour".

India has satisfactorily discharged its obligation in creating a viable international legal framework. It is a party to four out of the five UN treaties on outer space law, namely, the Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies; the Agreement on the Rescue of Astronauts, the Return of Astronauts and the Return of Objects Launched into Outer Space; the Convention on International Liability for Damage Caused by Space Objects; and the Convention on Registration of Objects Launched into Outer Space. However, India is not a party to the Agreement Governing the Activities of States on the Moon and Other Celestial Bodies.

India is a party to several Principles adopted by the General Assembly, namely, the Declaration of Legal Principles Governing the Activities of States in the Exploration and Use of Outer Space; Principles Governing the Use by States of Artificial Earth Satellites for International Direct Television Broadcasting; Principles Relating to Remote Sensing of the Earth from Outer Space; Principles Relevant to the Use of Nuclear Power Sources in Outer Space, and the Declaration on International Cooperation in the Exploration and Use of Outer Space for the Benefit and in the Interest of All States, Taking into Particular Account the Needs of Developing Countries.

Further, India has been actively participating in formulating the legal principles relating to the current issues of space law, such as, the use of nuclear power sources in outer space; the definition and delimitation of outer space; the character and utilization of geostationary orbit; the concept of "Launching State", and so on.

1. Absence of Space Law in India

India may face problems of international responsibility in the event of not discharging/violating its obligations under the international conventions and may face the problem of liability for acts not prohibited by international law. It does not have a domestic law to handle the consequences of its international and domestic obligations. India is in the thick of a privatization and globalization process.

ISRO itself is willing to privatize some of its activities, while the Antrix Corporation is engaged in commerce. This entails the legal issues of liability and compensation for injury/harm caused by space objects, the registration and insurance of space objects, and the procedures and for a for settlement of claims, etc. Of course, it is surprising that while India is an active and advanced space faring nation, it has not put in place a law regulating space activities by Indian nationals and corporations within Indian Territory. However with a combination of policy declarations, norms, guidelines and administrative directives, as we saw earlier, the Government of India seeks to regulate the whole range of activities, including commercial aspects.

In any event, India has proclaimed its commitment to international law in this regard by accepting most of the conventions and principles. Moreover, the Indian State and its instrumentalities are subject to Constitutional mandate given in Article 51(c) of the Indian Constitution that they should foster respect for international law and treaty obligations. However, this is not to say that India does not require a domestic law on its space activities. There is a

strong case to the contrary that it is high time that the space policy makers ought to contemplate the need for a comprehensive space legislation.

Indonesian Space Policies and Institutions

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Introduction

One of the reasons why the application of space science and technology for Indonesia is very important is the specific geographical situation in Indonesia. As an archipelagic State, which comprises in total about 17,000 islands with more than 214 millions people and 200 different local languages, it already faces big challenges and constraints, especially in preserving its unity.

Thanks to the human achievement in space science and technology and the right vision of the Indonesian government, in 1976 Indonesia became the 1st developing country which procured, owned and operated a satellite, called Palapa, for its domestic communication system. The contribution of Palapa satellite for preserving the unitary State of Indonesia is really meaningful. In addition to that, the existence of the national communication infrastructures has encouraged further economic growth.

Since then, the application of space science and technology to fulfil the national needs has been developing. Such application ranges from telecommunication, remote sensing, research and observation of the atmosphere and ionosphere, weather forecasting, global positioning system, and so on.

In order to describe the direction of space related activities in Indonesia, it is important to have some information regarding Indonesian space policy and institutions. Such information would lead us to understand how far space policy and institutions serve the present and future national interest and affecting the prosperity of the people.

This paper is aimed at providing participants of this workshop with a short but comprehensive picture of how the space policy has been outlined and how it is being used as guidelines and direction for conducting space activities, also how the relevant institutions work and contribute to attain national objectives and accommodate the interest of the people.

I. Indonesian Space Policy and Its Implementation

1. Basic Concepts in formulating Space Policy

Paragraph 4 of the preamble of the Indonesian 1945 Constitution clearly states the objectives of establishing the unitary State of Indonesia. Other paragraphs include: promoting general welfare, promoting the standard of education of the people and maintaining international order based on peace, eternal liberty/freedom/independence, and social justice. As the 1945 Constitution (as amended) is one of the primary sources of law within the framework of the Indonesian legal system, thus the norms of the constitution govern the formulation of any State

policy, including space policy. Another consideration is, of course, the national interest in space. The pursuance of national interest in space, however, must be conducted in such a manner that it respects the legitimate rights of other countries and existing international law. Moreover, the formulation process of space policy shall take into consideration present and future development in the field of space science and technology and its applications.

2. Policy Making Forum

The highest coordinating body in formulating aerospace policy in Indonesia is the National Council for Aeronautic and Space (DEPANRI). DEPANRI was established by Presidential Decree no 24 of 1963 as amended by Presidential Decree no 99 of 1993. DEPANRI is chaired by the President of the Republic of Indonesia with members consisting of: The Minister of State Research and Technology (also as vice chairman and acting chairman); Minister of Foreign Affairs; Minister of Trade and Industry; Minister of Defence; and Minister of State Development Planning.

The main duty of DEPANRI is to assist the President in formulating general policy in the field of aviation and space. DEPANRI is obliged to provide consideration, opinion and advice to the President regarding legislation and utilization of air space and outer space for aviation, telecommunication and other national interests.

Since the establishment of DEPANRI, it only managed to convene two special sessions chaired and attended by the President and all members. The first was held in 1994, while the second was in 1998. The first session was held with the objectives of discussing certain issues in the field of aviation, which were directly related to the national interest; and to stipulating a national program in the field of aviation and space for the second Long Term Development Program (PJP II). The decisions of the first session included the following:

- 1. To develop and formulate national aerospace concept and national system in space as guidelines for designing aerospace policy and national aerospace development plan, including elaboration of legal rules and norms;
- 2. To develop and promote aerospace manufacturing and service industry;
- 3. To conduct scientific research and development;
- 4. To promote the quality of human resource in the utilisation, development and mastering of aerospace science and technology;
- 5. To develop relevant laws and regulations to encourage national aerospace efforts and securing its achievements, also to support the effort to accommodate national interest in international forum, especially international recognition of the rights to exercise national sovereignty in airspace, and to serve national interest in outer space in a comprehensive way.

An important result of the first session of DEPANRI was the decision that in peace time 80% of the activities should be for commercial and 20% for military/defence purposes, while in war time all resource should be mobilised for military/defence purposes.

The second special session of DEPANRI was held in 1998. The objective of the meeting was to discuss and determine policy, priority and goals/targets for aerospace development in order to make progress and achieve independence in the aerospace field as a contribution to national development. The purpose/significance of the meeting was as to legitimize the results of the first National Aerospace Congress held in the same year.

Another important forum in discussing and outlining space policy is the National Aerospace Congress. The first National Aerospace Congress was held in 1998. The Congress was attended by all stakeholders in aerospace activities. Not only governmental agencies participated in the congress but also private entities, researchers, experts, intellectuals and individuals. Some fundamental and important issues were agreed during the congress including:

- 1. The Concept of National aerospace, as an elaboration of the perception and attitude of the nation in dealing with the utilisation of aerospace as a reflection of its national interest in aerospace;
- 2. General Policy for the second Long Term Development Program;
- 3. The amended national position on geostationary orbit in line with the dynamic development of the issues;
- 4. Law reform, especially in national space legislation program by ratifying relevant international legal instruments for space activities, enactment of a national Space Act and the determination of a national position on definition/delimitation of outer space;
- 5. Policy on International Co-operation.

During the congress, discussion was also devoted on some strategic issues which needed to be observed, including the recent international trends and development, such as: implementation of a satellite-based aviation system; the possible impact of the International Space Station operation; commercialisation of space activities; the increasing utilization of earthorbits /spectrum resource; the latest development of space transportation system; atmosphere and ocean observation; space exploration; microsat and international cooperation.

3. National Space Legislation

In an attempt to develop national space legislation as a part of the national legal system, some necessary steps have been taken including, but not limited to, the following:

3.1. Transforming relevant international legal instruments related to space activities into a part of national law.

As far as international legal instruments related to space activities are concerned, Indonesia has ratified almost all space treaties, namely:

- a. Treaty on Principles concerning the activities of States in the Exploration and Use of Outer Space, including the Moon and other Celestial Bodies of 1967;
- b. Agreement on Rescue of Astronauts and Return of Objects Launched into Outer Space of 1968;
- c. Convention on International Liability for Damages Caused by Space Object of 1972;
- d. Convention on Registration of Object Launched into Outer Space of 1975.

Among the Space Treaties, the only agreement that Indonesia has not ratified is the Moon Agreement.

3.2. Preparing a Series of National Space Legislation.

As a logical consequence of ratifying relevant international space treaties, at the moment, a series of national space legislation is being studied and prepared. As a first step, an academic draft and a draft of the national Space Act is being prepared and finalized. Such draft will be discussed at the second national Aerospace Congress to be held in mid December 2003. Such

draft of the national Space Act is designed to be comprehensive and to consider the present and future development of space activities which would involve "national activities" of Indonesia, including but not limited to formulating rules governing participation of private entities in space commercialization ventures.

The important issues to be covered by the draft national Space Act include:

a. Terminology and definition

It will elaborate certain terminologies and definitions to be used in the draft national Space Act;

- b. The Legal Status of Outer Space, including the Moon and other Celestial Bodies It will confirm the status of, and the legal regime applied to outer space, including the moon and other celestial bodies as referred to in existing international space treaties;
- c. The Safety of the Space Mission in relation to the establishment of a National Licensing System

In a way to guarantee the safety of any space mission, a high standard of safety regulations will be implemented. Furthermore, a national licensing system will be established for procurement, launching, deployment and operation of space related activities;

d. The National Security

The draft of the national Space Act will emphasize that any activities related to Indonesia, either conducted from the Indonesian territory or from outside involving "Indonesian Nationals" shall take into serious consideration the interest of national security. National security in this context refers to sovereignty and territorial integrity. Therefore, a kind of security test will be imposed to the license applicant;

- e. Rules and Procedures for State Responsibility and an International and National Liability System As the existing space law has the characteristic of government to government basis, a set of rules and procedures will be implemented to deal with the issues of state responsibility and international liability for space activities, either conducted by governmental institutions, private entities and even individuals. In addition to that, a national liability system shall also be established to guarantee a prompt, effective and adequate settlement of compensation to the potential or actual victims of space activities. Thus, it will be more victims-oriented;
- f. National Registration System

Regulation concerning a national registration system for objects launched into outer space will be formulated in the draft national Space Act as the registration of objects launched into outer space is closely related to jurisdiction and control over such objects. Certain national institutions will be assigned to coordinate the registration of objects launched into outer space, either in the framework of the Space Treaty and Registration Convention or in the framework of the ITU;

g. Institutional Issue

The Institutional issue is a very important issue to be resolved, especially in relation to coordination amongst relevant governmental institutions/agencies. This issue will be carefully formulated in the draft national Space Act;

h. International Cooperation

Considering the importance of promoting and encouraging international cooperation in space activities to accommodate national interest in space, the draft shall contain regulations concerning methods and requirements for international cooperation. By promoting international cooperation, it is expected that national

interest in the utilization of space science and technology, transfer of technology and developing genuine capabilities in space activities might be well served;

i. Environmental Protection

With the understanding that space science and technology shall contribute to humanity, the pending regulation of space activities shall be "environmentaloriented" rather than "use-oriented" to secure sustainable development;

- j. Protection of Intellectual Property Rights Realizing that space activities might involve the application of high technology and new inventions, it is the duty of the Government of Indonesia to properly protect domestic and foreign intellectual property rights relevant to space activities. Such protection shall be reflected in the formulation of the draft national Space Act.
- k. Participation of Private Entities in Space Activities In line with the increasing role of the private sector in space activities, the draft the national Space Act will regulate procedures and mechanisms for participation of private sectors in space activities. Such provisions will also cover rights as well obligations /liability of the private sector for its activities;
- 1. Dispute Resolution Mechanism Theoretically, in parallel with the rapid growth of space activities, it will create a greater number of disputes. To anticipate such possible situation, an effective and fair dispute resolution mechanism for space activities is required. Such a dispute settlement mechanism shall cover administrative, technical and legal disputes. The existence of an effective and fair dispute resolution mechanism will secure and boost orderly space activities.

4. Implementation of Space Policy

As a developing nation with limited financial resources, Indonesia faces a lot of constraints in implementing its space policy. Moreover, the multidimensional crisis faced by Indonesia since 1997 has deteriorated its capacity to achieve its space targets, priorities and programs. Therefore, the emphasis of national space activities relevant to national development has been placed on the application of space technology to enhance the welfare of all Indonesian people and on other space-related efforts required for the sustainability of such activities. Owing to its specific conditions and geographical location, Indonesia views space technology and its applications as a powerful and efficient tool that can make a significant contribution to solve the multitude of development problems confronting countries.

In general, applications of space technology as an implementation of national space policy can be described as follows:

1. Telecommunication

At the moment some Indonesian legal entities, both state owned enterprises and private legal entities are operating telecommunication satellites, such as: 2 Palapa B satellites series; 1 Palapa C satellite; Indostar (Cakrawarta) satellite for direct television broadcasting; Telkom-1 satellite for fixed communication, broadcasting and mobile; Garuda-1 satellite for personal global mobile communication.

2. Remote Sensing Applications

Practical applications of remote sensing data to be used for:

a. Inventory of irrigated rice field;

- b. Forest mapping and monitoring;
- c. Mangrove forest inventory;
- d. Coral reef mapping;
- e. Mapping of sea surface monitoring;
- f. Forest fire detection and monitoring;
- g. Drought monitoring;
- h. Inter-tropical convergence zone monitoring and cloud cover mapping;
- i. Outgoing long-wave radiation mapping and monitoring;
- j. Flood monitoring and flood susceptibility assessment;
- k. Identification of potential fishing zone.

3. Research and Observations of the Atmosphere and Ionosphere

- a. Research and modelling of the Indonesian Climate;
- b. Research and observation of the ionosphere and upper atmosphere.
- 4. Global Positioning System Applications
- 5. Space Technology Development

Indonesia is now giving attention to the possibility of small satellite development for various applications.

As a part of its policy to promote international cooperation, Indonesia is open to the possibility of using its territory for conducting space activities. As an example, a Memorandum of Intention has been signed in Moscow between President Megawati and President Putin to use Biak airport in Papua as an intermediate air launch bases. Furthermore, there is the opportunity for private entities of both countries to participate in this venture. At the moment, some regulatory preparations are being discussed and prepared between them for the realization of the project.

II. Indonesian Relevant Institutions Relating To Space Activities

Some relevant institutions involved in space related activities include governmental institutions and non-governmental institutions.

1. Governmental Institutions

1.1. The National Aeronautic and Space Council (DEPANRI)

As explained previously, DEPANRI is the Highest Coordinating Body with the main function to formulate the policy regarding the utilization national air space and outer space for aviation, telecommunication and other national interests. It also provides considerations, opinion and advices to the President regarding regulations and utilization of air space and outer space.

1.2. The National Institute of Aeronautic and Space (LAPAN)

LAPAN acts as a national focal point in conducting research and development related to the peaceful uses of outer space. LAPAN is directly responsible to the President of Indonesia while its activities are technically coordinated by the Ministry of State for Research and Technology. Its main function include the utilization of remote sensing satellite data and undertaking activities related to research and observations of the atmosphere /upper atmosphere.

1.3. Other Governmental Institutions

Other governmental institutions involved in space technology applications are: The National Coordinating Agency for Surveying and Mapping (BAKOSURTANAL); The Meteorological and Geophysical Agency (BMG); The Agency for the Assessment and Application of Technology (BPPT); and The Indonesian Institute of Sciences (LIPI).

2. Non-Governmental Institutions

Generally, there is a tendency that non-governmental institutions play an increasing role in conducting related activities in space. This tendency also applies to some non-governmental institutions in Indonesia. Among them, the 2 (two) organizations, which are very active, are: Indonesia Satellite Association (ASSI) and Indonesia Infocom Society (MASTEL).

2.1. The Indonesian Satellite Association (ASSI)

ASSI was at first an association of satellite operators in Indonesia which was established by 5 (five) satellite operators : TELKOM; INDOSAT; Pasifik Satelit Nusantara (PSN); Media Citra Indostar (MCI) and Aces. The membership of ASSI is also open for foreign operators, private entities, professionals, experts, academicians and Individuals. ASSI has received broad recognition both from government and from private sectors. It also contributes substantially to the formulation of space policy and regulations. ASSI conducts regular training on space technology and relevant regulatory matters, and issues certification for space related product and process.

2.2. The Indonesian Information and Communication Society (MASTEL)

The convergence of telecommunication (including space communication), information and computer into telematic has brought new services in addition to conventional services. Such new services include: multimedia services; video on demand; tele-education; tele-medicine; voice over internet protocol; video-conference; and so on. Consequently, this has resulted in new players in these ventures. MASTEL is an organization established by the information and communication society, including associations of telecommunication operators, Internet service providers, content providers, computer vendors; professionals etc. MASTEL so far has contributed substantially in shaping Indonesian telecommunication law, cyber law, broadcasting law etc. Thus, this makes it an important organization. The Representatives of MASTEL also have a seat at the telecommunication Independent Regulatory Body (BRTI) and the Independent Broadcasting Commission (KPI). As a dialog partner of the government, opinions of MASTEL are seriously considered by the government.

3. The Issues of Institutional Coordination

One of the biggest problems confronting the implementation of space policy is the lack of coordination among relevant institutions. Overlapping between different institutions sometimes takes place, as regulations concerning their main function, are unclear and create different interpretations. The draft of the National Space Act is expected to touch and overcome the lack of coordination issue by clearly defining the task, function and obligation of each institution and formulating a coordination mechanism between them.

Concluding Remark

A. As a country with a specific geographical situation, Indonesia relies upon the application of space science and technology to preserve its unity and promote prosperity;

B. Based on its present and future national interests, Indonesia's national space policies, priorities and programs have been outlined in a policy-making forum;

C. Financial constraints and lack of coordination among relevant institutions create difficulties in fully implementing national space policies;

D. Efforts toward developing national space law as a part of the national legal system is underway and showing some progress, including ratifying relevant international legal instruments and the finalization of a draft national Space Act;

E. There is a need for reorientation of space policies and reformation of relevant institutions in order to catch-up with recent trends and development, including commercialization, privatization and globalization of space activities.

The Kingdom of Morocco

United Nations / Republic of Korea Workshop on Space law 03 - 06 November 2003 Deajeon - Republic of Korea

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Space Activities in Morocco

- The strategy
- The Royal Center for Remote Sensing as a national institution to coordinate space applications activities
- Space law activities in Morocco

The Strategy

- The development and use of space applications in fundamental sectors :

 - In an operational and routine basis
 Where the economic and social benefits are highly demonstrated

 - Taking into account the priority needs
 Several fields : Telecom., RS, Meteorology, Navigation
- R & D
 - Pilot or demonstration projects, research within universities
- Awareness and Training
 - Decision Makers
 - Technical and specialised entities
 High schools and universities

 - Kids...

Regional and International co-operation and activities

- Networks with involved bodies and organisations
- Regional initiatives and Seminars

The Royal Center for Remote Sensing

- Is a national institution responsible for :
 - Development of capacities at the national level
 - Coordination and execution of the national program of RS
 - Provision of technical advisory services and of Space information
 - provision of training and education opportunities in Space technologies and carrying out research actions and programs

Operational applications to support strategic decisions

- Support to government departments in various fields :
 - Agricultural statistics and production forecasting
 - water resources management
 - forest and pastoral resources assessment
 - vurban and land management
 - space cartography and geomatics
 - environment and hazards
 - geological applications
 - v oceanography, climate and marine resources

Services to support users

• The CRTS provides expertise to national and regional institutions (governmental, private, ...) for :

v project realisation and methodologies definition

- acquisition, archiving and distribution of Earth observation data
- consulting and technical assistance
- training and education opportunities in space technologies

carrying out research actions and programs

Training & Education Activities of Royal Center for Remote Sensing

Objectives

- •To sensitise decision makers, managers,... to the benefits of space
- To enlarge users community Context
- Infrastructures dedicated to high technologies training
- Annual program and specific modules for initiation or performance enhance
- •Open to participants from the region based on the cooperation with partners : regional organisations, international agencies, ...

Various Form to Answer ours Needs

Professional Training

Continuing training for national and regional participants
 Dedicated courses to answer specific needs
 The projects realised by the CRTS offer an opportunity of
 training

Research

 Supervision of PhD students coming from national and regional universities

Participation of CRTS Staff to Courses

- at the national universities and engineering schools

Organisation of Information Actions

- seminars, round tables, conferences,...

Participants Trained in GIS and Remote Sensing within the CRTS program

More than 1000 persons trained since 1992



International actions to promote cooperation

- Technology transfer and cooperation development :
- Contribution to regional and international programs: COPINE, AFRICOVER, RAMSES, CAMELEO...
- membership in international associations and committees COPUOS, IAF, SAF, COSPAR, EURISY,...
- organization of international conferences dedicated to the region, Marisy (92, 95, 2000), Eurisy (97, 2002), Workshop on space law 2002, Regional preparatory UNISPACE III conference for Africa and Middle-East (1998)
- works with UN organisations : FAO, UNDP, UNEP, OOSA, UNESCO,...

A particular importance to the COPUOS

- Morocco is member since 1961
- Actively takes part in the proceedings of the committee and its subsidiary bodies since 1992
- Rapport of the bureau of COPUOS from 1998-2000
- Vice president from 2000 to 2003
- Morocco Ratified 4/5 treaties concerning the use of space
- •Morocco hosts the UN regional Center for education in Space Sciences and Technologies for Africa (Fr. Speak.)

The Moroccan space law strategy

- United Nations Treaties
- Morocco has ratified 4 of the five UN treaties :
 - the outer space treaty
 - the rescue agreement
 - the liability convention
 - the Moon agreement
- The registration convention will be ratified in the coming months
- Program
- Awareness
- Education
 - The Technical needs

The awareness

Morocco continues its policy of sensitisation, promotion and extension of the use of space to other domains (space technology, space sciences, space law...) by :

- strengthening training and cooperation programs
- Conferences, exhibits and information events are organised frequently

• within this context, a national committee of remote sensing has been created to coordinate the activities of different government departments.

publication of "News letter" and a scientific review

« Geo-Observateur », which reports researchs, and thematics work that concern developing countries.



- Initiatives to integrate the space law in the university and regional centres curricula
- OOSA could help specialised institutions in developing countries to set up programs for a wide explanation of the dynamics and uses of all the treaties that regulate outer space

The technical needs

- UN or Agencies experts could play an important role to assist concerned authorities to set up the basis of a national space law-framework
- exchange with countries that had established space law and policies
- training dedicated to specialists in law to enhance their understanding and knowledge of the space law

Action to promote space law in Morocco

Organisation of the first regional workshop on space law dedicated to French speaking African countries

- Organisation and recommendations coorganised with European partners, ESA-ESCL, CNES ASI, DLR, etc..
- Recommendations

to increase public awareness, information actions should be organised frequently

a large spreading of the COPUOS and its sub-committees work and action

Thailand's Space Policies and Legislation Nipant Chitasombat Space Law And Policy Centre Faculty of law Chulalongkorn University, Bangkok, Thailand

Introduction

Space technology, which emerged in the 1950s, opened up a new era of man's exploration of outer space. Having developed rapidly for about half a century, mankind's space activities have scored remarkable achievements, greatly promoted the development of social productivity and progress, and produced profound and far-reaching effects. Space technology has turned out to be one field of high technology that exerts the most profound influence on modern society.

The continuous development and application of space technology has become an important endeavour in the modernization drive of countries all over the world.

I. Objectives

Thailand has long regarded space application as an integral part of the State's comprehensive development strategy, and upheld that exploration and utilization of outer space should be for peaceful purposes and for the benefit of the whole of mankind. As a developing country, Thailand's fundamental tasks are to develop its economy and to continuously push forward its modernization drive.

The aims and principles of Thailand's space activities are to utilize outer space for peaceful purposes, promote mankind's civilization and social progress for, the benefit of the whole of mankind, and to meet the growing demand of economic construction, national security, science and technology development and social progress, protect Thailand's national interests and build up the comprehensive national strength.

Thailand carries out its space activities in accordance with the following principles:

- Adhering to the principle of long-term, stable and sustainable development and making the development of space activities cater to and serve the State's comprehensive development strategy. The Thai government attaches great importance to the significant role of space activities in implementing the strategy of revitalizing the country with science and education and that of sustainable development, as well as in economic construction, national security, science and technology development and social progress. The development of space activities is encouraged and supported by the government and the private sector as an integral part of the State's comprehensive development strategy.
- Actively promoting international cooperation, Thailand relies on Space Technology import on the basis of mutual benefit and reciprocity.
- Selecting a limited number of targets and making breakthroughs in key areas according to the national situation and strength, Thailand carries out its space activities

for the purposes of satisfying the fundamental demands of its modernization drive. A limited number of projects, considered to be of vital significance to the national economy and social developments, are selected so as to concentrate strength to tackle major difficulties and achieve breakthroughs in key fields.

- Enhancing the social and economic returns of space activities and paying attention to the motivation of technological progress.
- Thailand strives to explore a more economical and efficient development road for its space activities so as to achieve the integration of technological advance and economic rationality. National Space Programme.

II. The Long-Term Development Targets

Thailand has to speed up the development of talented people in space technology. Special policies will be adopted to promote space education and train qualified personnel to foster a contingent of young and highly qualified space scientists, engineers and lawyers.

Improving scientific management for better quality and benefits. Since space activities involve huge investments, high risks, sophisticated technology and complicated systems, systems engineering and other modern management tools shall be applied to promote scientific management, increase system quality, lower system risks and enhance comprehensive benefits.

III. National Space Policy-International Policy

Thailand always supports all efforts for the peaceful uses of outer space. It starts with the strengthening and enhancement of international space cooperation on the basis of equality and mutual benefit, leaving it up to each other to make up for one's own deficiencies, and common development. To this end, Thailand has concluded with many countries intergovernmental agreements on space cooperation. Thailand accords importance to cooperation with both developed and developing countries such as The Asia Pacific Multilateral cooperation in Space Technology and Implications among Thailand, China, South Korea and Pakistan in developing small multi-task satellites (the small multi – mission satellite project (SMM)) has also made substantive progress.

In 1992, APT Satellite, a Consortium of four regional companies, was formed by the China Thai Group of Thailand and the Chinese State Owned Entities such as the China Yuan Wang (Group) Corp., China Telecommunications, Broadcast Satellite Corp. (China Sat) and Ever – Victory System Company.

In December 1995, the Asia Pacific Mobile Telecommunications Satellite (APMT) Consortium, a company incorporated in Singapore was formed by Thailand, China and Singapore. The objective of APMT is a regional mobile satellite project providing seamless mobile telecommunication services, through National Service Providers in each country, in the Asia Pacific Region via a geostationary earth orbitsatellite system and a network of ground gateway stations.

In April 1998, the governments of Thailand, China, South Korea , Iran and Pakistan signed in Bangkok the Memorandum of Understanding on cooperation in the Multi – Task Satellite Project and Other Related Activities .

1. National Space Policy International Policy: International Cooperation

Thailand supports activities involving the peaceful use of outer space, and maintains that International Space cooperation should be promoted and strengthened on the basis of equality and mutual benefit and common development.

IV. Guiding Principles

The Thai Government holds that International Space Cooperation should follow the fundamental principles listed in the "Declaration on International Cooperation on Exploring and Utilizing Outer Space for the Benefits and Interests of All Countries, especially in Consideration of Developing Countries Demands". It was approved by the 51st General Assembly of the United Nations in 1996. Thailand adheres to the following principles while carrying out international space Cooperation:

- The aim of International Space cooperation is to peacefully develop and use space resources for the benefit of all mankind;
- International Space Cooperation should be carried out on the basis of equality and mutual benefit, mutual interest and the generally accepted principles of international law;
- The priority aim of international space cooperation is to promote space development and to enjoy the benefits of space technology;
- Necessary measures should be adopted to protect the space environment and space resources in the course of international space cooperation; and
- The function of the United Nations Office of Outer Space Affairs (OOSA) should be consolidated and the Outer Space Programmes of the United Nations should be backed up.

V. Fundamental Policies of International Cooperation

The Thai Government adopts the following policies in developing International Cooperation:

- Carrying out active and programmatic International Space Cooperation to meet the needs of the national modernization drive and the demands of the domestic and markets neighbouring States;
- Supporting multilateral international cooperation on the peaceful use of outer space within the framework of the United Nations;
- Attaching importance to space cooperation with both developed and developing countries;
- Attaching importance to the Asia-Pacific regional space cooperation and supporting space cooperation in other regions of the world; and
- Enhancing and supporting research institutions and universities space exchanges and cooperation in different forms and at different levels under the guidance of relevant state policies, laws and regulations.

VI. Thailand's participation in international space cooperation started in the mid 1970s.

During the last decades, Thailand has joined bilateral, regional, multilateral and international space cooperation.

1. Bilateral Cooperation

Since 1970, Thailand has successively signed inter-government or inter-agency cooperative agreements, protocols or memorandums, and established long –term cooperative relations with several countries. Bilateral Space Cooperation is implemented in various forms, from making reciprocal space programmes and exchange of scholars and specialists, to sponsoring symposiums.

2. Regional Cooperation

Thailand attaches great importance to space cooperation in the Asia-Pacific Region. In 1992, Thailand, China, Pakistan and some other countries jointly sponsored the "Asian-Pacific Multilateral Space Technology Cooperation Symposium".

The Government of Thailand signed the "Memorandum of Understanding on Cooperation in Small Multi-Mission Satellite and Related Activities" with the Governments of China, Iran, the republic of Korea, Mongolia, Pakistan in Thailand in April 1998. This cooperative project helped Thailand to enhance the progress of space technology and space application.

3. Multilateral Cooperation

At its 443rd, 444th and 445th meetings, the Committee on the Peaceful Uses of Outer Space decided to invite, at the request of the representative of Thailand to attend as an observer delegation to the forty – first session of UN COPUOS for the first time and on July 22nd 2003, Thailand Cabinet meeting approved the application of Thailand membership of the Committee. Long ago, Thailand became party to the Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies<Outer Space Treaty> <Ost 1967>," Agreement on the rescue of Astronaut, the Return of Astronauts and the Return of Objects Launched into Outer Space <Rescue Agreement> <ARRA 1968>, "Treaty Banning Nuclear Weapon Tests in the Atmosphere, in Outer Space and under Water" <NTB 1963>,"Agreement Relating to the International Telecommunications Satellite Organization" <INTELSAT> , <INTL 1971>, with annexes, and Operating Agreement Relating to the International Telecommunications satellite Organization </INSO 1976>, with annex," Convention on the International Mobile Satellite Organization <IMSO 1976>, with annex <amended in April 1998 to provide for the restructuring of INMARSAT; the amendments entered into force on 31 July 2001>, and the "International Telecommunications"

Thailand is not yet party to the following Agreements:

- 1. Convention on International Liability for Damage Caused by Space-Objects<Liability Convention> <LIAB 1972>
- Convention on Registration on Objects Launched into Outer Space <Registration Convention > < REG 1975>
- 3. Agreement Governing the Activities of States on the Moon and Other Celestial Bodies <Moon Agreement> <MOON 1979>
Thailand supports and has participated in the UN space applications programme. In 1994, Thailand participated in the First Asian – Pacific Regional "Ministerial Conference on Space Applications for Sustainable Development in Asia and Pacific" which was organized by ESCAP and China. From July to August 2000, Trainees from Thailand and other developing countries in the Asia – Pacific Region attended the Short term Training Course for Asia and Pacific Multilateral Cooperation in Space Technology and Applications in which organized by China, OOSA of the UN and ESCAP.

Since then Thailand has inaugurated its first national GEO communications network during 1993-1994 with the launches of Thaicom 1 (18 December 1993) and Thaicom 2 (8 October 1994) by Ariane boosters. The spacecraft, based on Hughes HS-376L series, are operated by SHINAWATRA Satellite Company of Bangkok (SHINSAT) under a lease arrangement with the Thai Government. Both Thaicom satellites are stationed at 78.5 degrees E with ten C-band and two Ku-band transponders. The 630-kg spacecraft has a design life of at least 13 years. However, on April 17th 1997, Thaicom 3 was launched with up to 24 C-band and 14 Ku-band transponders. The latest satellite in view of launching soon is IPSTAR carrying payload for Telecommunication and Broadcasting Services.

At this moment, there is no specific enactment regarding space activities in Thailand. There is no law regulating the launching of any space objects belonging to Thailand. The launchings of those objects have been done by way of bilateral arrangements between parties involved. However, Thailand has some existing laws that govern space activities to a certain extent, such as Telecommunication Service Act 2001 and Patent Act 1979 (amended in 1999).

Laws on matters relating to space activities are to be enacted at the national level.

Space activities include:

- 1. Inventions
- 2. Launching
- 3. Applications
- 4. Education

1. Inventions

Invention related to space activities where Thailand has the Patent Act and the Trade Marks Act supporting it. This kind of innovation may vary from scientific research, creation invented or knowledge acquired.

2. Launching

Launching has been a successful procedure for Thailand when three satellites reached it orbit. Launching procedures can be called as one of space activities indirectly involving Thailand since all the three satellites were launched by a foreign company, Arianne Space, a French registered company. Liabilities regarding this matter were done through the Letter of Undertaking by the private owner of the space objects, with the incorporation of an indemnity clause to indemnify the government for any claims or insurance coverage in cases of damage occurring from the launching or operating of the space objects.

3.Applications

Three major applications of space activities in Thailand that are Telecommunication, Broadcasting and Remote Sensing. Thaicom 1, Thaicom 2 and Thaicom 3 are under the operation of SHINSAT, a company licensed to operate on Telecommunication under the supervision of the Ministry of Information, Communication and Technology. Whereas in broadcasting the license was given to operate under the supervision of Office of the Prime Minister, both activities regarding telecommunication and broadcasting were licensed for frequencies granted by the Department of Postal and Telegraph, Ministry of Information, Communication and Technology and the end-users of these application varied from the public, military, navigation, aviation and so on. GITSDA coordinated another equally important application, remote sensing. The use of remote sensing data is very important in the sense of getting information about the environment, mapping, land mining and weather forecasting etc. This Organization was given the role to act by the Ministry of Science and Technology, while end-users from this application include many respective government agencies, for instance the Meteorological Department, the Department of Environment, the Fisheries Department and the Forestry Department.

It is obvious that space activities in Thailand deal with a number of crossed-sectored issues in respect of its applications, and all of these applications already have laws or policies regulating them.

4. Education

Education in Space Law is still very limited in Thailand. At present, Space Law is taught as an optional course in one or two universities in Thailand at the Undergraduate and Graduate Levels, only 2 or 3 hours per week for the total period of one semester (4 months). Since 1999, Space Law was taught for the first time at the Faculty of Law, Chulalongkorn University.

The Space Law and Policy Centre was founded at the same year. As to advice on the issues of Space Law and Policy, the Centre undertakes dedicated research projects and draws conclusion as an autonomous counselling agent. It can also provide the legal and policy perspectives on pertinent issues.

The services of the Centre in this field also comprise the organization of closed or dedicated workshops or conferences focusing on arriving at practical and predictable conclusions. Moreover, the Centre has successfully trained many new generations of Thai Space Lawyers to be internationally minded and professionally skilled by promoting the importance of Moot Court Competitions, especially in Space Law. Law students from Chulalongkorn University have already participated in Manfred Lachs Space Law Moot Court Competition, which was held in Singapore in 2001 and in 2002, 2003 and recently 2004 in Sydney, Australia. The Space Law Moot Court Competition plays an important role in supporting Law Students who are fascinated by the field of International Law and Space Law by supplying the biggest variety of books and other research materials in this field.

Missions and Goals of Space Law and Policy Centre

The Space Law and Policy Centre, located at the Faculty of Law, Chulalongkorn University, has strived to achieve the following objectives:

- 1. Study and research in Space Law and Policy relating to space activities in Thailand and overseas.
- 2. Informing the public about the development of Space Law and Policy.
- 3. Developing the study of Space Law and Policy and supporting studies to gain knowledge in Space Law and Policy.
- 4. Coordinate and cooperate with Governmental Institutions, private offices, local and foreign universities.
- 5. Support the academic exchange of information and ideas in space activities at national and international level.

Main Activities

Following the objective outlines as outlined, the Centre's Activities essentially consist of the following:

- Education at all relevant levels
- Research within Academic Parameters
- Providing a Platform for Discussion
- Offering Advice when Requested or where Needed
- Coaching and Supervising the Law Students participating Manfred Lachs Space Law Moot Court Competition since 2000.

Regarding education, the Centre supports the Parties interested in pursuing an education in Space Law and Policy both at undergraduate studies and graduate studies. It also supports graduate students in pursuing research by supervising dissertation in the field.

As to research, the Centre maintains a dedicated research source by collecting information on Space Law and Policy, both books and journals. It is opened for those interested in pursuing their research in documents. Moreover, the Centre collaborates with Governmental Institutions, local universities, foreign universities and International Organizations. The collaborations in the area of exchanging research proposals are maintained in order to receive financial support for projects and publish research works.

As to the platform for discussion, the Centre offers a web site as a primary means for research and discussion of interesting issues of Space Law and Policy. Furthermore, the Centre organizes or co-organizes conferences, seminars, workshops and symposia in various formats as a means to discuss specific topics or themes within the field of space activities.

Conclusion

International cooperation has played a significant role in the implementation of the Thai Space Programme, especially in the initial phases. Thailand took note of the trends in space technology and application in the developed countries in the early 1970's that determined the country's efforts to leapfrog over the conventional approach in several aspects of the national development like communications, monitoring of weather and natural resources. Several countries provided assistance to Thailand in setting up the space technology.

As Thailand achieved successes in the areas of communication and remote sensing satellites, launch vehicles and applications of space technology, many avenues have opened up for cooperation with major space agencies, for sharing Thailand's experience with other developing countries and also to purchase products and services from other countries. Thailand has always recognized that space has dimensions beyond national considerations, which can only be addressed along with international partners. Climate Environmental Degradation and the Depletion of Natural Resources in contrast to increasing population etc, need to be looked at issues from a global, rather than a national point of view. Also in the new world of increasing costs and commercial competition, international cooperation can accomplish more than what can be achieved by individual countries, by sharing resources and efforts.

Government Official Segment

Origins and Characteristics of the Space Law Treaty Regime Overview



- Model of space law process
- Historical context
- The spirit and letter of the law
- Fundamental principles
 - "Province of mankind"
 - Nonappropriation
 - Peaceful purposes
 - Liability system
 - International
- Some open questions







Origins and Characteristics of the Space Law Treaty Regime **Presented by Prof. Joanne Irene Gabrynowicz** to **United Nations/Republic of Korea Workshop on Space Law** 3 November 2003 **National Remote Sensing and Space Law Center** University of Mississippi School of Law

www.spacelaw.olemiss.edu











Origins and Characteristics





- Shocked the world
- Ability to place a satellite in orbit represented the ability to launch weapons into and through space

Severely destabilizing

Origins and Characteristics the Space Law Treaty Regime The Law Responds





The 1967 Outer Space Treaty and four others







Or, put another way....



Origins and Characteristics of the Space Law Treaty Regime Represents a Dynamic Tension

Where the international community was. Where the international community was.





- Origins and Characteristics of the Space Law Treaty Regime
- Where the International Community Was
- New geopolitical landscape
- New human endeavor
- No rules a legal vacuum
- **Unprecedented destructive technology**
- Little genuine knowledge of adversaries' capabilities
- Fear
- In short, unstable





Origins and Characteristics of the Space Law Treaty Regime Where the International Community Wanted To Be

- Influence geopolitical order
- Rules of law
- Prevent high ground in space
- Limit national rivalry in space
- In short, stable







Origins and Characteristics of the Space Law Treaty Regime

The Plan

- Employ law proactively: fill the legal void
- Establish guiding principles
- Accept general provisions



Origins and Characteristics of the Space Law Treaty Regime The Result

- **Established legal framework**
- 5 treaties
 - 4 widely accepted; 1 not widely accepted
- **Interrelated framework**
- All relate back to Outer Space Treaty
- **Incorporates U.N. Charter and ICJ decisions**
- **Covers natural and juridical persons**





The Spirit and Letter of the Law

* "broad international cooperation in scientific [and] legal aspects"

Outer Space Treaty, Preamble

"Parties shall be guided by the principle of cooperation and mutual assistance"

Outer Space Treaty, Art. IX





The Spirit and Letter of the Law



• "for the benefit and in the interests of all countries irrespective of their degree of economic or scientific development"

Outer Space Treaty, Art. I

• "maintaining international peace and security and promoting international cooperation and understanding"

Outer Space Treaty, Art. III







Fundamental Principles

- Quasi-Constitutional
 - Outer Space Treaty
- "Province of all mankind"
 - Not the same as Common Heritage of Mankind
- Nonappropriation
- Peaceful purposes
- Liability system
- International





"Province of All Mankind"



 <u>Not</u> the same as Common Heritage of Mankind

and SPACE LAN

Center

- res communis principle
- Inclusive
- May be used in single part
- Cannot be acquired as a whole
- Astronauts are "envoys of mankind"







 Nonexclusive right to "explore" and "use" space

REMOTE SENSING

and SPACE LAW

Center

- Free access to all areas of celestial bodies
- Basis of equality







No national appropriation by

- -- Sovereign claim
- -- Use

COLUMN THE READ AND ADDRESS

- -- Occupation
 - or
- Any other means

Outer Space Treaty, Art. II





"Peaceful Purposes"

- Legal term of art
 - Early U.N. Resolutions
 - Test Ban Treaty
- "Nonaggressive," not "nonmilitary"
- Prohibits weapons of mass destruction in open space
 - Atomic
- Biological
- Chemical

"Exclusively" peaceful on celestial bodies







"Peaceful Purposes" on Celestial Bodies



Legal military activities

- Scientific research
- Peaceful purposes
- Necessary equipment and facilities
- **Prohibited military activities**
- Bases, installations, fortifications, weapons testing, maneuvers





Liability System



Liability regimes

- Absolute liability for damages that occur on Earth and to aircraft in flight
- Negligence applies to damages that occur in space
- **Tort/Delict mechanisms**
 - Joint and several liability; indemnification; apportionment
- **Claims process**
- Claims Commission
- Compensation rules







International

- International law applies
 - Space treaties
 - U.N. Charter
 - ICJ decisions
- International responsibility by nations for all public and private space activities
- Recognizes IGOs
- Role for Secretary General







5

- *Outer Space Treaty* neither prohibits nor authorizes exclusive acquisition of resources
- Although no sovereignty over territory, unclear if no sovereignty over resources: does prohibition of *territorial* appropriation include resources?
- Is resource taking a "use" of space?
- Is sovereignty necessary to establish property rights?
- Does prohibition of *national* appropriation include property rights of an individual? IGO? Corporation?



Questions, Comments?





Principles Adopted by the General Assembly



Overview

- Principles and kinds of resolutions and declarations
- Status at international law: scope of possible acceptance How are they construed?
- **Overview of the 5 major sets of space law principles**
- Legal Principles Governing Space
- International Direct Television Broadcasting
- Remote Sensing
- Nuclear Power Sources
- Cooperation for Benefit and Interest of All States, Particularly Developing
 Countries' Needs



Overview

- Resolutions and declarations
 - Post World War II development
 - Principles can be contained in them
- Adopted by unanimous vote or consensus
- Formulated as norms and requirements of state behavior
 - Sometimes in juridical terms of obligations and rights
- Controversial
 - Can be challenges to the existing order
 - Very often regarding resource disparity and wealth distribution
- Widely divided opinion regarding nature and status
- Very specific case and circumstance dependent







Different Kinds



Purports to state legal rules

- Elaboration of U.N. Charter
 - Addressed by special committees, subsidiary organs or secretariats
 - e.g., Declaration of Legal Principles Principles Governing the Activities of States in the Exploration and Use of Outer Space

- Affirmational resolutions not designated as "declarations"

• e.g., Affirmation of the Principles of International Law Recognized by the Charter of the Nürnberg Tribunal

Not intended to express legal rights and obligations

- E.g. Universal Declaration of Human Rights
 - Expressly stated "as a common standard of achievement"





Status at International Law: Scope of Possible Acceptance

Not legally binding. (Except when addressed to subsidiary organs or secretariats.)

Authoritative Statement

Express agreed law. (Particularly i adopted withou dissenting votes.)





- **Case-by-case**
- Each case requires a complex, sophisticated analysis to determine expectations of behavior
- Major criteria
 - Examination of voting conditions
 - Analysis of provisions at issue









- How many states supported?
- Which states?
 - Spacefarers? Nonspacefarers?
 - "Important"?
 - Mix of developed, developing, newly industrialized?
- Extent of interest and involvement?
- Precise intent for adoption?
 - Recommendation?
 - Political statement?



Positions of states taken in other situations?







- Pre- and post-adoption state practice?
- Reservations or dissent?
- Responses?
- Counter-claims?
- Events in formal fora and the world arena
- Conditioning considerations:
 - Political
 - Economic
 - Psychological, etc.
 - Changes since adoption





Analysis of Provisions at Issue

- Existing right?
- Introduction of a new principle?
- Part of a series of resolutions?
- Language
 - "shall" or "should"?
 - Specific direction to States?
 - Main body text or appendix?
 - Qualifiers: "as appropriate", "if applicable", "as practicable", etc.




Space Declarations and Resolutions



- Approximately 72 resolutions since 1958
- One clear attempt to make new law
 - Declaration of Legal Principles Principles Governing the Activities of States in the Exploration and Use of Outer Space
- Others, less clear
- 5 instruments include principles
 - 2 have "declaration" in title
 - 3 do not have "declaration" in title
 - 2 have principles in main text
 - 3 have principles in an appendix
 - 1 set specifically identifies principles as "legal"



Space Declarations and Resolutions

- All restate numerous treaty provisions
 - States internationally responsible for national activities
 - Applicability of international law
 - Nonexclusive right to use space
 - State sovereignty over natural resources
 - Liability as per Liability Convention
 - Standard of international cooperation
 - Equality of States
 - Peaceful dispute resolution
 - Etc.



Space Principles Adopted by Remote the General Assembly

Declaration of Legal Principles Governing the Activities of States in the Exploration and Use of Outer Space

Principles Governing the Use by States of Artificial Earth Satellites for International Direct Television Broadcasting

Principles Relating to **Remote Sensing** of the Earth fron Outer Space



Space Principles Adopted by the General Assembly



Principles Relevant to the Use of Nuclear Power Sources in Outer Space

Declaration on International Cooperation in the Exploration and Use of Outer Space for the Benefit and in the Interest of All States, Taking into Particular Account the Needs of Developing Countries



Declaration of Legal Principles Governing the Activities of States in the Exploration and Use of Outer Space GA Resolution 1962 (XVIII), 13 December 1963 Adopted without vote

- "Solemnly declares...States should be guided by" principles later codified in *Outer Space Treaty*:
- Free for exploration and use
- Nonappropriation
- International responsibility for national activities
- Jurisdiction over registered space objects
- Launching state is internationally liable for damages



Principles Governing the Use by States of Artificial Earth Satellites for International Direct Television Broadcasting

- Resolution 37/92, 10 December 1982
- Vote: 108 for; 13 against; 13 abstentions
- Anomaly of space principles instruments
 - Only one not adopted without a vote
 - Weak instrument
- Advent of newer technologies, including Internet may have rendered specific technology provisions less relevant



- Some basic issues still relevant

Direct Television Broadcasting



- Addresses
 - Rights of States including non-intervention
 - Free dissemination of information and knowledge
- Bilateral and multilateral cooperation for copyright protection
- Requires broadcasting State to
 - Notify receiving State of intention to broadcast
 - Enter into consultation, upon request
 - Conform with ITU instruments







- Resolution 41/65, 3 December 1986
- Adopted without a vote
- Negotiated, developed, implemented and interpreted for 25 years
- Address access and distribution of data and info
- Attempts balance between sensed and sensing states
- Segments adopted nationally and internationally
 - Twice incorporated by US Congress into US domestic law
 - In a number of bilateral and multilateral agreements







- "Primary data"
 - raw data in form of electromagnetic signals, photographic film, magnetic tape, and any other means
- "Processed data"
 - products resulting from processing primary data
- "Analysed information"
 - information resulting from interpreting processed data
- "Remote sensing activities"
 - operation of systems, primary data collection and storage stations, and activities in processing, interpreting and disseminating processed data





Remote Sensing Principles



Sensing state must avoid harm to sensed state

- Activities not to be conducted in a manner detrimental to legitimate rights and interests of sensed States
 - Prohibits economic espionage
- **Excludes military systems**
- Data and information availability
- Primary and processed data
 - Nondiscriminatory access by sensed state on reasonable terms and conditions
- Analyzed information



If legally unavailable to a state, then unavailable for the Principles





Remote Sensing Principles

- **Obligation to Disclose**
- "Information"
 - to avert "any phenomenon harmful the the Earth's natural environment"
- "Processed data" and "analyzed information"
 - to "promote the protection of mankind from natural disasters"
- Not an obligation to constantly monitor



Principles Relevant to the Use of Nuclear Power Sources in Outer Space

- Resolution 47/68, 14 December 1992
- Adopted without a vote
- Major areas
 - Safety
 - Notification and kind of information required
 - Emergency assistance
 - Identification, search and recovery



– Damages

Principles on Nuclear Power Sources



- General goals
 - Protection of populations and biosphere
 - Observe Commission on Radiological Protection recommendations
 - High degree of confidence and reliability
- Specifies launching state obligations
 - Safe use guidelines and criteria
 - Liability Convention "fully applies"
 - Includes compensation for search, recovery, clean-up operations and third party assistance
 - Must conduct comprehensive safety assessment
 - Reentry notification and radiological risk information



Principles on Nuclear Power Sources



Relationship between degree of accident probability and required action

- "High degree of confidence" required to restrict radiation exposure for other than "low-probability accidents"
- Specified design requirements, e.g.
- Safety systems according to "defence-in-depth"
 - Failures/malfunctions must be automatically correctable
- Reactors unable to become critical before operating orbit
- Radioisotope generators to withstand re-entry forces



Principles on Nuclear Power Sources

- Nuclear reactors
 - Interplanetary missions
 - Earth orbits that allow
 - enough time for fission products to decay
 - Sufficiently high storage orbits after operations
- Radioisotope generators
 - Interplanetary missions
 - Missions leaving Earth gravity field
 - Earth orbit if stored I high orbit after operations



Principles on Nuclear Power Sources in And SPACE LAW And SPACE LAW Center Assistance to States

Tracking and monitoring States

 Shall communicate relevant information to Secretary General and State concerned

Launching State

- Shall promptly offer and if requested
 - Promptly provide assistance to eliminate actual and possible harmful effects

All states/international organizations with relevant technical capabilities

- Shall provide assistance to extent possible
- **Developing countries special needs shall be taken into account**

Declaration on International Cooperation in the Exploration and Use of Outer Space for the Benefi and in the Interest of All States, Taking into Particular Account the Needs of Developing Countries **Resolution 51/122**, 13 December 1996 **Adopted without vote**

Reflects UNISPACE II recommendations





International Cooperation

Declaration on

Cooperation shall be conducted according to international law

- For benefit and interest of all States
- "It shall be...the province of all mankind"
 - "It" is cooperation?

States free to determine all participation aspects

- Equitable and mutually acceptable basis
- Full compliance with rights and interests of parties
 - E.g.: intellectual property rights



Declaration on International Cooperation



All States, particularly space capable ones, should contribute to promoting and fostering cooperation

- Particular attention to "countries with incipient space programmes"
- Most effective and appropriate modes, among others
- Governmental and non-governmental
- Commercial and non-commercial
- Global
- Multilateral
 - **Regional or bilateral**



Declaration on International Cooperation



Goals, among others:

- Promote space science, technology, applications development
- Foster relevant and appropriate space capabilities in interested States
- Facilitate expertise and technology exchange on a mutually acceptable basi
- Agencies, development organizations, research institutions should consider space applications in goals
- **COPUOS information exchange role should be strengthened**
- States should be encouraged to contribute to UN Space Applications Programme



Questions, Comments?





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The Outer Space Treaty

Dr. Frans von der Dunk Co-Director, International Institute of Air and Space Law

The Outer Space Treaty





Contents

- 1. History & background
- 2. General aspects
- 3. General principles & clauses
- 4. State responsibility, liability & registration
- 5. Specific issues & clauses
- 6. Formal clauses

7. The OST in a wider context The Outer Space Treaty



1. History & background

Geophysical year, 1956/7 > Antarctica Launch Sputnik I, X/1957 Interim 1958; Permanent 1959 UN Declaration of Legal Principles ≻ No. 1962(XVIII) of 1963

The Outer Space Treaty





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2. General aspects

OST (Treaty on principles etc.)
 > Adopted 19/XII/66; opened for signature 27/I/67; entered into force 10/X/67

- 98 states parties; 27 states signatories (1/I/03)
- Role as 'law-making treaty'
- Focus on two objectives:
 - Peaceful usage
 - Scientific exploration
- Focus on state actors

The Outer Space Treaty



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3. General principles & clauses

A. Non-appropriation

- B. Benefit & interests of all countries
- C. Free for exploration & use
- D. Applicability of general international law
- E. International co-operation

The Outer Space Treaty

A. Non-appropriation

Article II

- Status as *terra communis*
 - > Legal regime: at the international level
- Contrast to sovereignty over airspace
 - → Delimitation issue
- Debate on geo-stationary orbit
- Ownership of the moon' hoax

The Outer Space Treaty



B. Benefit & interests of all countries

Article I, 1st sentence "Province of all mankind" $\leftarrow \rightarrow$ 'Common heritage of mankind' Meaning: > 1996 UN GA Declaration on Benefits > 'Negative' interpretation/duty International co-operation

The Outer Space Treaty

05-11-2003 2nd UN Space Law Workshop, Daejon

ЦO NTERNATIONAL INSTITUTE AIR AND SPACE LAW



C. Free for exploration & use

Article I, 2nd & 3rd sentences
 "Scientific investigation"
 Freedom for States
 ➢ Role IGO's & private enterprise
 Definition of "use"
 Free access → terra communis

The Outer Space Treaty



D. Applicability of general international law

Article III ■"UN Charter" > "International peace and security" ■ "The Treaty" Broader context: 'space law' in general Safety-net: Lex specialis vs. lex generalis **The Outer Space Treaty**



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E. International co-operation

Articles III, IX, X, XI General international law Ref. 1996 Benefits Declaration 'Environmental' issues Offering opportunities Role UN Secretary-General

The Outer Space Treaty



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4. State responsibility, liability & registration

A. State responsibility: Article VI
B. State liability: Article VII
C. Registration space objects & jurisdiction: Article VIII

The Outer Space Treaty





A. State responsibility: Article VI

Conformity with Treaty rules

General international law: reparation

 Restitutio ad integrum; compensation; satisfaction

"National activities"

Various interpretations

"Appropriate State"

> Authorisation & continuing supervision

National legislation vis-à-vis private entities The Outer Space Treaty


B. State liability: Article VII

Damage caused by space objects > Definition "caused by" > Definition "space object" Elaboration 1972 Liability Convention Fourfold criterion \succ "Launching state(s)" (Liability Convention) > Application *vis-à-vis* private entities

→ National legislation vis-à-vis private entities

The Outer Space Treaty



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C. Registration space objects & jurisdiction: Article VIII

Relationship with 'launching state'
 Elaboration 1975 Registration Convention
 "Retain jurisdiction and control"

- Existing jurisdictions:
 - > Territorial & personal jurisdiction
 - Quasi-territorial status
 - > "Any personnel thereof"

The Outer Space Treaty



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5. Specific issues & clauses

A. Military usage

- B. Status astronauts
- C. Role IGO's

The Outer Space Treaty



A. Military usage

■ P.M.: Article III ■ Article IV 1st sentence: outer space void > "Place in orbit", "install", "station" > "Weapons of mass-destruction" 2nd sentence: celestial bodies "Exclusively for peaceful purposes" Ref. "military" **The Outer Space Treaty** 05-11-2003 2nd UN Space Law Workshop, Daejon



B. Status astronauts

Article V

Astronauts:

"Envoys of mankind"

Duty to assist in emergency situations

Elaborated in 1968 Rescue & Return Agreement

Includes space objects returned to earth

The Outer Space Treaty

C. Role IGO's

Article XIII

IGO as vehicle for international co-operation

Responsibility (& liability) remains with member states (cf. also Article VI)

N.B.: operational IGO's
 Past INTELSAT, INMARSAT, EUTELSAT
 Present INTERSPUTNIK, ARABSAT

The Outer Space Treaty



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7. The OST in a wider context The Outer Space Treaty



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6. Formal clauses

Signature, ratification & accession (Article XIV-1/2/4)

- Registration with UN (Article XIV-6)
- Amendments (Article XV)
- ■Withdrawal (Article XVI)
- Treaty language (Article XVII)
 Chinese; English; French; Russian & Spanish

The Outer Space Treaty





Contents

- 1. History & background
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- 3. General principles & clauses
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7. The OST in a wider context

The Outer Space Treaty



What is 'space law'? What are 'space activities'? Why teach space law ...?

The Outer Space Treaty



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NTERNATIONAL INSTITUTE AIR AND SPACE LAW



What is 'space law'? (1)

Exclusively dedicated to outer space & space activities

International law

- ♦ Five UN treaties; Test Ban Treaty?
- \blacklozenge Few non-UN treaties of \approx general nature
- ◆ UN GA Resolutions (& customary law)
- ♦ Treaties establishing IGO's
- ♦ Special case: IGA on International Space Station
- ♦ N.B.: no international 'case law'...
- National law
 - Few states (under narrow definition)

The Outer Space Treaty



What is 'space law'? (2)

Every legal regime relevant to at least one type of space activity

- ◆ Telecommunications law → satcom
- \diamond Economic & trade law \rightarrow satcom; launching (?)
- ◆ Intellectual property rights law (IPR) → EO; space station
- ◆ European Community law → satcom; EO (?); satnav
- ♦ MTCR & Wassenaar → launching; satcom
- ♦ Air law & ICAO: satnav...?
- ♦ Law of the sea: launching from the high seas...
- \blacklozenge Financing & securities-related law \rightarrow indirectly

The Outer Space Treaty



What is 'space law'? (3)

Interesting mix...

- > Of spatialist & functionalist regimes
- Of general & specific regimes
- > Of international & national (& even EU) law
- > Of public & private law regimes
- applicable to a very special environment viz. type of activities:

Space as the fourth environment for human activities (mankind)

The Outer Space Treaty

105-



N.B.: 'space activities'

■What are 'space activities'? > Activities 'in' outer space > Activities 'directed towards outer space' 'Remote-control' vs. 'close-control' ■What is 'outer space'? > Area above/beyond air space \rightarrow delimitation ♦ Where does it start? > 'Wherever space law applies' (i.e. 'issue irrelevant')

The Outer Space Treaty



ITERNATIONAL INSTITUTE AIR AND SPACE LAW

Why teach space law?

Increasing down-to-earth relevance Space as fourth environment for mankind Fundamentals of law & law-making Room for legal creativity & imaginativeness Interaction various legal regimes > 'Conflict of laws' For career purposes > Ref. increasing relevance!

The Outer Space Treaty

The Agreement on the Rescue of Astronauts, the Return of the Astronauts and the Return of Objects Launched in Outer Space, 1968 V. S. Mani

Professor Max Planck Institute for Comparative Public Law & International Law Jawaharlal Nehru University

Introduction

International Space Law is a branch of International Law, but a special law applicable to man's activities in outer space. It is made as International Law is made. International Law is chiefly made by States. Its rules are found in (1) treaties and conventions, (2) international customary law, (3) general principles of law, and (4) court judgments and writings of eminent writers. Treaties (or conventions, protocols, exchanges of letters, memoranda of understanding) are agreements concluded by states in written form, undertaking international obligations or recognising rights of each other. International customary law is formed by a pattern of conduct by states in their relations with each other, when the conduct shows that the state concerned, by its conduct, is consciously following a rule of law as binding on itself. At times principles contained in a UN General Assembly Resolution adopted on the basis of consensus among member states recognising these principles as binding principles of international law, may also become part of customary law. General principles of law are derived from the various legal systems of the world, when there is no rule of law found on the basis of either the customary practice of states or a treaty. A number of rules and principles - equity, duress, undue influence, estoppel (prohibition to retract from a position clearly taken), acquiescence (toleration without objection), abuse of rights, etc. - have come from the domestic legal systems. The court judgments and writings of great writers deal with legal issues, and in the process examine the applicable rules of law on the basis of treaties, state conduct and general principles of law. They are valuable in finding the legal rules to particular situations and explaining/interpreting them. In the case of International Space Law, the contribution of the writers has been considerable. As C. W. Jenks would say, this is an area for 'creative jurisprudence."

Thus, International Space Law also consists of the above four elements. Additionally, Article III of the Outer Space Treaty 1967 provides that international law including the UN Charter shall generally apply, where special rules of space law are not available. In other words, where special rules of space law are not available, states are required to apply general international law to the extent that they can be applicable to the space environment and space activities. Of course, states may make special rules as and when they feel that making special rules is preferable.

The international community has by now established principles and rules of space law by adopting five treaties and five resolutions of the UN General Assembly. (Additionally there are many treaties and instruments that are incidentally applicable to space activities and space environment.).

This paper relates to the Rescue Agreement of 1968.

I. The Rescue Agreement in Perspective

1. Antecedents

The humanitarian concept of rendering assistance in distress situations has had its origin alongside the 1864 Geneva Red Cross Convention, where participating States declared their acceptance of the rule that the wounded, the sick and the shipwrecked in war at sea must be taken care of. Subsequently this became part of a separate Red Cross Convention of 1906, and is still embodied in the 1949 Geneva Red Cross Convention (II).

In 1910, the general principle of rendering assistance to persons at sea came to be accepted in the Brussels Convention for the Unification of Certain Rules of Law Relating to Assistance and Salvage at Sea 1910 and has stayed in place ever since as a humanitarian principle of Maritime Law. The convention also provided for repayment from the beneficiary, of reasonable expenses incurred in rendering assistance and effecting salvage by the master and crew of a ship rendering such services. The obligation of a state to require the master of a ship of its nationality to respond to distress messages and render assistance at sea is specifically emphasised in the Safety of Life at Sea Convention 1974. The general humanitarian obligation to rescue and render assistance at sea is well ingrained in the law of the sea.

The principle of rescue and assistance in distress then came to be incorporated in the International Air Law, with Article 25 of the Chicago Convention on International Civil Aviation 1944 imposing an obligation on all states parties "to provide such measures of assistance" as may be practicable to any aircraft in distress.

In fact, the Space Rescue Agreement 1968 embodies and elaborates on the same humanitarian principle.

2. The Context of Space Activities

Space activities are generally recognised to be ultra-hazardous activities, activities where there is a great likelihood of danger to equipment and personnel, should things go wrong. The technology involved is sophisticated and continually developing and the space arena is a vast unknown, subject to changing environmental conditions. In such an environment, international cooperation assumes a special practical meaning. The active participants in the space activities have to depend on one another for exchange of information and assistance, when needed. In addition, if the benefits of utilisation of space must go to all members of the international community, they too in turn must be willing to help the space-faring nations to the extent they can.

Modern International Law recognises the principle of international cooperation as a "basic principle" based on the UN Charter. There is a general obligation to cooperate, that too in good faith.

3. Evolution of the Rescue Agreement

The Rescue Agreement in fact has had a checkered evolution. The COPUOS (the General Assembly Committee on Peaceful Uses of Outer Space) began to deal with it in 1959, but strayed into considering the general principles governing activities in outer space. For one thing, logically

the need for the general principles was more pressing, with the two super powers slowly triggering a 'space race' sending up one space object after another to an area where there was no clear applicable law. For another, it was the Soviet Union, which pressed for the Rescue Agreement, probably because its spacecraft were designed to impact on land on return to earth, necessitating assistance from other states in case of accidents. On the other hand, the US spacecraft were designed to fall in the sea, and the United States had a number of worldwide tracking facilities. Other states, being just onlookers at that time, did not take much interest in evolving the law relating to 'space salvage and assistance.'

Added to this, there were also other issues to be resolved: Should this special treaty on rescue and assistance be open to all states (both space powers and other non-space powers)? What about provision for disputes settlement? Should international organisations too be allowed to participate in space activities and if so how to associate them with this treaty? Many of these issues became clearer as the Space Treaty came to be finalised in 1967. The non-space powers insisted on clarification of international liability for damage caused by objects launched into space, as they felt they were also the likely victims if things went wrong on launching or orbiting of a space object. For a start, this came to be dealt with in the 1963 Declaration on Outer Space (Principle 5), and the Outer Space Treaty 1967 (Article VI), as a general principle of international responsibility for national activities in outer space. It was later elaborated in the Space Liability Convention 1971.

4. The Space Treaty 1967 and the Principle of Rescue and Assistance

The Space Treaty 1967 is generally regarded as the Fundamental Law relating to outer space, for it enshrines basic principles in the elaboration of which International Space Law has developed over time. Many of the legal instruments came to be evolved on the basis of these principles. Thus, Articles VIII and V of the Space Treaty contain the general rules applicable to rescue and assistance. Article VIII, last sentence provides that space objects or their component parts found outside the territorial limits of the state of registry shall be returned to that state by other states, if necessary after clarifying their identity. And Article V states as follows:

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

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

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

The above provisions of the Space Treaty contains four principles:

(1) Every state has a duty to return to the state of registry, space objects or their component parts found outside the latter's territorial limits, if necessary after confirming the identity of the object concerned.

(2) Every state has a duty to render "all possible assistance" to astronauts in the event of an accident, distress or emergency landing on its territory, and on safe landing, to return them to the state to which their space vehicle belongs.

(3) While in outer space, astronauts of one state have the duty to render all possible assistance to the astronauts of another state.

(4) Should any state find in outer space anything likely to cause a danger to the life or health of astronauts, it has a duty to inform others or the UN Secretary-General who shall inform others.

Of these, (1) (2) and (4) are the duties of states, while (3) is a duty cast on individual astronauts. It is interesting to note that here is a treaty concluded by states, but imposing a duty on individuals! It is further important to note that the 1963 Declaration on Outer Space – which was the basis of the 1967 Treaty – contained only the first two principles.

Significantly, the first paragraph in the preamble to the Rescue Agreement 1968 specifically notes "the great importance" of the Space Treaty laying down the above principles. The General Assembly, while adopting the agreement in 1967, did so, "Desiring to give further concrete expression to the rights and obligations containing" in the Space Treaty.

II. Substantive Provisions of the Agreement

It is proposed to present the provisions of the Rescue Agreement in six principal aspects, namely, (1) the interpretation of the Agreement, (2) the Preamble, (3) obligations relating to rescue and return of astronauts, (4) obligations relating to return of artificial space objects and their component parts, (5) relevance of the Space Liability Convention 1971 to the Rescue Agreement, and (6) the 'provisional' character of the Agreement.

1. Rules of Interpretation

The Rescue Agreement, being a treaty between states, is subject to the rules of interpretation provided for under the Vienna Convention on the Law of Treaties 1969. Many of the provisions of the Vienna Convention are regarded as reflecting customary law on the subject. It contains two sets of rule of interpretation of treaties.

First, Article 31 on 'General rule of Interpretation" says that a treaty shall be interpreted "in good faith in accordance with the ordinary meaning to be given to the terms of the treaty in their context and in the light of its object and purpose." This means that:

- 1. The treaty has to be interpreted or understood "in good faith," i.e. not in a way to avoid compliance with it;
- 2. The terms or words of the treaty should be given their ordinary meaning. Thus if the terms carry any special meaning, that special meaning should be given to those terms "if it is established that the parties so intended." (Article 31(4));
- 3. The terms of the treaty should be given their effect in their context. The context includes "its preamble and annexes," any agreement between the parties relating to this treaty. (Article 31(2)). It also includes any subsequent agreement or practice relating to the interpretation or application of the treaty, and any relevant rule of international law in this regard (Article 31(3)).

3. Obligations relating to Rescue and Return of Astronauts

3.1. Preliminary Issues

Articles 1 to 4 of the Rescue Agreement deal with the rescue and return of astronauts. These articles are intended to reach assistance to astronauts in distress. Two points may be made at the outset. One, the Agreement refers to "astronauts" two times in the general title of the Agreement itself and again two times in the first paragraph of the preamble. However, in the substantive provisions relating to obligations of states, it uses the term "the personnel of a spacecraft" (see Articles 1, 3, & 4). The reason for this might have been the fact that the Americans used the term "Astronauts" and the Russians "cosmonauts," and that therefore the term "personnel of the spacecraft" would sound neutral.

Two, the astronauts in distress envisaged in the Agreement are "the personnel of an spacecraft"

- 1. Who "have suffered accident," or
- 2. Who "are experiencing conditions of distress" or
- 3. Who "have made an emergency or unintended landing" (a) in the territory of a state party, or (b) on the high seas or (c) "in any other place not under the jurisdiction of any State." (Article 1)

Interestingly, the last phrase noted above - "in any other place not under the jurisdiction of any State" – could include any place in outer space itself, such as any celestial body or even the open space, although this was not the original intention of the drafters of the Agreement.

3.2. Duty to Notify

Each state party to the Agreement which "receives information or discovers" the fact of astronauts in distress, has two separate duties of immediate notification:

(1) It shall notify -

- (a) The launching authority, or
- (b) If it unable to identify and immediately communicate with the launching authority, "immediately make a public announcement by all appropriate means of communication at its disposal."
- (2) It shall also immediately notify the UN Secretary-General "who should disseminate the information without delay by all appropriate means of communication at his disposal." (Article 1).

Very clearly, the purpose of notification is to let all States be informed of the distress situation, and whoever can, must be able to bring relief to the astronauts in distress.

3.3. Duty to Rescue and Render Assistance to Astronauts in Distress

The Agreement provides for the duty of every State Party to rescue and render assistance to the astronauts in distress under two situations, namely (a) if the astronauts are found in "the territory under the jurisdiction" of a State Party, (Article 2) and (b) if they are found "on the high seas or in any other place not under the jurisdiction of any State" (Article 3).

Second, Article 32 on 'Supplementary means of interpretation' provides that supplementary means of interpretation such as "the preparatory work of the treaty" (i.e. the drafting or negotiating history) and "the circumstances of its conclusion" may be used

- 1. Either "to confirm the meaning resulting from the application of article 31" (i.e. the general rule of interpretation),
- 2. "Or to determine the meaning when the interpretation according to article 31:
 - (a) Leaves the meaning ambiguous or obscure; or
 - (b) Leads to a result which is manifestly absurd or unreasonable."

The general effect of the above rules of treaty interpretation on the interpretation or application of the Rescue Agreement is as follows:

- 1. The Rescue Agreement must be interpreted in good faith.
- 2. Ordinary meaning of the terms should be given, unless the parties intended a special meaning (this can be culled out from the drafting history, if not from the Agreement itself e.g., the Agreement itself defines the "launching authority").
- 3. Their context (including the whole text, the preamble, any special agreement or a subsequent agreement or practice relating to the Rescue Agreement) must be taken into account while giving the proper meaning.
- 4. The interpretation adopted must promote the object and purpose of the Rescue Agreement. This is an agreement to promote international cooperation in outer space activities, and with a humanitarian objective.
- 5. Supplementary means of interpretation, such as the drafting/negotiating history of the Rescue Agreement and the circumstances of its conclusion, may be used in ascertaining the plausible meaning of the terms of the Agreement, either to confirm the meaning arrived at through rules 1 to 4 above, or if that meaning is absurd or unreasonable.
- 2. The Preamble to the Rescue Agreement

The Preamble to the Agreement does four things:

- 1. As already mentioned above, it notes "the great importance" of the Space treaty of 1967, "which calls for the rendering of all possible assistance to astronauts in the event of accident, distress or emergency landing, the prompt and safe return of astronauts, and the return of objects launched into outer space."
- 2. It records the "desire" of the states parties "to develop and give further concrete expression to these duties."
- 3. It expresses their "wish" "to promote international cooperation in the peaceful exploration and use of outer space" and
- 4. It states that the Agreement was "Prompted by sentiments of humanity."

These four elements, then, form the objects and purposes of the Agreement that must be given effect to. These shall govern the substantive obligations undertaken by states parties to the Rescue Agreement relative to two situations: (1) rescue and return of astronauts and (2) recovery and return of space objects.

a) Rescue operations within the jurisdiction of a state

If a State Party finds that the astronauts in distress are within its jurisdiction,

- 1. It shall "immediately take all possible steps to rescue them and render them all necessary assistance;
- 2. It shall inform the launching authority and the UN Secretary-General of the steps it has taken and their progress;
- 3. If the launching authority can contribute to the effectiveness of the search and rescue operations, it shall cooperate with the State already engaged in them, but the operations shall be under the direction and control of the latter (within whose jurisdiction the operations are conducted). The launching authority shall have the right to be closely and continuously consulted (Article 2).
- b) Rescue operations outside the jurisdiction of any state

If the astronauts in distress are found or known to be "on the high seas or in any other place not under the jurisdiction of any State," those States Parties "which are in a position to do so, shall, if necessary, extend assistance in search and rescue operations" for the astronauts "to assure their speedy rescue." These States have a further duty to inform the launching authority and the UN Secretary-General of the steps they are taking and their progress. (Article 3).

Evidently, the obligation of States here is less rigorous than that of a state within whose jurisdiction the astronauts in distress are found. The obligation here is of general character. Any State Party shall extend assistance (1) if it is in a position to render assistance, and (2) if necessary. Moreover, the duty to inform the launching authority and the UN Secretary-General arises only when it takes actual steps in rendering assistance.

3.4. Duty to Return the Astronauts in Distress

Article 4 of the Agreement contains a general provision to the effect that if the astronauts in distress have been rescued within the jurisdiction of any State Party or from any place outside the jurisdiction of any State, they shall be "safely and promptly returned to representatives of the launching party." If the astronauts in distress have been rescued, it is logically expected of the rescuing State to return them to the launching authority (usually their State of nationality). In that sense, this provision is made out of abundant caution. It also reflects the mutual suspicions of the space powers in 1968.

4. Return of Space Objects

There are three principal aspects to the way in which the Rescue Agreement deals with the issues relating to the return to the launching authority of a space object or its component parts returning to earth from space. They are: (1) the duties of States Parties engaged in recovery and return of the space object/its component parts, (2) the duties of the launching authority, and (3) defining space objects.

4.1. Duties of States Parties Engaged in Recovery and Return

Unlike the issue of rescue and return of astronauts in distress, the issue of return of space objects has been dealt with by the Rescue Agreement in only one article – Article 5. This article

imposes separate duties on states parties in two different situations, (1) if a spacecraft/its component part, having returned to earth, is found on the high seas or in a place outside the jurisdiction of any state, or (2) if it is found in the territory within the jurisdiction of a state party.

If the spacecraft/its component parts, having returned to earth, are found in a place outside the jurisdiction of any State, each State Party (having the information of such landing, or having discovered the space object/its component parts) has:

- 1. A general duty to notify the launching authority and the UN Secretary-General. (Article 5 (1)), and
- 2. A specific duty to return the space object/its component part, if recovered, to the launching authority. (Article 5 (3)).

If the object/its component parts are found within the territory under the jurisdiction of a state party, that state has three sets of duties to perform:

- a) Duty to notify: It shall notify the launching authority and the UN Secretary-General. (Article 5(1)).
- b) Duty to take practical steps to recover upon request: It shall, "upon the request of the launching authority and with the assistance of that authority if requested," "take such steps as it finds practicable" to recover the object/component parts. (Article 5(2)).
- c) Duty to return upon request: It has a duty to return the object/its component parts recovered by it to the launching authority, "upon its [the launching authority's] request." (Article 5 (3)).
- 4.2. Duties of the Launching Authority

The Agreement stipulates two kinds of duties for the launching authority: (1) a special duty to eliminate the danger of harm from the object/its component parts rescued by other States, and (2) a duty to reimburse expenses incurred in the search, recovery and return operations.

a) Special Duty of Launching Authority to eliminate Danger of Harm

If a State Party, engaged in the recovery of a space object/its component, has reason to believe that the object/component parts "is of a hazardous or deleterious nature" (1) it may notify the information to the launching authority, and (2) the launching authority has a duty to "immediately take effective steps ... to eliminate possible danger of harm," under the direction and control of the rescuing State. (Article 5(4)).

b) Duty of Launching Authority to re-fund the Expenses incurred in Search, Recovery and Return

The launching authority has the duty to re-pay the expenses incurred by other States in fulfilling their duties to recover and return the space object/component parts. (Article 5(5)). What happens in the case of a State recovering a space object/component parts of a hazardous nature, but not finding the launching authority, proceeds itself to take steps to eliminate the danger of harm? The Rescue Agreement does not make any provision in this regard. If the recovering State subsequently identifies the launching State, it has a right to claim re-imbursement from the latter, under the Space Liability Convention 1971 and general international law, which applies to outer space in any case (Article III of the Space Treaty 1967). If it fails to locate the launching State,

then it has to bear the expenses itself, as it has, under international environmental law, a duty to ensure that activities within its jurisdiction do not cause harm to other States or areas outside the jurisdiction of any state (Stockholm Declaration 1972, Principle 21, and Rio Declaration 1992, Principle 2). Should there be no claimant to the space object/component parts recovered even after the lapse of a reasonable time, the recovering State will be entitled, under general international law, to retain it.

It should be noted that this duty to re-imburse does not extend to search and rescue of astronauts, for which there is no provision in this Agreement, unlike the Maritime Law Conventions, on the subject. This highlights the humanitarian character of this Agreement.

4.3. Defining "Space Object"

Article 5 speaks of "a space object or its component parts." However, later treaties define "a space object" to include "component parts of a space object as well as its launch vehicle and parts thereof." Could a launch vehicle itself be considered as a "space object" for the purposes of Article 5 of the Rescue Agreement? The answer must be in the affirmative, as anything sent to outer space must be regarded as a space object.

5. Relevance of Space Liability Convention 1971

5.1. Sharing the Working Space

The Rescue Agreement and the Space Liability Convention 1971 are closely linked, while in operation. When an accident takes place, it may involve not only damage to life or property in the area of the earth where it has its impact, but also the need for search, rescue of any astronauts carried by the ill-fated spacecraft, and recovery and return of the space object/its component parts. Thus, when the nuclear-powered Soviet military spacecraft, Cosmos 954, broke up and its components fell on Canada on 24 January 1978, the Canadian Government by a formal Note Verbale of 8 February 1979, formally notified the Soviet Government, in terms of Article 5 (1) of the Rescue Agreement (to which both the countries were parties), while reserving "all its [Canada's] rights in international law on the matter of liability and compensation in relation to this incident." The Note further informed the Soviet Government that Canada was also notifying the UN Secretary-General, in compliance with Article 5(1) of the Agreement. By a separate Note, Canada indicated to the Soviet Union the possibility of asking the Soviets "to eliminate possible danger and harm from materials of a hazardous and deleterious nature by removing such materials from Canada" and stated that this was in accordance with the relevant international agreements, "including Article 5(4) of the 1968 [Rescue] Agreement."

5.2. Definition of "launching authority"

The Rescue Agreement contains a definition of the term "launching authority." The reason why the term "launching authority" is used is to cover not only states but also international organisations involved in launching space objects. The Agreement defines that term to mean (1) "the state responsible for launching" or, (2) where applicable, the international intergovernmental organisation which is responsible for the launching. But such an international organisation is eligible to be considered as a launching authority only if it fulfils two conditions, namely, (a) it has made a declaration accepting the rights and obligations under the Rescue Agreement, and (b) the majority of its member states are also parties to the Rescue Agreement as well as the Space Treaty 1967(Article 6).

In contrast, the Space Liability Convention, and following it the Registration Convention contain a definition of a "launching State" to mean (i) "a State which launches or procures the launching of a space object," and (ii) "a State from whose territory or facility a space object is launched." While this classification of launching State has the advantage of specifying which are the launching State that bear responsibility under the two conventions, under the Rescue Agreement, other States may have do lot of homework to find out which are the States 'responsible' for the launching. Is a State, financing a launching by another, responsible for the launching? It may also be relevant to note, in this context, that Article IV of the Space Liability Convention provides for joint and several liabilities of all the several launching States. In other words, it enables a claimant to proceed against only one of the two or several launching States for the launching States. This facility is not available under Article 5(5) of Rescue Agreement, unless a claimant State is able to use the facility of the Space Liability Convention to raise its claim as part of its general claim for damages.

Again, in contrast to the Rescue Agreement, the Conventions of 1971 and 1975 have adopted a neater drafting technique of making a separate provision for international organisations involved in space activities, instead of clubbing them together with the launching States. Thus, by a separate provision, these Conventions provide for the application of the rights and obligations under each convention to any international inter-governmental organisation which conducts space activities, provided it fulfils the same two conditions as prescribed under the Rescue Agreement, referred to above.

6. "Provisional" Nature of the Agreement

Roy S. K. Lee notes the transitional nature of the Rescue Agreement. It was adopted in 1968, at a time when space activities had not advanced as they are now. There were only two space powers, and given the level of technology then, there were a number of failures of space ventures. Space transportation of 'passengers' then was only a dream. Thus, participating in the General Assembly debates for the adoption of the Agreement, France argued that the Agreement would apply "only to flights that are experimental and scientific in nature" and that a new treaty would have to be negotiated when such flights may become utilitarian or commercial. Lee observes that this might as well be a correct view, since the Agreement confines itself to the personnel of a spacecraft, and not others. With the modern developments in space technology, space transportation is not far off, as occasional 'space tourists' have already appeared on the stage. The viability of aerospace craft has already been proved to the satisfaction of the space scientists. Space stations and space laboratories have already become realities. The establishment of space colonies and use of space for industrial production of substances that cannot be efficiently produced on the earth have ceased to be in the realm of fantasy. The Agreement therefore needs to be updated to take into account these imminent developments.

Another reason why the Agreement looks rather incomplete is that, although the provisions, such as Article 5 would engender (and did in the case of Cosmos 954 in 1978) disputes between States, there is no provision in the Agreement for proper settlement of disputes. This may be because of two reasons.

One, many of the obligations embodied in the Agreement are tentative obligations heavily reliant on the principle of good faith: the terms like "take all possible steps," "take such steps as it finds practicable," "those Contracting Parties which are in a position to do so" and "if necessary, extend assistance" would make it difficult to attribute responsibility to a State in question. Two, compulsory settlement of disputes was not politically and readily acceptable those days, and at any rate, the Soviets, who specially needed this Agreement, rarely favoured any compulsory settlement method in international relations, save negotiations and mutual consultation. This was also the case with many of the developing countries. It was only with great difficulty that a compulsory procedure could be agreed on with regard to the Space Liability Convention 1971.

Concluding Remarks

The Rescue Agreement is a watershed in the development of International Space Law in general and treaty law on outer space in particular. It represents the interface between the principle of humanity and the principle of international cooperation. Given the thirty-five years of evolution of International Space Law since its adoption, one may find it useful to review and update the Agreement in terms of the realities of space transportation, and also other emerging uses of outer space, including space stations, space laboratories, and space industrialisation. The basic principle of search, rescue and recovery will remain relevant to any space of human activity, not just outer space.



UNITED NATIONS / REPUBLIC OF KOREA WORKSHOP ON SPACE LAW

United Nations treaties on outer space: actions at the national level

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Introduction : Why should a State license a private activity to be conducted in outer space ?

- Because it is responsible for this « national activity » (OST article VI)
- Because it may be liable as a « launching State » (art. VII, liab conv)

History of the space law liability regime »The Outer Space Treaty, »the rescue agreement »The liability convention »The registration convention

> Were mainly proposed by the space faring States of the time and accepted by the others.

The space faring States wanted an undisputed freedom of use of outer-space

They recognised therefore a very much « victim oriented » liability regime for victims not taking part in the risky adventure (damage on earth)

We have to keep in mind that this regime is therefore a counterpart of the freedom of use.

Presentation of the liability regime for space activities

From two points of view :

- The victim's
- The Launching State's

From the victim's points of view

The liability convention is very efficient for the victim not taking part in the adventure (damage on earth).

- Because of the choice of the liable entity
- Because of the extend of the liability

The choice of the imputation of liability is very protective :

The launching State.

The interest of the choice. »A State »A well known State

the notion of launching State.

- A State that launches
- A State that procures the launching
- A State from whose territory
- A State from whose facility an object is launched,

When there is more than one launching State, they are jointly and severally liable

> i.e. any of them may have to pay compensation for the whole damage
The victim may choose among the launching States the most likely to pay

The plurality of launching States is a guarantee for the victims

The extent of the liability

The liability convention is very efficient for the victim not taking part in the adventure (damage on earth).

A large liability

- o Objective liability
- o liability is unlimited in amount
- o The liability is unlimited in time
- o No exoneration

The liability convention does not apply to damage

To a launching State's national To foreign nationals taking part

The liability convention does not deal with damage caused to another launching State of the same launch or its nationals

Definition of the « damage » (1)

Damage « caused by » a space object

- « caused by »
- Definition of the space object

Liability convention article 1 :

« The term "space object" includes component parts of a space object as well as its launch vehicle and parts thereof ».

Bin Cheng, Vladimir Kopal :

« Any objects launched by humans into outer space, as well as any component part thereof, together with its launch vehicle and parts thereof » Liability Convention and national licensing regimes Definition of the « damage » (2)

The term "damage" means

- loss of life, personal injury or other impairment of health;
- or loss of or damage to property

Liability Convention and national licensing regimes The compensation :

« Restitutio in integrum »

Restore the person, to the condition which would have existed if the damage had not occurred.

(Liab conv Article XII)

The settlement of dispute mechanism

The victim may choose to ask for compensation

- under the liability convention or
- through another way.

The settlement of dispute mechanism under the liability convention

- **Diplomatic negotiation** (article IX)
- Exhaustion of local remedies (article XI)
- One year from the damage (article X)
- The Claims Commission

The possibility for the victim to obtain compensation through other ways.

A State at the international law level

- Under responsibility of OST article VI
- Under general international law

A victim under domestic law before a domestic judge

Damage in orbit

– Fault liability

- It was an error to deal with both systems in the same articles
- The convention is far less efficient
- The mechanism should be improved
- Will the insurers go on accepting to pay in the case of space debris ?

Conclusions of the first part (1)

The system is very much victim oriented

- It protects the victim (cf law of the sea)
- It encourages responsibility and control of every activity whether conducted by governments or by non governmental entities.

Conclusions of the first part (2)

Some people argue that the current system is unfair.

In a certain sense they are right.

The system must be completed

II From The Launching State's point of view

Which State is a Launching State ? The four criteria apply Some of them need interpretation

Who determines which State is a Launching State ?

- Not the launching State itself
- In fine : the judge
- The proof of the quality of launching State
 - The victim has to prove
 - The importance of registration

If a State is at risk to be considered as a launching State it should consider it carefully to avoid the obligation to pay for compensation.

A State cannot avoid being considered as a launching State by an international judge

Instead of trying to declare that it does not consider itself as a Launching State, which has no efficient legal effect, a State would be better off trying to escape from paying compensation.

A launching State may avoid paying compensation in case of damage :

It can transmit the hot potato to somebody else

How?

- The agreements referred to in article V of the liability convention.
- The licence and domestic law when private actvities are concerned

The sharing of the risk among Launching States

Article V § 2 of the liability convention establishes a principle :

« A launching State which has paid compensation for damage shall have the right to present a claim for indemnification to other participants in the joint launching. »

Contrary to what is provided in article IV there is no precision on the way to obtain this indemnification

The text only indicates :

The participants in a joint launching may conclude agreements regarding the apportioning among themselves of the financial obligation ...

These agreements are of major interest

They do not prejudice the right of the State of the victim They do not share the liability itself

but they share what is the most important : <u>The obligation of compensation</u>

These agreements may

- put the risk of the launch phase on the State which launches / State of the installations
- put the risk of the space object when launched on the State which controls the space object
- protect the other launching States from having to pay for damage caused by other States' pay loads.
- protect the State of the territory when it does not really take part to the launch
- Etc...

Liability Convention and national licensing regimes The effects of these agreements

In law they do not transfer the liability but the obligation of compensation

In fact the result will be often the same

The State victim / of the victim will most of the time choose to sue the State designated by the agreement

- so doing it will avoid having to prove the status of launching State
- and it will be easier get its money.
- the parties to the agreement may agree to facilitate the action in this case

Liability Convention and national licensing regimes The sharing of the risk between the launching State and its private companies

If a State has paid compensation it may wish to get its money back from the private company.

Two mechanisms are put in place in national space laws :

The obligation to indemnify the State if it had to pay

- Sweden
- UK
- Russia
- Australia (with a ceiling)

The current system for the Arianespace launches sets a ceiling of 70 millions € insured by Arianespace

This mechanism is far less efficient as it is based on a contract between the French government and Arianespace

it does not apply to other French companies.

A more sophisticated mechanism is provided by the US commercial space launch act (CSLA)

- A maximum probable loss is determined by the licensing authority
- If an accident happens, the company will have to pay under this ceiling
- It has contracted for an insurance
- The US government will pay over it.

This mechanism is rather good as it

- Protects the victim
 - » Who has more chance to get compensation
 - » Who can sue the company in a domestic court
 - » Who does not need to use the long procedure of the liability convention

But also

- Protects the US private companies
 - » They are given a ceiling which clarifies their risk and therefore eases financing their project
 - » They may get insurance at a reasonable cost

The CSLA shows that when a State enacts domestic legislation, it may take into consideration its liability but also the possible liability of its companies.

It may consider geting its money back, but also supporting its companies' space activities

Conclusions

The liability mechanism under the liability convention is efficient for the victim not taking part in the activity.

In connection with the obligation of article VI it imposes efficient control on any space activities

For these reasons it should not be modified.

Conclusions (2) But it is far less efficient for other purposes

Relations between space faring States

- Lialibity for damage in space
- Relations between launching States
- Sharing of the burden of the risk between Launching States
- The solution : systematic arrangements according to article V

Conclusions (3)

Relations between a State and its private entities

- Indemnification of victims who are nationals of the LS or taking part in the launch
- Possibility for the State to be reimbursed
- Possibility for private entities to be protected by efficient ceilings in case of an action before a domestic judge
- The solution : Licensing and control process through domestic legislation, regulations or agreements



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Space Law Specialist segment

Emerging System of Property Right in the Outer Space

Prof. Hongkyun Shin Hankuk Aviation University

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PART II Property Rights through the Commercial Space Activities

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Part I

Overview upon the Article II
Non-Appropriation Principle : Historical and Doctrinal Development

Historical Facts

- Non-appropriation principle has been the core of space law
 > It had been claimed in several UN Resolutions
- It has been inseparable from the principle of the freedom of space flight
 - Spacecraft launching States had not claimed their territorial sovereignty, while enjoying the freedom of passage.
 - > UN Resolution 1721(XVI) on 1961 : "Outer space and celestial bodies are free for exploration and use by all States in conformity with international law and are not subject to national appropriation."

Non-Appropriation Principle : Historical and Doctrinal Development (cont'd)

- □ The principle is related to the theoretical reasoning regarding the legal status of outer space
 - "Outer space ... would be the common property of all mankind, over which no nation would be permitted to exercise domination ..."(Oscar Schacter, 1952)
 - Res extra commercium notion : Space beyond earth atmosphere was thought incapable of appropriation. ; physical impossibility of appropriating space (C.W. Jenks, 1956)
 - Res communis notion : outer space is a thing which belong to a group of persons, may be used by every member of the group, but cannot be appropriated by anyone.

Non-Appropriation Principle : Historical and Doctrinal Development (cont'd)

□ "Cohesion" with other principles

- For some authors, freedom of space flight is allowed, through the customary law process, on the condition that the flight does not invoke territorial sovereignty.(Marco Marcoff)
- "The prohibition against national appropriation must be read in connection with the provision of Article 1, par.1 ... These provisions must also be related to major provisions of Article 1, par.2, namely that such exploration and use are to be carried out for the benefit and in the interests countries ... The opportunity to use is open to all."(Carl, Christol, 1984)

Art.2 : Interpretative Issues

- □ While the principle is the core of the space law, the provisions in the Outer Space Treaty of 1967 have not excluded some interpretative problems.
 - Subject matter of appropriation : Is it prohibiting an appropriation of just areas of outer space, or areas including the resources of outer space?
 - Meaning of "National" appropriation :
 - > National appropriation includes all forms of appropriation whether national, private or otherwise, or
 - It expressly prohibits national appropriation as opposed to individual appropriation or acquisition by a private association, etc.

Inherent Limitation

□ Absence of legal definition regarding the status of the outer space

- Many authors have stated the inadequateness of Roman law concept in international law. For example,
 - The idea that the outer space cannot be appropriated by its nature may be relevant with the principle of freedom of space flight. But, the freedom may be related to both concepts such as res communis and res nullius. The freedom is not to be given automatically and exclusively by the status of res communis.
 - Such duality shows that it is inexact to identify the limited sovereignty with the conception of res communis.
 - The freedom is not based upon the theoretical reasoning, upon the outer space, using the same concept and criteria applied to "res" in roman civil law concept. But it is based upon the real international relations.(Marco Marcoff, 1984)

Inherent limitation (cont'd)

- □ Compared to other cases as following, any official legal texts provide a definition regarding the legal status of the outer space.
 - The legal status of the air space over the high seas is analogous to that of the high seas itself. The basic principle applicable is that of res omnium communis.(N.M. Matte, 1984)
 - "The term 'high seas' means all parts of the sea that are not included in the territorial sea or in the internal waters of a State." (Convention on the High Seas,Art. 1); "The high seas being open to all nations, no State may validly purport to subject any part of them to its sovereignty."(Art.2)
- □ In provisional conclusion,
 - "Covered under the "res communis" concept, the freedom and common use might be downgraded to a regime of monopole and exclusive utilization of outer space, based upon superiority of material capacity. Because international law does not define a exact status of the res communis, the principles belonging to that are coming from the private law." (M.Marcoff, 1984)

Part II

Property Rights through the Commercial Space Activities

Evolution of the concept of property

□ "Functional" property regime

- In pastoral societies, how the land was used determined the kinds of possession possible (Ex: multiple hunting rights over the same forest)
- Given the low population density and the limited rate of exploitation of natural resources, functional partitions of property were deemed efficient.
- Property rights were related to specific use of the land, rather than a spatial conception of property
- □ "Spatial" property regime
 - Confines of property determined by physical boundaries
 - Functional property regime not suitable for ensuring optimal use of land, due to difficulty inherent in accommodating multiple rights.

Civil Law Concept of Property

□ The Roman law concept of property

- Optimal uses of land through the concentration of decision rights
- Absolute property regime : the right of property consists of two main elements ; the right to use the property and the power to exclude others

□ In the civil law States

- French civil code : ownership is the right to enjoy and dispose of things in the most absolute manner
- German BGB : the owner may deal with the thing as he pleases and excludes others from any interference

Ownership and the Right to Use

□ The right to use without ownership is also acknowledged.

- □ In civil law States
 - Right to use, based upon the Roman law concept, is allowed to a thing that belongs to someone.
 - Right to use acknowledged to actual possessor with legal title
 - Right to use acknowledged to owner with legal title
 - Otherwise, right to use something without ownership is allowed with respect to particular category of things known as "public property" : something tangible belonging to the public such as road, railway, etc. and something tangible or intangible and normally uncontrollable such as air, sea, river, etc.
- □ Korean civil law and public law
 - Property right concept in civil law : applicable to the things tangible or intangible which can be under control
 - Public property concept in public law includes things under control as well as uncontrollable

Case for right to use without ownership

□ Radio frequency example

- Korean Radiocommunication law and regulation : radio frequency belongs to the public property, whereas the right to use it is to be licensed by the government
- France Telecommunicaton Law : license for radio communication utilizing radio frequency is nothing but a temporary occupation, for private purpose, of public domain.

□ Common law States

• In the USA, Section 301 of the Communications Act : "... the control of the United States over all channels of radio transmission; and to provide for the use of such channels, but not the ownership thereof, ... Under licenses. ... and no such license shall be construed to create any right, ..."

In both legal system, the right to use without ownership is accommodated.

Property Rights Theory in Law & Economics

- Property rights system in law and economics theories provides useful paradigm for analyzing the right to use without ownership.
- □ Main features
 - Focusing upon enhancing the efficiency through allowing the property right
 - The conception and components of the property right are related to the efficiency conception. For example,
 - "Once a licensee is given the freedom to use the spectrum (if he/she get a property interest), the more likely ... the use will be the highest and the best use reflecting the spectrum's true opportunity cost to society."

Property Rights and Market

- Proposes that property rights regime is based upon market function and economic thinking.
 - "Appropriateness of recognizing a property right in a resource is a function of its scarcity, and hence market value, relative to the costs of enforcing such a right" (Harold Damsetz, 1967)
- Provides an useful explanation regarding the establishment of the property rights
 - "Economic forces account for the historic evolution of law"
 - "In historical evolution of law, it is shown that various property rights regime had been established when some particular conditions were met : firstly, delineating the confines of the right is possible in the terms of the cost and possibility, secondly the existence of incentives for property right"

Ownership in the property rights concept in law & economics

- □ Property rights concept developed in the theory shows dual features
 - "For the efficiency" aspect :
 - Such rights are to be established and acknowledged among the legal subjects, when some specific conditions are met. Thus efficiency is assured.
 - It should be noted here that ownership concept, or possessory right(or fact) concept is not dealt here.
 - "For the legal title" aspect :
 - > Ownership does not matter here.
 - Right to use is permissible, if delineating the confines of the right (to use or trade) is not costly.
 - > And, after then, ownership may be arranged.
- □ There exists salient conflict with traditional civil law concept regarding ownership aspect.

Efficiency in the property rights regime

- Efficient legal regime of property rights
 - "Such regime is likely to be a mixed system, combining paper rights with possessory rights."(Richard Posner, 2001)
 - "Paper rights" mean a right to use with legally qualified title, whether actual possession is assured or not
 - Different from civil law States(like Korea, Japan) conception which is influenced by German School.
 - Economic thinking rather than traditional conception of property right, like possession element as ensuring the fact of ownership
 - > More weight on the right to use rather than the ownership involving the possession. "Unless a valuable resource is subject to a right of exclusive use, control, and benefit, incentives to in the production of valuable goods will be suboptimal."(R. Posner, 2001)

Typical Property Rights Case

□ Auctioning of frequency spectrum

• In the USA, winner/licensee shall have the right to use and sell the frequency spectrum, while ownership is denied expressly in the statute.

Exclusive right to use

• In the Korea, the radio communication law provides the provision allowing the exclusive right to use in favor of the licensee who pays the appropriate price for frequency.

Merit of Law & Economics Paradigm

- □ If we still adhere to the interpretative issue around the Article 2, and especially the meaning of appropriation,
 - it may be still right to say that the outer space is not subject to the Imperium, that is to say, sovereign rights of the States.
 - But, ownership issue for non-governmental entity still remains unanswered.
- □ When, however, such property rights paradigm applied,
 - Actual allocation of the right to use may be identified, whether the ownership issue is answered or not.
 - It is presumed that commercial activities have brought up the development of property rights components
 - It will be useful to resume an evaluation check upon the status of the commercial use of outer space. Through such kind of use,
 - > The right to use without ownership is actually acknowledged.
 - It implies that certain conditions are met for property rights to be established in the terms of law and economics theory

Property rights allowed in the commercial space activities

Referring to the provisions of the Space Treaties

- Property rights to the space object acknowledged by the Space Treaty 1967
 - Private enterprise is acknowledged its right to the space object under the provision of Article 8 ("ownership of objects launched into outer space, ... is not affected by their presence in outer space")
 - Some scholars maintain : because the Treaty prescribes the continuing supervision and jurisdiction of the States upon its national activities, private property is to be protected in the outer space and celestial bodies. (M. Couston, "such protection is permitted owing to the nationality registration which constitutes the link between legal regime applicable on the earth to the space object and the one applicable in the outer space.")

Property rights allowed in the commercial space activities (cont'd)

□ The GSO use

- Nation States have their own licensing regime for satellite system using the GSO
- In the context of the ITU Convention and Radio Regulation, a present user of specific orbit/frequency is able to keep the right to use and claim its right in the frequency coordination process.
- Confining the right to use among the users is possible as the RR and domestic rules specify the obligation not to make the harmful interference.
- There exists a orbit the value of which is higher than the others
 - such as the one for satellite broadcasting ; auction in the USA shows that market has been formed around the right to use the GSO

ARTICLE S8 Status of frequency assignments recorded in the Master International Frequency Register

S8.1 The international rights and obligations of administrations in respect of their own and other administrations' frequency assignments shall be derived from the recording of those assignments in the Master International Frequency Register (the Master Register) or from their conformity, where appropriate, with a plan. Such rights shall be conditioned by the provisions of these Regulations and those of any relevant frequency allotment or assignment plan.

S8.2 Not used.

S8.3 Any frequency assignment recorded in the Master Register with a favourable finding under No. S11.31 shall have the right to international recognition. For such an assignment, this right means that other administrations shall take it into account when making their own assignments, in order to avoid harmful interference. In addition, frequency assignments in frequency bands subject to coordination or to a plan shall have a status derived from the application of the procedures relating to the coordination or associated with the plan.

S8.4 A frequency assignment shall be known as a non-conforming assignment when it is not in accordance with the Table of Frequency Allocations or the other provisions of these Regulations. Such an assignment shall be recorded for information purposes, only when the notifying administration states that it will be operated in accordance with No. S4.4 (see also No. S8.5).

S8.5 If harmful interference to the reception of any station whose assignment is in accordance with No. S11.31 is actually caused by the use of a frequency assignment which is not in conformity with No. S11.31, the station using the latter frequency assignment must, upon receipt of advice thereof, immediately eliminate this harmful interference.

X-ponder Utilization Rate in Europe

System	Transponder Number		System utilization				
			Voice & data	Video	No-Use	TV channels	
	36-MHz units		Present			Anal- ogue	Digi- tal
	1996	1997	1997.12				
Eutelsat	133	163.7	30%	55%	15%	74	140
Astra	80	125	0%	85%	15%	94	201
Telecom	88.5	88.5	55%	35%	10%	18	3
Kopernikus	32	32	50%	35%	15%	3	14
Hispasat	22	22	20%	75%	5%	7	22
Sirius	9.5	24.5	5%	90%	5%	11	12
Thor	4.3	14.2	5%	95%	0%	18	6
Total	369.3	469.9	25%	62%	13%	225	398

Property rights allowed in the commercial space activities (cont'd)

Material Processing

• any invention made in outer space on space object under the jurisdiction of the US shall be considered to be made within the USA.

INVENTIONS IN OUTER SPACE (Public Law 101-580 [S. 459]; November 15, 1990)

An Act to amend title 35, United States Code, with respect to the use of inventions in outer space.

SECTION 1. INVENTIONS IN OUTER SPACE.

§ 105. Inventions in outer space

- (a) Any invention made, used or sold in outer space on a space object or component thereof under the jurisdiction or control of the United States shall be considered to be made, used or sold within the United States for the purposes of this title, except with respect to any space object or component thereof that is specifically identified and otherwise provided for by an international agreement to which the United States is a party, or with respect to any space object or component thereof that is carried on the registry of a foreign state in accordance with the Convention on Registration of Objects Launched into Outer Space.
- (b) Any invention made, used or sold in outer space on a space object or component thereof that is carried on the registry of a foreign state in accordance with the Convention on Registration of Objects Launched into Outer Space, shall be considered to be made, used or sold within the United States for the purposes of this title if specifically so agreed in an international agreement between the United States and the state of registry.

Implication of the property rights in the commercial space activities

□ Market formation

- The value of the GSO comes from its scarcity.
- There exist incentives for exclusive right to use.
- □ Enforcing the right to use the GSO is feasible within the context of the ITU regulations and domestics rules.
 - The enforcement cost is accommodated such that property right can be set up.
 - It's mainly because legal institution is ensured by the ITU rules and domestic rules, such as dispute resolution mechanism.
- □ In the case of commercial activities using the essential feature of the outer space, domestic rules, especially belonging to private sector, assure the property rights and incentives.

Property rights allowed in the commercial space activities (cont'd)

□ In the Commercial Remote Sensing

• Non-discriminatory access to unenhanced data is acknowledged. US Law regarding commercial remote sensing :

SEC. 202. CONDITIONS FOR OPERATION.

(2) make available to the government of any country (including the United States) unenhanced data collected by the system concerning the territory under the jurisdiction of such government as soon as such data are available and on reasonable terms and conditions;

• Proprietary rights allowed in the UN Principles

Principle XII : As soon as the primary data and the processed data ..., the sensed States shall have access to them on a non-discriminatory basis and on reasonable cost terms. ...

• EOSAT Agreement for Purchase and protection of satellite data "These satellite data constitute a confidential trade secret of EOSAT. ... These data are proprietary information. .."

Concluding Remarks and Discussion

Concluding Remark

- □ In the absence of legal definition regarding the outer space, the non-appropriation principle is destined for narrower scope and applicability.
 - Article II doest not constitute firm and stable basis for enforcing the non-appropriation rules in member States' domestic law.
 - As ownership issue including the legal status with respect to a part of the outer space is dealt in the context of domestic law, the right to use has been allowed.
- Domestic law assumed the role for paving the way for the right to use regime
 - Domestic law assures institutional circumstances favorable for the property rights in the sense of law & economics theory

Discussion points

- □ As an appropriation of profit is to be done in the context of various commercial use of outer space, the meaning of the term "national appropriation" in the Art. II would be confined to sovereign territorial appropriation.
- Counter argument may be plausible in stating that
 - Present status and scope of commercial use seems limited in terrestrial activity, such as distribution of data, communication, and sales of products. Therefore, it's done without prejudice to the applicability and purpose of the Art II.
- □ But, it should be reminded that
 - The GSO is the part of the outer space.
 - Space activity seems nearly impossible without taking into account its terrestrial linkage.
- □ If present commercial use is not related to the space activity contemplated by the Space Law based upon the international treaties, and that, therefore, its scope and applicability are still intact, then it would be relevant to refer to the "outer void space" law concept.

Discussion points

- □ Let's figure a hypothetical situation where one private enterprise is planning to exploit the natural resources found on the moon and to sell its product to the customer on the earth.
 - Its right to sell is allowed by the civil or commercial law of its registered State. (Product is just nothing else than the commodities in market.)
 - The launch for facility is to be licensed by the launching State.
 - Communication with moon facility is protected by the ITU rules.
- Only in case of the prohibition at national level, that plan may be considered illegal
- □ But, what if the State has not yet signed the 1979 Moon Treaty? What if the State claims that the Article 1 of the 1967 Treaty is interpreted as non self-executing provision?

RUSSIAN FEDERAL LAW ON COMMERCIAL SPACE ACTIVITY (April, 1997)

Article 14. Property Rights

Right of property for space equipment, results of space activity and space technologies developed during realization of commercial space projects including those international at the expense of Russian legal entities and natural persons, and on budgetary funds belongs on a shared basis to these Russian legal entities and natural persons.

The Russian Federation represented by the Council of Ministers delegates its right of possession, disposal and use of state property created during realization of commercial space projects to the Federal Executive Body for Space Activity, Federal Executive Body for Defense and other Federal Executive Bodies concerned, and the Russian Academy of Sciences that participate in the realization (financing, provision of other resources) of commercial space projects on a shared basis.

Article 16. Sales and Transfer of Space Products and Results of Intellectual Activity

- 1. Space products shall be sold and transferred with security of the Russian Federation taken into account and in compliance with international agreements and obligations of the Russian Federation.
- 2. Space products and results of intellectual activity of state owned organizations, as well as space products developed within commercial projects shall be sold and transferred to other Russian organizations by the owners of these products on a contractual basis in line with the existing laws. The contract price shall include reimbursement of the agreed upon part of state expenses for the development, depreciation and deterioration of space means and space infrastructure objects as well as other costs directly related to purchase orders of space product users.
- 3. Space products, including space technologies and results of intellectual activity, generated by state owned organizations shall be sold to commercial organizations and persons without any discrimination for a negotiated price that takes into account the situation in the Russian and world markets of space products. Terms and conditions of the use of legally protected space technologies shall be in line with Russian Federation laws and standard legal acts.

INVENTIONS IN OUTER SPACE (Public Law 101-580 [S. 459]; November 15, 1990)

An Act to amend title 35, United States Code, with respect to the use of inventions in outer space.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

SECTION 1. INVENTIONS IN OUTER SPACE.

(a) In General.—Chapter 10 of title 35, United States Code, is amended by adding at the end the following:

"§ 105. Inventions in outer space

- "(a) Any invention made, used or sold in outer space on a space object or component thereof under the jurisdiction or control of the United States shall be considered to be made, used or sold within the United States for the purposes of this title, except with respect to any space object or component thereof that is specifically identified and otherwise provided for by an international agreement to which the United States is a party, or with respect to any space object or component thereof that is carried on the registry of a foreign state in accordance with the Convention on Registration of Objects Launched into Outer Space.
- "(b) Any invention made, used or sold in outer space on a space object or component thereof that is carried on the registry of a foreign state in accordance with the Convention on Registration of Objects Launched into Outer Space, shall be considered to be made, used or sold within the United States for the purposes of this title if specifically so agreed in an international agreement between the United States and the state of registry.".

Commentary on Emerging System of Property Rights in Outer Space

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Introduction

After a most comprehensive and well documented presentation by Prof. Hongkyun Shin, I am not sure if I can add any further comment. Since Prof. Shin made a presentation with the emphasis on the theoretical aspects of property rights, I am going to comment from the concrete points of view.

I would like to refer to several points in this commentary paper. First, based on my interpretation of Article II of the Outer Space Treaty, the scope of non-appropriation will be considered. I am of the opinion that the scope of non-appropriation extends to non-governmental entities. However, aside from non-appropriation of territorial title, little is expressly decided in the Outer Space Treaty. Thus, next, I would underline that the regime on property rights in outer space should be set up before the exploitation of resources becomes a reality. In that regard, analogy with, and/or reference to recent developments in the international law of the sea seems to be a good starting point. Finally, as Prof. Shin enumerated the exclusive rights to use outer space, I would also reiterate the importance of constructing rules on exclusive rights for the equitable use of outer space as a global commons. Some examples in the field of space telecommunications will be introduced as an exercise of exclusive rights that could cause awkward problems to the existing legal regime.

I. Legal Status of Outer Space

Article II 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 (Outer Space Treaty, or OST) provides:

"Outer Space, including the Moon and other celestial bodies, is not subject to national appropriation by claim of sovereignty, by means of use or occupation, or by any other means".

The rule is clear among the contracting States of this treaty: territorial title in outer space or on celestial bodies cannot be claimed by way of occupation or any other means. Then, major questions concerning this provision would be whether such a rule would be also binding upon non-Parties to the Outer Space Treaty as customary international law and upon private persons in state parties to the Treaty.

1. Status of Outer Space Treaty

As of October 2003, 97 States are Parties to the OST. The basic rule on territorial claim in outer space would be different if this treaty were not a customary international law because approximately half of the States on the earth are non-Parties to the OST. Granting that the OST is crystallized into rules of customary international law, then rules governing the global community are simple: neither celestial bodies nor outer space is an area under national sovereignty. If the OST is not regarded as rules of customary international law, it follows that customary international law applicable in outer space has to be found. In that case, celestial bodies might be seen as *res nullius*, or the area on which they can make a claim of territorial title based on, say, occupation. On the other hand, it is said that under customary international law, outer space constitutes *res extra commercium*, that is to say, areas not subject to national appropriation¹

I took a position that the Outer Space Treaty, at least its important principles, has been crystallized as customary international law, because no country even made a statement against the club rule of Article II, let alone ever physically tried to occupy a part of outer space for sovereignty since 1967. Then, it seems safely said that celestial bodies and outer space can be regarded by global community as areas not subject to national sovereignty.

2. Private Appropriation Prohibited or Allowed?

Other than Article II of the OST, the Agreement Governing the Activities of Space on the Moon and Other Celestial Bodies (Moon Agreement) of 1979 provides for territorial sovereignty and property rights on the Moon, or more precisely, denies them². Although Article 11, paragraph 2 of the Moon Agreement only reiterates what is provided for in Article II of the OST, paragraph 3 of the same Article explicitly provides that all of the moon and natural resources in place shall not become either the territory or property of States or private persons³. However, since only 10 states have become parties to the Moon Agreement almost 20 years after its entry into force, I think the importance of Article 11, paragraph 3 of the Moon Agreement lies in the fact that the provision could be used to interpret the OST.

Is it suggestive or not that here in the Moon Agreement the word "any natural person" is used but not in the OST?

Before the OST was adopted, at least four of the international nongovernmental and legal organizations prepared draft resolutions on the same subject. All these documents contain non-appropriation clauses by private entities. For instance, the draft resolution of the International Institute of Space Law (IISL) provided that outer space "shall not be subject to national or private appropriation" by any means⁴. On the basis of a similar analysis, there are some space lawyers

¹ Bin Cheng, "The 1967 Space Treaty," in Bin Cheng, *Studies in International Space Law*, (Clarendon Press, 1997), p.229.

² For the purposes of the Moon Agreement, "Moon" shall include orbits around or other trajectories to or around it

³ The first sentence of paragraph 3 of Article 11 provides "Neither the surface nor the subsurface of the moon, nor any part thereof or natural resources in place, shall become property of any State, international intergovernmental or non-governmental organization, national organization or non-governmental entity or of any natural person."

⁴ Wayne N. White, Jr., "Real Property Rights in Outer Space," *Colloq. L. Outer S.*, vol.40 (1997), p.372. Other than IISL, Institut de Droit International, International Law Association and David Davies Memorial Institute of International Studies prepared draft resolutions between 1960 and 1965, *Ibid.*, p.382.

who are of the opinion that only national appropriation is prohibited under Article II, but not private appropriation 5^{-5} .

I do not agree with this line of thought. There are several reasons for that.

I do not agree with this line of thought. There are several reasons for that. First, the drafting process of the OST shows that France and Belgium repeated the concerns that Article II might be interpreted in a narrower way, but when they signed and ratified, both countries did not attach any interpretative declarations⁶. That can be construed that their concerns had been settled by the signing ceremony in favour of their interpretation, or private appropriation inherently prohibited.

Second, Article II has to be interpreted with other provisions in the OST, especially Article I that guarantees free access to all areas of celestial bodies to all states without any discrimination of any kind. The interpretation of the provisions would be that no appropriation may be sanctioned under the OST regime. Then, third and most importantly, the logical consequence of ownership of real estate in modern states has to be taken note of. With respect to real estate ownership, it appears impossible to think that private appropriation is authorized in a certain area when national appropriation is prohibited there.

I would like to talk here about why private appropriation is prohibited. It is only a sovereign State that can allow its national to own land within and outside its territory. Under its jurisdiction, a sovereign State regulates by its laws how a private person owns real estate. Concerning the outside the sovereign territory of any State, the occupation of a private person over certain land is a mere fact unless it is recognized and endorsed by the sovereign State whose nationality a private person holds. I would like to underline that appropriation is a State act, not achieved only by a private person. Historically, appropriation of land by a private person in *terra nullia* has never existed independently from State appropriation. Appropriation is a State act, it must be performed in the service of a State, and it must be acknowledged by a State after the performance of a private person⁷.

3. State Responsibility to Assure a Private Person Complies with the OST

Article VI of the OST provides for State responsibility to assure that the activities of its nationals shall be in conformity with the OST and that such compliance has to be carried out with authorization and continuing supervision. Hence, it seems to imply the responsibility of a State to monitor its nationals with due regard so that they would not be able to act to the contrary, and if non-compliance by its national with respect to the OST is found out, a State Party has to act to correct it through its authority and continuing supervision power. As a result, if a non-governmental entity claims territorial appropriation on the celestial bodies, failure of a State to act to stop it could constitute a violation of the treaty obligation⁸. (Of course, elements of damage caused by such a private act have to be taken into consideration in practice.)

⁵ *Ibid.*, p.372

⁶ Cheng, *supra*, note 1, pp.230-235

⁷ Belgium and France took that view. Cheng, *ibid.*, p.233; Virgiliu Pop, "The Man who Sold the Moon: Science Fiction or Legal Nonsense?", 17:3 *Space Policy* (2001), p.199. [hereinafter Pop1.]; See, also, Virgiliu Pop, "Appropriation in Outer Space: the Relationship between Land Ownership and Sovereignty on the Celestial Bodies", 16:4 *Space Policy* (2000), pp.275-282

⁸ Pop1, *ibid*.

II. Property Rights on Resources in Outer Space

1. Existing Law: Lacuna of the OST

The question of the property rights concerning natural resources seems, on the other hand, to be resolved, since no explicit rule is stipulated in the OST. Also, aside from the Moon Agreement, no rules were laid down on the conditions of economic development of outer space in any UN space treaty⁹. Then, it has to be clarified through the finding of an existing law or making new rules. In that regard, analogy with the high seas might be useful, if it is carefully conducted taking note of the dramatic change to the high seas regime after the 1970's. Freedom on the high seas has long ceased as far as the exploitation of resources is concerned.

2. Deep Sea-Bed Analogy

2.1. High Seas Analogy

Deep seabed analogy, reflected in Part XI of the UN Convention on the Law of the Sea (LOS Convention) of 1982, could be used in order to study the regime in outer space concerning the exploitation of natural resources. It is a well-known fact that the concept of the common heritage of mankind (CHM), provided for in Article 11, paragraph 1 of the Moon Agreement, is a borrowed concept from the LOS Convention that had already been long negotiated when the Moon Agreement was adopted in 1979.

Against the establishment of the International Sea-Bed Authority (ISA) based on the CHM principle, the US, having decided not to be a party to the LOS convention in 1980, adopted a national law named Deep Seabed Hard Minerals Resources Ac^{10} . The Act stipulated the conditions for renewable permits to ensure tenure at mining sites for the US and non-US nationals on the basis of reciprocity (Section 107 (a) (b)), but it denies "sovereignty or sovereign or exclusive rights or jurisdiction over, or the ownership of, any areas or resources in the deep seabed." (Section 3 (2)). France, Japan, the Former Soviet Union, the UK, and former West Germany joined the so-called 'mini-regime'. This mini-regime regards the commercial exploitation of the deep seabed as one of the exercises of freedom of the high seas, and tried to harmonize the use of the sites among the participating States for orderly development of hard mineral resources.

2.2. LOS Convention Analogy

Article 137 of the LOS Convention stipulates that resources in the deep seabed is the property to all mankind, or resources *in situ* belongs to mankind, which is the sheer denial of sovereign rights. According to the LOS Convention, although resources 'in place' belong to all mankind, once it is mined in accordance with the procedures the Convention provided for, then the property rights is in the hands of the person who mined it. Article 2 of Annex III to the LOS Convention provides that title to minerals shall pass upon recovery to the entity, which mined them. This logic can be used as a reference for developing a regime for natural resources in outer space.

irrespective of the repeated statements by French delegation at the time of the OST discussion. See, *e.g.*, Cheng, *supra*, note 1, p.233

⁹ From the standpoint of terminology, space treaties use the terms including "use", "exploration", "study", "experiments", and "scientific research," and introduction of "exploitation" is carefully avoided

¹⁰ Public Law 96-283 96th Congress, 28 June 1980. Cited in E.D. Brown, *Selected Documents, Tables and Bibliography*, (Graham & Trotman, 1986), pp. III.3, 1-32.

3. Conclusion

Here, I would like to underscore again that rules remain to be constructed concerning the commercial exploitation of outer space resources. It is currently unclear if the freedom of high seas analogy would be applied or deep seabed exploitation system as a reflection of CHM principle would be applied, or some other system, including the Antarctica system might be agreed upon among States. One thing is clear, however. Article I of the OST has to be implemented through a prospective rule. For that purpose and for orderly development, it is important not to allow a first-come-first-serve rule to be prevalent.

III. Occupation as de facto Appropriation

1. Principle

Another question that can develop into an awkward situation is *de facto* appropriation. Article VIII of the OST implies that a State of registry, one of the launching States, shall exercise quasi-territorial jurisdiction over a space object and personnel thereof. If such exercise of jurisdiction of a sizable space object lasts for a long time to the extent that seems difficult to be distinguished from territorial sovereignty, does it amount to *de facto* appropriation? Still, it should not be construed as territorial sovereignty, since the State of registry supervises the space object only while it is functioning¹¹.

2. "Ownership" Stemming from the Earth

Also, the following may be worth pointing out. It is the treatment of property rights stemming from ownership started on the earth, which is provided for in Article VIII of the OST. It is quite as a matter of course that property rights of what was launched into outer space should be attributable to the original owner on the earth. The same judgement should be made on a space object fabricated/produced in outer space. Ownership attaches to the person who introduced the facility, equipment and material from the earth.

IV. Examples of the Challenges against the Non-Appropriation Principle

1. Territorial Claim

The first example is the 1976 Bogotá Declaration. This declaration from equatorial States regards the geostationary orbit (GSO) not as a part of outer space, but as an integral part of the territory of eight States, since the GSO is a physical fact arising from the nature of the earth, that is to say, gravity. Although the claim of sovereign right has been dismissed by international society as a whole, there has been an understanding that the underlying significance of the Bogotá Declaration lies in the determination towards a more equitable use of outer space. Accordingly, such consideration has been discussed at the legal subcommittee of the COPUOS under the title of "The character and utilization of the geostationary orbit, including consideration of ways and means to ensure the rational and equitable use of the geostationary orbit without prejudice to the role of the International Telecommunication Union" (agenda item 6 (b)).

¹¹ See, *e.g.*, Wayne N. White, Jr., "Implications of a Proposal for Real Property Rights in Outer Space", *Colloq. L. Outer S.*, vol.42 (1999), pp.366-372

2. Sales of the Celestial Bodies

Lately, sales of celestial bodies tend to attract media attention. As one of the most famous companies, which sells the land of celestial bodies, Lunar Embassy, established in 1980, gave more than 300.000 people real estate certificates on the moon.¹². While land on the moon was sold as early as 1955, the 1990's witnessed many companies embarking on this new business. However, since no ownership can be achieved without physical possession, it follows that such companies sell what they do not possess. Thus, unless Lunar Deeds are regarded as novelty gifts only, their business would amount to fraud, which could be punished by authorities without brandishing Article II of the OST¹³.

Today, the problem, if it exists at all, is still rather small. When three Yemenis filed a lawsuit against NASA demanding the suspension of the Mars program in 1997 on the grounds that Yemeni myth tells that Mars belongs to their ancestors, NASA, of course, did not take any legal action. However, the news chief of NASA stated that he recognized that such an issue might be serious when people actually went to mars or the moon and found valuable resources¹⁴. Thus, before physical possession becomes possible, a regime on the property rights in outer space has to be discussed at international *fora*.

Conclusion: Towards Equitable Uses of Outer Space

If appropriation or ownership is not involved, exclusive rights to use what is rare and valuable could cause bitter competition and resentment. Here, let us look at well-known cases in the leading field of commercialization in outer space utilization.

It has been long attempted to seek a better legal regime for the more equitable uses of outer space, especially in the field of telecommunications. By amendment of the ITU Treaty in 1973, a new concept was introduced that the geostationary orbit was a "limited natural resource."(Article 33(2))¹⁵. Such a concept was, at least in part, recognized by the World Administrative Radio Conference (WARC) by 1988. WARC-1977 to WARC-1988 made it possible for at least one GSO and frequencies (12 GHz) for the GSO to be distributed to all States for satellite broadcasting¹⁶.

GSO as a "limited natural resource" has brought a variety of challenges into existing satellite telecommunication, among which cases of Tongan satellites and paper satellites attracted a lot of attention. The actions of Tonga in applying for many GSO slots from the ITU for leasing to US and Russian satellites for several million dollars per slot annually, has been criticized¹⁷. Paper satellites are also a thorny problem to be addressed at ITU-R¹⁸.

¹² Pop1, *supra*, note 7, p. 198

¹³ See, *ibid.*, pp.195-203

¹⁴ *Ibid.*, p.201.

¹⁵ Currently it is found in Article 44 (2) of the Constitution on the International Telecommunication Union. 2001 amendment of the ITU Constitution also included LEO as "limited natural resources."

¹⁶ In the sphere of telecommunication satellites, traditional first-come-first-serve rule has been largely maintained.

¹⁷ Francis Lyall, "The International Telecommunication Union: a World Communications Commission?", *Colloq. L. Outer S.*, vol. 37 (1994), p.43; Jannat C. Thompson, "Space for Rent: The Telecommunications Union, Space Law, and Orbit/Spectrum Leasing?", 62 *J. Air L. & Commerce* (1996), pp.27-311

¹⁸ Eutelsat v. SES (1998) is one of the first and most famous of the cases.
In this commentary paper, what I would like to propose is simple, though the process to realize it seems anything other than easy or simple. Established rules for property rights in outer space are strongly required, taking into account the balance of true equity between space powers and non-space powers as well as the necessity to develop the industrialization and commercialization of outer space. In this regard, such rules have to be formed in such a way that the spirit and content of Article I of the OST shall be appropriately included. Article 1 of the OST has never been more important than now, which declares outer space shall be used for the benefit and in the interests of all countries, and that outer space shall be the province of all mankind¹⁹.

¹⁹ From the standpoint of encouraging commercial development, draft convention on jurisdiction and real property rights in outer space was proposed. See, Wayne White, "Proposal for a Multilateral Treaty Regarding Jurisdiction and Real Property Rights in Outer Space", *Colloq. L. Outer S.*, vol.43 (2000), pp.245-253

Commentary to "Emerging System of Property Right in the Outer Space"by Prof. H. Shin

> 5 November 2003 Setsuko AOKI Keio Univ., Japan

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Status of Outer Space

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Status of Outer Space Treaty

If Outer Space Treaty is crystallized as Customary International Law---

Outer space = areas not subject to national appropriation to global community

Moon Agreement (10 parties)

- Article 11 (2) = Article II of the OST
- Article 11 (3) all the moon (moon means all the celestial bodies in the solar system other than the earth and includes orbits around or other trajectories to or around it) and natural resources in place →shall not become property to states, IGO, NGO, national organization, non-governmental entity and natural person

Implication of non-appropriation of outer space (1)

Article II of the OST

- "--- is not subject to national appropriation by claim of sovereignty, by means of use or occupation, or by any other means"
- cf. Principle III, IISL draft resolution in 1965 ----shall not be subject to national or private appropriation, by claim of sovereignty, by means of use or occupation or by any other means"

Implication of non-appropriation of outer space (2)

Failure to provide for the ban of "private appropriation" implies that it is allowed?

• Drafting process opinions of France and Belgium, but neither put a interpretative declaration when signed the OST. (It implies their concerns settled?)

NO!

- Compatibility with Article I "---there shall be free access to all areas of celestial bodies."
- * Logic of ownership of real estate in modern states

Why private appropriation prohibited?

- 1 Sovereign state regulates by its laws how a private person owns real estate under its jurisdiction.
- 2 Outside the Sovereign territory of any state, the occupation of a private person over certain land is a mere fact, unless it is recognized and endorsed by the sovereign state whose nationality a private person holds.

Appropriation as a State Act

- * Historically, appropriation of land by a private person in terra nullia, has never been existed independently from State appropriation.
- * Appropriation is a state act
- = it must be performed in the service of a state
- = it must be acknowledged by a state after the performance of a private person.

Obligation of States

Art. I Free access to all areas of celestial bodies Art. III compliance with international law Art. VI (1) international responsibility for national activities, (2) international responsibility to assure such activities in conformity with the OST, (3)authorization and continuing supervision for the non-governmental activities \rightarrow the responsibility to prevent and stop non-governmental appropriation of land in outer space?

Property Rights in Outer Space

The Status of Natural Resources in Outer Space Moon Agreement → International Regime Outer Space Treaty → property rights in outer space remains to be regulated= no explicit rule stipulated high seas analogy? high seas regime has tremendously changed after WW II the end of freedom concerning resources

Analogy of Deep Seabed (1)

Moon Treaty and Part XI of the LOS Convention Deep Seabed mining

1980 US Deep Seabed Hard Mineral Resources Act renewable permits to ensure tenure at mining site for the US and non-US nationals on reciprocity, but denies extraterritorial sovereignty (West Germany, former Soviet Union, UK, France, Japan [1982 Interim Act])

Analogy of Deep Seabed (2)

1982 LOS Convention Part XI

Art. 137 Resources in the DSB= property to all mankind = denial of sovereign rights = denial of exclusive use by non-governmental entities resources in situ \rightarrow belong to mankind

Article 2 of Annex III to the LOS Convention

Title to minerals shall pass upon recovery to the entity which mined.

De Facto Appropriation?

- OST Art. 8
- State of registry (launching state) exercises quasi-territorial jurisdiction (space object + personnel thereof) \rightarrow if the operation of a sizable space object lasts for a long time to the extent that cannot be distinguished from territorial sovereignty? (state supervises only when it is functioning)

Property Rights from the ownership provision of Art. 8

1 property launched into outer space

2 property fabricated/produced in outer space

(compatible with the future Space Assets Protocol)

Current Legal Situation

Celestial Bodies	No appropriation by
Different interpretation exist \rightarrow	sovereign states, international organizations, and private persons
Resources in Outer Space	Rules not provided for in the OST *Article I of the OST shall be observed

Examples of the challenges on the appropriation and property rights

territorial claim Sales of the celestial bodies

Example of Territorial Claim

1 1976 Bogota Declaration Geostationary orbit (GSO)= physical fact arising from the nature of the earth, or gravity → GSO is not a part of outer space

GSO as integral part of the territory of 8 equatorial states=claims of sovereignty

Examples of the sales of the celestial bodies

- $1955 \sim$ Hayden Planetarium moon
- 1970 Celestial Gardens moon
- 1980 \sim Lunar Embassy moon (and all other celestial bodies) more than 300.000 people hold real estate certificates
- $1992 \sim$ Space Pioneers mars
- 1990's \sim Universal Lunarian Society moon Martian Consulate mars

Measures taken by the authorities

- 1969 Brazilian Police arrested a man who sold lunar lots
- 1997 Yemeni prosecutor general arrested 3 men who had filed a lawsuit against NASA demanding the suspension of the Mars operation (Mars belongs to their ancestors based on the myth).

NASA's actions, or inactions to extraterritorial real estate affair

1997 when Yemenis sued NASA for trespassing on Mars, took no legal action. News chief Mr. Welch, however, recognized such issue might be serious "when people actually are going to these places and the resources found have some value. More complicated issues will have to be resolved between countries, or between companies."

Towards Equitable Uses of Outer Space (1)

- Frequencies and GSO what kind of rights? 1973~ITU Treaty Art.33 (2) (currently ITU Constitution Art.44 (2)) frequencies and GSO Limited Natural Resources
- 2001 Amendment of the ITU ConstitutionArt.44 (2) LEO included in Limited Natural Resources

Towards Equitable Uses of Outer Space (2)

WARC-1977 \sim WARC1988

At least 1 GSO and frequencies (12GHz) for the GSO for all the states for satellite broadcasting attained

Equitable Uses of Space (3)

- Other Challenges in Space Telecommunication
- 1 paper satellites: How long is enough?
- 2 Tonga satellites to acquire slots and lease them by developing country

Conclusion

- 1 Celestial Bodies no appropriation to states and non-states
- 2 Property Rights exist concerning natural resources (after mined and not in place anymore)
- 3 exclusive rights to use not property rights, equitable use has to be taken into consideration

Commentary on Emerging System of Property Rights in Outer Space

Leslie I. Tennen Sterns & Tennen United Status of America

Introduction

It is a privilege to submit this Commentary to the excellent Discussion Paper of Prof. Hongkyun Shin. His valuable insights provide a significant contribution to the debate necessary for the development of appropriate and adequate legal regulation of the use of extraterrestrial materials for commercial purposes. It is urged that the development of commercial uses of outer space will depend upon the establishment of legal regulation based on the utilization of extraterrestrial resources, separate and distinct from claims of ownership of areas of the Moon or other celestial bodies. Further, many of the fundamental principles necessary for the protection of private entities are established in existing space law. The paper of Prof. Shin raises many important issues, and this Commentary shall focus on domestic law and private entities in relation to Article II of the Outer Space Treaty.

I. Interpretation of Article II together with additional provisions of the Outer Space Treaty

Prof. Shin asserts that Article II cannot be interpreted in isolation, but must be read in conjunction with other Articles of the Outer Space Treaty. In this regard, he identified Article 1, paragraph 1, which requires that activities in outer space be conducted for the benefit and in the interests of all mankind; and Article 1, paragraph 2, which provides that states shall have free access to all areas of celestial bodies. These two provisions, of course, are central to the interpretation of article II. Nevertheless, additional Articles, notably Articles IV, VI, and VII, must be considered in the context of interpreting Article II.

Article IV of the Outer Space Treaty requires that all activities on the Moon and other celestial bodies be conducted exclusively for peaceful purposes. This concept is a core provision of space law, and essential for any commercial enterprise in space. As will be alluded to further herein, the non-appropriation principle has been responsible, in significant and profound ways, in preserving the peaceful character of space, and in turn, promoting peaceful relations between states on Earth. This is a tangible benefit of space law, the importance of which cannot be overstated.

Article VI of the Outer Space Treaty provides that states shall authorize and provide continuing supervision of the activities of their non-governmental entities in space, and Article VII provides for international liability for damages. This primary State liability, as well as the obligations established by the Liability Convention, do not have a maximum cap for the imposition of damages. It has been noted that "primary State liability promotes responsible State legal regimes." These responsible State regimes can be expressed and manifested by domestic licensing or other authorization mechanisms. As discussed by other speakers at this conference, a variety of authorization mechanisms is available to States.

The issue of utilization of extraterrestrial resources will be presented to these licensing or other authorizing officials through applications, or other mandated formal requests for permission, to conduct a mission. That is, any regulatory authority will require that the plans for the potential mission be disclosed in sufficient detail for the regulatory authority to conclude that it is reasonably safe, from the perspective of international liability, to approve the request to conduct the mission. This is not to minimize the importance also of ensuring compliance with other treaty requirements, in addition to those relating to liability, or with particular domestic considerations, which will be incorporated within the regulatory structure. Nevertheless, it is difficult to envision a situation wherein an entity seeking governmental authorization to conduct a mission intending to claim ownership of extraterrestrial resources in place, or an area of outer space, the Moon, or other celestial body, would not be required to disclose such intention as part of the authorization process.

II. The Non-Appropriation Doctrine and Non-Governmental Entities

Prof. Shin discussed the question of whether Article II is applicable to claims of private, as distinct from national, appropriation. The non-appropriation doctrine firmly is established in space law, but the language of Article II has supplied fertile ground for discussion, as the text does not refer explicitly to private entities. The Moon Agreement, on the other hand, clearly expresses the preclusion of claims of ownership of the lunar surface, subsurface, or natural resources in place, by States as well as by a "non-governmental entity or any natural person." The Moon Agreement, however, has not received widespread international acceptance comparable to the Outer Space Treaty. Nevertheless, it is submitted that the prohibition against appropriation set forth in Article II of the Outer Space Treaty is fully applicable to private entities, notwithstanding the absence of an express reference thereto.

The assertion that Article II of the Outer Space Treaty does not apply to private entities, since they are not expressly mentioned therein, must fail for the simple reason that private entities do not need to be expressly listed in Article II to be fully subject to the non-appropriation principle. It will be recalled, as Prof. Shin noted, that the foundations for the non-appropriation doctrine were established in U.N.G.A. Resolution 1721 in 1961, and the doctrine was re-affirmed in U.N.G.A. Resolution 1962 in 1963. The non-appropriation principle expressed in these two resolutions was incorporated in the precursor drafts of the Outer Space Treaty submitted to the U.N. Committee on the Peaceful Uses of Outer Space by both the Soviet Union and the United States. The non-appropriation provision was recognized as essential for preserving outer space for peaceful purposes, as well as for ensuring the right of all states to engage in the exploration and use of space.

The Outer Space Treaty was drafted in a period in which space activities were the exclusive realm of states. Nevertheless, the right of the private sector to engage in activities in space was expressly recognized in Article VI. The Outer Space Treaty did not create a dichotomy in this regard between governmental and non-governmental activities in space, but rather established the basic principles upon which all space activities, public and private, are to be conducted. Non-governmental entities, as discussed above, must be authorized to conduct activities in space by the appropriate state of nationality. States do not have the authority to license their nationals, or other entities subject to their jurisdiction, to engage in conduct, which is prohibited by positive international law to the state itself.

The validity of this principle can be demonstrated by applying the same rationale to other Articles of international instruments. That is, if a State may authorize its nationals to "privately appropriate" areas of the Moon and other celestial bodies, notwithstanding Article II of the Outer Space Treaty, then it must be posited, why the state could not also authorize its nationals to conduct other activities, in their capacity as private entities, in contravention of other Articles of the Treaty or any other international instrument. Thus, what would prevent states from licensing their nationals to place nuclear weapons or other kinds of weapons of mass destruction in Earth orbit or on celestial bodies, notwithstanding the prohibitions contained in Article IV of the Outer Space Treaty. Similarly, why could a state not "privatize" its nuclear testing procedures, and license a private entity to conduct nuclear weapons tests above ground, in the atmosphere, or in outer space, contrary to the provisions of the Nuclear Test Ban Treaty? Neither of the relevant provisions of these treaties expressly mentions private entities. The illogic of the argument that private entities are not subject to Article II, carried to its ultimate conclusion, would negate every bilateral or multilateral agreement ever made. States could engage in every activity they agreed to restrict or limit by the convenient subterfuge of conducting the activity through the guise of the private, rather than the public, sector.

It has been suggested that States could unilaterally establish a domestic registry for the purpose of documenting the claims of their nationals to space resources, purportedly consistent with the non-appropriation principle. This "consistency" is provided by the artifice of proclaiming this registration scheme "not to be appropriation." For example, one group of proponents asserted that "in doing so, the nation could make it clear that it was not claiming sovereignty over such resources, but simply recognizing the claims of its citizens (emphasis added)." This is a distinction without a difference.

Recognition of claims is only one side of the equation. The other side is the exclusion or rejection of any competing or conflicting claims. The application of this de facto exclusion of other States and their nationals by its very nature would constitute a form of national appropriation. Thus, State recognition of claims to extraterrestrial property by its nationals is national appropriation "by any other means" prohibited by Article II, no matter what euphemistic label is employed to mask the obvious.

III. Should Article II of the Outer Space Treaty be abrogated?

Some opponents of the non-appropriation doctrine concede that "private appropriation" is prohibited. However, they urge that the policy of non-appropriation is wrong and should be renounced. Nevertheless, the abrogation of Article II of the Outer Space Treaty would be counterproductive to the interests of space commercialization.

The successful launch of Sputnik 1 by the Soviet Union in 1957 presented formidable national and international security implications. The launch of an object into Earth orbit was a stunning demonstration of technology. Apart from whatever benefit that demonstration may have had for ideological or propaganda purposes, the technical capability of the Soviets provided a means to acquire tremendous economic and military advantages. The Soviet Union continued to achieve one "first" after another in the exploration of space, for example the first spacecrafts to impact on celestial bodies, including the lunar surface in 1959, and Venus in 1966, as well as the first man in orbit, and the first space-walk.

The Soviet Union would have had the right to claim vast areas of outer space as its own territory, including part or even the entire Moon, based on historical precedents of exploration and conquest, but for the non-appropriation principle. Any areas of space and celestial bodies,

which were not claimed by the Soviet Union, certainly would have been claimed by one or more other States, based on demonstrable "firsts" in the exploration of our celestial neighbours. However, the claims, which could have been asserted, by the U.S.S.R. or any other state would not necessarily have been immune from conflicting and overlapping claims by other States.

In the event, the non-appropriation principle were abrogated and ceased to be applicable, what then would be the situation? Ought there be a "space rush" with a clean slate of celestial treasures open and available to be grabbed by the quickest or the strongest? Or as a matter of equity, ought not all of the potential claims which might have been asserted by the Soviet Union or others prior to the entry into force of the Outer Space Treaty be considered to have been impliedly placed on hold, to be resurrected upon the elimination of the non-appropriation doctrine? Should claims for exploratory "firsts" after the entry into force of the Outer Space Treaty in 1967 also be recognized as an appropriate basis for the assertion of claims in outer space? The claims, which might be asserted, would not be restricted to the Moon, but would extend to Mars, Venus, asteroids, and the outer planets and their moons, with claims based on thinner and thinner explorations, possibly consisting of nothing more than mathematical or theoretical extrapolation. The Bogotá Declaration, expressing claims to the geostationary orbit, then could be expected to be re-asserted with renewed vigour.

The enforcement of these conflicting and overlapping claims ultimately would depend on military means. Clearly, the risk of exporting armed conflict into space would be significant. In addition, there would be nothing to prevent States claiming an area from imposing substantial tribute in the form of taxes, royalties, duties, auction fees or other charges for the acquisition of rights by private entities to utilize such areas and the resources contained therein on the surface or subsurface, even where the claims thereto overlap. If "private appropriation" were sanctioned, separate and apart from the claims of states, the situation would become even more murky and convoluted. The private ownership of unlimited rights to celestial property would add a significant element to the cost of conducting an entrepreneurial venture. That is, the ability of all States to explore and utilize areas on or below the surface of celestial bodies, as provided in the *corpus juris spatialis*, no longer would be a right as guaranteed by Article I of the Outer Space Treaty, but a commodity available only to the highest bidder. Monopolies and other anticompetitive practices would restrict rather than enhance space commercialization.

There can be no doubt that the non-appropriation doctrine of Article II promotes both public and private activities in space, *inter alia*, by contributing to the maintenance of a peaceful, stable and accessible environment. There further can be no doubt that Article II is applicable to governmental as well as non-governmental entities, whether or not expressly identified and listed in the Outer Space Treaty. The proper focus, as noted by Prof. Shin, is on the use of extraterrestrial resources, and not claims of exclusive ownership.

IV. Protecting private activities in space

There are numerous examples where a private entity is able to legally and profitably extract resources from property, which it does not own. Grazing leases on public lands, offshore oil platforms, and logging rights are all examples where profit is available to private enterprise despite the absence of property ownership. The fee simple ownership of extraterrestrial property similarly is irrelevant to the profitability of a venture providing products or services derived from celestial resources. Ownership is relevant only where it is intended that the source of the profit is derived from the claim of ownership, and the corresponding alienation thereof for economic consideration. The Outer Space Treaty sets forth certain basic and fundamental principles, which provide substantial protection for the rights of private entities conducting activities in space, in conformity with the *corpus juris spatialis*, from in situ interference by other entities. Such interference could come from the state, which granted the authority to the private entity, other entities authorized by that state, or other states or their nationals. Space activities are difficult, costly, and fraught with risk. It is unlikely that a state, which granted authorization to a private entity purposely, would interfere with the activities of that authorized entity. Should the state desire to limit or restrict the activities of the private entity, a broad array of means and mechanisms would be available, which would be much less costly and considerably more efficient than launching a mission to conduct interference with activities in situ. Such means and mechanisms include the revocation of authorizations, restriction of communications, issuance of injunctions, attachment of property, and/or the utilization of a number of provisional or other remedies under domestic law.

It also is unlikely that an authorized entity would be subject to interference by another entity granted authority by the same State-licensing regime. A request for authorization, which expressed the clear intention to cause physical interference with the operations of a previously authorized facility, would have little chance of obtaining approval. The State itself would object to such a purpose, which otherwise might constitute a violation of the peaceful purposes provisions of space law. Moreover, the operator of the licensed facility, or members of the public, may have an opportunity to voice a formal objection to the second request for authority pursuant to domestic licensing or judicial procedures. Objections based on the potential for interference, which would be caused by the second applicant, would be well founded. Objections based on expressly stated intentions to cause such interference would be even more compelling.

It is possible, of course, that a second entity could be granted authority to operate a facility near the vicinity of a previously authorized facility, provided that no interference was caused thereby. If both entities produced the same product or service utilizing extraterrestrial resources, there could be the potential for claims such as infringement of intellectual property rights and unfair competition. However, these types of claims are raised on a daily basis, and resolved on a daily basis, according to extant law. It will be observed in this context that the validity or defence of these actions is wholly unrelated to a claim of ownership of areas of a celestial body.

The remaining potential source of interference is from other States or their nationals. The Outer Space Treaty obligates states to prevent harmful interference with the activities of other States, and to participate in consultations where such interference may occur. It is apparent that a claim of private appropriation would not add a scintilla of credibility or substance to the rights of an authorized operator of a facility, if a foreign State sought to interfere with the operations directly or through its private entities. The interference with the facility would exist independently of any claim of ownership, as a State which was intent on committing interference directly, or indirectly through its private entities, would do so in violation of the Outer Space Treaty, and if applicable, the Moon Agreement. Such a state would not be deterred by the assertion of a claim of private ownership of an area of a celestial body.

The duty of States to prevent harmful interference, together with the provision for consultations, establishes a mechanism by which the rights of a private entity conducting activities in space may be protected. Should interference occur, liability could be imposed pursuant to the provisions of the Outer Space Treaty, and where applicable, the Liability Convention.

This is not to suggest that these provisions are all inclusive, or that further elaboration and refinement of regulation of non-governmental entities in space will not be necessary. It is intended to express, however, that the extant *corpus juris spatialis*, in particular Article II in conjunction with the additional Articles discussed herein and by Prof. Shin, form the basic parameters within which both domestic and international regulation will be developed for the benefit of all mankind.

Concluding Remarks

The author expresses his gratitude to Patricia M. Sterns for her invaluable assistance in the preparation of this Commentary.

Article VI of the Outer Space Treaty

Elisabeth Back Impallomeni Professor University of Padua

From the very outset of this presentation it has to be stated that the Republic of Korea is party to four out of the five United Nations Space Treaties: the 1967 Outer Space Treaty, the 1968 Rescue Agreement, the1972 Liability Convention and the 1975 Registration Convention. Besides these legal instruments the Republic of Korea is also party to the 1963 Nuclear Weapons Banning Treaty, the 1971 INTELSAT Agreement, the 1976 IMSO Convention, which replaced the INMARSAT Agreement with the 1998 Amendment and finally the International Telecommunications Union (ITU). With this state of law, the Republic of Korea is bound by the major legal rules governing activities in outer space.

A correct understanding of the deriving obligations becomes of paramount importance, even more so because of the growing commercialization and privatization in the use of outer space. Today private investment is significant and as such has a profound influence on the nature of space activities and space-based applications. It becomes necessary to identify best practices in domestic policies in order to enable States to balance the need to implement obligations under international legal regimes with the need to support and to encourage national space activities of any kind. Up to now, the existing international space law had, in great part, met the demands of current activities, but the recent phenomenon of reduction by governments of their financial support to space endeavours will result in future exploration and utilization of outer space being more dependant on non-State actors.

Article VI of the Outer Space Treaty, which is the subject of this discussion paper, does not impose State monopoly, it rather affirms the freedom to exercise space activities in order to explore and to exploit outer space for the benefit and in the interest of all countries. Although this principle is declared, it could be seen to apply only to States. On this question, a lengthy discussion took place at the time of the drafting process of the 1963 United Nations Declaration on the Legal Principles Governing the Activities of States in the Exploration and Use of Outer Space. The Soviet Union in favour of the space monopoly was in counter position to the United States desirous of conserving the principle of free enterprise and against any restraints. Article VI, in its present wording, is the compromise between these two opposing aspects. Space activities can be carried out by any legally constituted body other than the States themselves. States remain free to choose the legal form of these non-State bodies, which may be national, international, trans - national or multinational in their structure.

The responsibility placed by the international community on States not only for their own activities, but also for those of bodies under their jurisdiction, is one of the fundamentals of public

international law and it is not at all surprising that Article VI of the Outer Space Treaty expressly requests this kind of responsibility. Furthermore, State responsibility is to be considered the cornerstone of free productive enterprise in outer space.

In accordance with the pertaining rules of international treaty law, responsibility means the obligation of a State to guarantee that all national activities will comply with international law on the whole, otherwise to bring the consequences within its own ambit. This is the view of late Judge of the International Court of Justice, Manfred Lachs, expressed in his classical treatise "The Law of Outer Space" more than thirty years ago but still of unchanged validity.

For a better understanding of the term "international responsibility", accurate consideration should be given to the United Nations Draft Articles on "Responsibility of States for Internationally Wrongful Acts" prepared by the International Law Commission and adopted by the General Assembly with Resolution 56/83 in December 2001, which covers wrongful acts resulting from the breach of an international obligation. Following this definition, the question arises "if" and "when" a State can be held responsible for acts, which are not wrongful because conducted with care but resulting in significant harm to areas outside of the jurisdiction of the acting State.

Other related questions to be discussed in search of an operational interpretation of the term "international responsibility" in Article VI Outer Space Treaty might be the following:

- When can a State be held responsible for acts of non-State actors or even of another State?
- What circumstances justify otherwise wrongful acts?
- What must a State do to remedy an internationally wrongful act (by compensation, restitution, satisfaction)?
- What is responsibility for hazardous activities?
- Are States also responsible for prevention of trans-boundary pollution caused by space activities?

Further discussion should also consider the responsibility of international organizations for their space activities.

There is no definition to be found in any of the space treaties of the term "international organization". In this context, however, it should be of interest that, the International Law Commission recently established a Working Group to study the responsibility of international organizations and the responsibility of a State for the conduct of an international organization of which it is member. The preliminary report gives definitions relevant to this analysis. The term "responsibility "is the same as the one used in the Draft Articles on State Responsibility for Internationally Wrongful Acts and the term "international organization" is defined by the 1986 Vienna Convention on the Law of Treaties between States and International Organizations or between International Organizations, in the sense that international organizations.

In relation to this limitation, the nature of attribution of responsibility between international organizations and their constituent members will be also evaluated and thus, no doubt, the final ICL Report will soon contribute to a better definition of the term "responsibility" and the term "international organization".

All treaty obligations are to be observed to give space activities a sound and reliable basis. The existence of adequate procedures for authorization and supervision according to Article

VI Outer Space Treaty can be an important factor for space actors to choose under which States' jurisdiction they will undertake their activities. Authorization and supervision can be done through various mechanisms. It will be the discretion of the authorizing State to determine the form of the relative act.

Authorization and supervision are State obligations which apply to any kind of space activity, whether entirely taking place in outer space or being only space-related activities like launching services, as long as they are performed either by natural or legal persons. In other words this means all space activities done under the personal or territorial jurisdiction of the respective State, should be authorised by the State and it should provide for continuing supervision. At times, the transnational character of space activities may request the authorization by more than one State. In this case, a State may limit its own responsibility to the areas it does not consider sufficiently covered by the authorization granted by another State for the same activity. For this purpose, States should reach agreements among themselves such as mutual recognition agreements and provide for the verification of the authorization given to space-related agreements. In the same manner, States should, by all means, reduce the risk inherent in all space activities due to their hazardous nature by strict requirements.

The Outer Space Treaty does not obligate States Parties to establish any specific licensing regime; it allows each State to determine its own regulations. It has, however, been recognized of great advantage to create a future uniform licensing regime. The harmonisation of regulatory regimes on a global scale could be beneficial also in regard to space endeavours, which are undertaken with the participation of more than one State. Uniformity of technical requirements and common safety standards could be equally of beneficial effect on risk mitigation.

The term "appropriate State" in Article VI Outer Space Treaty, referring to the State responsible for the authorization and the continuing supervision, suggests several interpretations. These include the State, which exercises jurisdiction and control over an enterprise of a private nature, the launching State, the registration State, and the State where the enterprise is legally located. To apply this term appropriately, certain consideration should be given to the underlying intent, which clearly is the policy to foster and to encourage space activities to the greatest extent, done by States and by non-State entities. Pursuing this aim, it is useful to refer to other legal instruments belonging to the *Corpus Iuris Spatialis* making a more accurate definition possible. Article 1 (c) of the Liability Convention and Article 1 (b) of the Registration Convention contain the term "launching State", being either the State which launches or procures the launching of a space object or the State from whose territory or facility a space object is launched.

The "registration State" means a launching State on whose registry a space object is carried. These different approaches to the definition of the notion "appropriate State" could be combined arriving at the conclusion that the notion "launching State" and in the same manner "registration State" cover adequately the concept of "appropriate State".

The fact that the "appropriate State" is not specified in the Outer Space Treaty itself attributes clarifying value to the clause mentioning responsibility for "national activities", from which could follow that the "appropriate State" is the one whose nationality was given to the entity engaged in these activities. Accordingly, this State should take the necessary steps to license and control space activities of its private actors. This interpretation should be rejected as not precisely based upon Article VI of the Outer Space Treaty, because the whole body of international space law indicates clearly that the "appropriate State" does not only correspond to the State of nationality. International space law provides many possible links between States and space objects. Consequently, also the "launching State" is apt to license and constantly supervise

space activities carried out by private entities. Being internationally responsible, it might belong to the category of the "appropriate State".

A last word to the definition of the "appropriate State". In case of transfer of space objects from one State to another, the passage will be accompanied also by the transfer of the international responsibility to the acquiring State, which thus becomes the "appropriate State".

Once determined which one is the "appropriate State" the question arises how extensive its responsibilities are to the international community for space activities conducted under its control. The responsibilities of States are undoubtedly those stipulated by international law and for this reason space activities exercised by private actors are equally governed by public international law. The principle to grant freedom to private actors in space under the control of their State can only be understood in this unquestionable manner. However, due to the speedily changing technological progress in space programs it is no longer possible, at present, to regulate them exclusively by international treaty law: new legal rules must be added and integration by national legislation becomes urgently necessary.

Space activities are more and more diversified, relying mainly on contributions from the industrial sector and becoming more profit-orientated. Therefore, a reconsideration of the dimension of "space activities" in Article VI of the Outer Space Treaty might be useful. The complete lack of any terminological limitation offers many possibilities for a wide definition comprising any kind of activity taking place either in outer space or being only space-related taking place on Earth as a collateral activity and precondition for the exercise of the latter. Moreover, none of the space law provisions gives a clear meaning of commercial "space activities". Under general aspects, space activities can be public or private in relation to the legal status of the entity to which they are attributed. Commercial activities can be undertaken both by public and private entities and even in a combined form and can be either of public or private interest. In case of conflict between the two in regard to liability, the prevention of damages could improve the quality of commercial activities. The strict control of future harmful effects on the environment could constitute what is known in the pertinent legal doctrine as "preventive liability". Damage prevention would be of common concern rather than damage remedy.

As a concluding consideration, it should be pointed out that from the wording of Article VI of the Outer Space Treaty, one could erroneously deduce that international responsibility applies only to space missions exempting from this treaty obligation the related parts taking place on the Earth surface or in air space. This assumption cannot be accepted.
A Commentary to the Article VI of the Outer Space Treaty

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Introduction

Chair President Hong, Hankuk Aviation University, Prof. Impallomeni from Italy and all distinguished guests, ladies and gentlemen.

It is indeed a great pleasure for me to speak on this panel regarding my opinion on Article VI of the Outer Space Treaty (hereafter referred as Space Treaty) this afternoon.

Now Prof. Impallomeni explained concisely and excellently the contents, drafting background, interpretation and comment on Article VI of the Space Treaty such as responsibility, international responsibility, authorization and supervision, appropriate State (launching state and registration state), space activities and preventive liability regulated by it.

Whereas the Space Treaty recognizes the quasi-territorial jurisdiction in outer space and on celestial bodies of sates of registry of space vehicles, it imposes contracting States international responsibility for all national activities outside terrestrial space, and international liability for all damage caused to other contracting States or their nationals. The relevant provisions are Articles VI and VII.

Many economic, technical and social changes have occurred in the 33 years since the Space Treaty of 1967 was effectuated. It is necessary for us to review Article VI of the Space Treaty due to the rapid technological developments and the increase of space private enterprises in the use and exploitation of outer space.

Now, I would like to give my opinion on the Article VI of the Space Treaty. It is necessary for us more to discuss deeply the notion of responsibility, liability, State responsibility, space activities and international organization etc., as to the precise meaning of the article VI of the Space Treaty.

I. Responsibility and liability in Article VI of Space Treaty

The notion of responsibility and liability are distinguished as follows.

1. Responsibility

The term *'responsibility'* derived from the Latin word *respondere* (to answer) meaning primarily answerability and accountability.

At the most basic level, in the present context, it can mean simply authorship of act or omission.

The word *'international'* in combination with responsibility expresses, in my view, a responsibility on one state *vis-à-vis* another, leaving national responsibility to the discretion of the individual state.

The notion of the term '*responsibility*' appears to signify a general moral and legal State responsibility to be invoked by any activity in outer space, which may be considered a national endeavour, whether performed by a governmental agency or a private entity.

But, on the premise that human beings are masters of their own will and hence of their own action, responsibility is a notion commonly associated with all systems or norms of behaviour: moral, religious and legal.

The obligation is to answer for an act done, and to repair or otherwise make restitution for any personal and material damage it may have caused. This interpretation might lead toward the conclusion that each State party to the Space Treaty should take adequate measures to fulfil the guarantee obligation.

2. Liability

The word '*liability*' is a broad legal term. In the case of a breach of a legal rule causing damage to another, legal responsibility entails a legal obligation incumbent on the author of the breach to make integral reparation to the victims for the damage so caused in order to restore the position to what it probably would have been had the breach not taken place. The author of the breach becomes 'liable' for the damage.

II. State Responsibility in Article VI of Space Treaty

Article VI of Space Treaty embodies the important principle of State responsibility for national activities in outer space, imposing this responsibility equally upon governmental activities as well as on activities carried on by non-governmental entities. As far as international law is concerned, State responsibility is ordinarily divided into direct State responsibility and the so-called indirect State responsibility²⁰.

Direct State responsibility refers to responsibility for its own acts. Since States can only act through its servants and agents, these are then acts of its servants and agents performed in their official capacity, which are thus imputable to it as its own acts.

Indirect State responsibility is strictly speaking not a case of State responsibility as such. It describes in reality an international legal obligation to protect foreign States and their nationals, as well as their property within its jurisdiction, particularly within its territorial jurisdiction. Failure to do so whether by the legislative, executive or judicial branch of the State involves, in fact, the direct responsibility of the State, since failures by its officials will be imputed to the State as its own acts²¹. The framework of State liability is one in which the State is acting as a public law body and not as a private entity. Particularly in the field of State liability, one can not say that there exist generally adopted civil law principles.

²⁰ Bin Cheng, "Studies in International Space Law," Clarendon Press · Oxford (1997), at 604

²¹Bin Cheng, "The Use of Air and Outer Space Cooperation," International Responsibility and Liability for Launch Activities", Kluwer Law International (Hague, 1998), at 167

According to my personal opinion, State liability is includes vicarious liability as an indirect legal responsibility; for example, the liability of an employer for the acts of an employee, or, a principal for torts and contracts of an $agent^{22,3}$

The liabilities for damages of the State or of a public agency of Japan are regulated by Article 17 of the Constitutional Law and/or by Article I of the National Compensation Act. In the Republic of Korea, according to Article 2 of the National Compensation Act of Korea, liability for damages of the State or local government is regulated as follows:

"When public officials inflict damages on persons intentionally or negligently in the course of performing their officials duties, in violation of the provisions of laws and regulations, the State or local government shall redress the damages. If such damage has been caused by bad faith or gross negligence of the public official concerned, the State or local government may demand reimbursement from the public official".

Specifically, Article 29 of Korea's Constitutional Law stipulates that in cases where a person sustains damages due to the unlawful acts of public of officials committed in the course of their official duties, such person may seek compensation from the State or public agency in accordance with law. However, the public official concerned is not immune from personal liability.

III. National Activities in Article VI of Space Treaty

Returning to the important question about the determination of *'national activities'* in the event of non-governmental entities, it is evident that the wording of Article VI does not offer a clear answer.

The next stipulation of Article VI reads as follows:

"The activities of non-governmental entities in outer space, including the moon and other celestial bodies, shall require authorization and continuing supervision by the appropriate State Party to the Treaty".

The crucial question, which arises now, is:

• What are the national activities in outer space to which the basic state responsibility applies?

The provision itself includes the activities by governmental agencies as well as nongovernmental entities. Concerning the former, they raise no doubt that they are covered by the term national activities. The problem area will be that of non-governmental entities.

The urgency to resolve this question has gained momentum by the fact that at the present time an increasing number of private corporations and other forms of less explicitly government-dominated enterprises participate in actual space venture.

²² Henry Campbell Black, M.A. Black's Law Dictionary, West Publishing Co. (1979), at 1404

In this respect emphasis should be placed upon the dramatic growth in the number of private companies which plan or are already engaged in space transportation services, as well as in other fields of applied space technology for commercial purpose.

A published information note circulated within the UNCOPUOS titled 'Private Enterprise and the Exploration of Outer Space', illustrated already in 1983 the general tendency towards increasing privatization in the field of space activities. The publication stressed, *inter alia*, the potential legal problems to be anticipated centred on fundamental questions of responsibility and regulations.

Moreover, it is possible that the individual State uses a combination of criteria to qualify a space activity as a "national activity". As the considerations involved in employing a certain criterion and applying it to a specific case often involve rules of international conflict law, it needs little imagination to realize the complexity and variety of cases, as well as the diversity of outcome according to the different law systems and regulations.

If any expectations might be forthcoming from such a national approach to serving the aims of international law, and those of space law in particular, it is clear that only intensified research in the field of comparative law, and a progressive development towards the uniformization of international conflict law on a worldwide basis, or at least among space-faring nations, would have a fair chance of success in establishing international legal security in this respect. The way to arrive at a solution to the coverage of the term *'national activities'* in outer space derives from international law.

Whereas, as noted above, the same Article provides specific demands in the form of authorization, etc., in the event of participation by private entities, it does not elucidate the term *'national activity'*, nor, by using the neutral description *'appropriate state'*, does it lay down any criterion for the relationship between the private entity involved in space activity and the authorizing state.

IV. Authorization and Supervision in Article VI of Space Treaty

Whereas, as noted above, the same Article provides specific demands in the form of authorization and supervision etc., in the event of participation by private entities, it does not elucidate the *term 'national activity'*, nor, by using the neutral description *'appropriate state'*, does it lay down any criterion for the relationship between the private entity involved in space activity and the authorizing state.

As space activities are of a transnational character, so it is necessary and desirable for us to create a standard for the uniform licensing regime and uniformity of technical requirements and common safety standards under the UNCOPOUS in the near future.

V. International Organizations of Article VI of Space Treaty

The last part of the Article VI deals with the responsibility issue in the context of international organizations. As this subject is a very complicated and controversial matter, I will not treat the issue comprehensively, but restrict myself to the following observations.

While the existence of international law is based on the State concept and in fact, traditionally, only States have been considered subjects of international law, the very establishment of the provision of Article VI of the Space Treaty regarding international organizations and their responsibility for compliance with the Treaty is controversial.

Nevertheless, the bearing of the relevant provision of Article VI on the specific field of space law and its potential to be of any significance for practical purposes beyond the explicit responsibility for compliance with the Space Treaty by the relevant international organizations, seemed very doubtful from the moment of its creation.

This view could not be changed even with the establishment of Article XIII of the Treaty dealing with international intergovernmental organizations, which was constructed for the mere purpose of applying the provisions of the Treaty to space activities carried out by States Parties to the Treaty, also when they act within the framework of international intergovernmental organizations.

On the other hand, one should notice the existence of an undeniable tendency in subsequent international space law legislation towards a more defined status of international organizations comparable with States Parties, as subjects of international space law.

VI. Space Debris and Article VI of Space Treaty

Article VI of the Space Treaty does not regulate the protection of outer space environment and space debris problems. It is necessary for us to discuss and incorporate the protection of outer space environment and space debris problems into the Outer Space Treaty for the following reasons: the resources of outer space are for the common exploitation of mankind, and it is the common responsibility of mankind to protect the outer space environment.

With the rapid development of space science and technology, and especially with the busy space activities of some major space powers, space debris is steadily increasing in quantity and has brought grave potential threats and actual damage to the outer space environment and human activities in space. In the course of increased space exploitation by mankind, the amount of space debris created has continued to increase in quantity and variety.

Frequently, debris falls back to earth, which poses a potential threat to man's exploitation and use of outer space. The definition of space debris includes every non-functional man-made object in outer space, whether it still exists as a whole or whether it is fragmented, provided that the object is non-functional and there is no reasonable expectation of it resuming its original function or assuming any other function.

Space debris has become an official enemy of mankind. We must mitigate and remove the space debris in Leo Earth Orbit (LEO) and in Geostationary Orbit (GEO), through international co-operation and agreement in the field of the space science, economy, politics and law, in order to safeguard the life and property of mankind and to protect the earth's environment.²³⁴⁾

At the 1989 session of the Outer Space Committee of the U.N., Sweden together with Australia, Belgium, Canada, the Federal Republic of Germany, the Netherlands and Nigeria proposed that the issue of space debris be put on the Agenda of the Scientific and Technical Subcommittee of the U.N.. It is desirable for us to discuss more deeply the legal problems on space debris considered by the Legal Subcommittee of the UNCOPUOS.

²³ Doo Hwan Kim, "The Use of Air and Outer Space Cooperation and Competition," *Liability for Compensation for Damage Caused by Space Debris*", Kluwer Law International (Hague, 1998), at 305.

Today, space debris is considered to be a problem that all space-faring nations must endeavour to solve together, in order to maintain a safe environment for future space development. Now, a lot of objects, such as non-used artificial satellite and broken pieces of satellite and rockets, are orbiting around the earth. According to one source, on the average, 1 piece of debris re-enters the earth atmosphere every day. According to US estimates, the amount of debris including untrackable objects of more than 1 mm in diameter is 3,500,000 pieces.

According to the report of the Space Debris Study Group of Japan on March, 1993, we could observe about 7,000 debris of more than 10cm in diameter below 5,000km altitude in the space orbit.

The aforementioned Space Debris Study Group also disclosed that the rate of collision between space debris will be increased about three times in 2005 year in comparison with 1987 year.

Recently, according to the study report of NASA of United States, about 20,000-70,000 space debris within 800 km-1,000 km altitude on the surface of the earth was rounded around the earth.

A serious accident occurred on June 5, 1969 when Japanese sailors were injured when their ship was struck by fragments of Soviet satellite. The following month a German ship was struck by space fragments of space objects (debris) while in the Atlantic Ocean.

The U.S.S.R. launched a nuclear-powered satellite Cosmos 954 naval surveillance satellite on September 18, 1977. Soviet nuclear powered satellite Cosmos 954, disintegrated over northern Canada on January 24, 1978, possibly due to a collision with another object, resulting in the radioactive polluting of an area the size of Austria.²⁴⁵⁾

The danger posed by space debris is gradually increased by the lack of the development of modern space science and technology to predict the time of the disintegration of the nonfunctional and abandoned satellite in outer space. What is important is that the potential for risk and damage being caused always exists due to the accidents by space debris for mankind on the earth as well as the Asian people in the Asian Pacific zone. The space debris problem can only effectively be solved by international cooperation.

Concluding Remarks

It is my firm opinion that only international and regional cooperation could result in solving the problem of environmental pollution, including the damage, which could be caused by space debris, while states have to keep in mind to explore and use outer space for the benefit and in the interests of all countries.

After article VI and VII in the said Space Treaty or article II and III of the Liability Convention, I hope that a new sentence will be inserted as follows:

²⁴ Glenn H. Reynolds and Robert P. Merges, "Outer Space", *Problems and Policy*, Westview Press (1989), at 169.

Article VII (International Responsibility) of Space Treaty

The State, international organization, party to this Treaty that launches or procures a space object shall bear international responsibility for assuring that national activities are carried out in conformity with the Space Treaty of 1967 and the Liability Convention of 1972.

Article VII (International Liability) of Space Treaty

Each State, international organization party to this Treaty that launches or procures the launching of a space object is internationally liable for damage arising there from to another State, person or objects, or international organization, party to this Treaty as a consequence of space debris produced by any such object.

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Article VI Of the Outer Space Treaty Commentary

- International Responsibility for National Activities in Outer Space
- Article VI as a premise to Articles VII and VIII and as a statute for private space activities
- Assimilation between governmental and nongovernmental activities: international responsibility for private activities
- Meaning of the concept of international responsibility (narrower or broader interpretation)

- Does it mean state's responsibility for its internationally wrongful acts?
- The term responsibility has guite a different meaning : it is not fully covered by the only reference to the concept of responsibility of States for internationally wrongful acts (**Rules of Customary International Law being** codified by the UN International Law **Commission : Draft Articles on State** Responsibility adopted on second reading, UN Doc. A/56/10, 2001)

- International responsibility ex Article VI encompasses all the legal consequences of national activities in outer space, as foreseen by international space law, namely
- the obligation of reparation in case of wrongful acts or omissions by public or private entities (causing or not damage),
- the obligation of control, for assuring that national activities in outer space are carried out in conformity with the provisions set forth in the OST and

- The obligation of compensation in case of damages, according to the special legal regime set forth in Article VI of the OST and the 1972 Liability Convention
- States have to take legislative action at the national level to answer for private space activities covered by their international responsibility and to the legal consequences thereof

Article VI: Qualification of national activities in outer space

Absence of a commonly accepted definition and consequent interpretation by individual States

- State of nationality, State of registration and launching State: links among Article VI and Article VII and VIII of the OST
- National space activities covered by the State's international responsibility as the activities falling within its respective jurisdiction

Article VI: Qualification of national activities in outer space

- Multiplicity of jurisdictional links and need for consensual coordination among the States involved
- The appropriate State
- The allowed interpretations:
- the criterion of nationality
- the launching State, ex Articles VII of the OST and II of the Liability Convention

Article VI: The appropriate State

- the registration State ex art. VIII of the OST (the inscription in a national register gives jurisdiction and control over the space object to the State of registry)
- the State which exercises jurisdiction and control over the private entity, though it is not the registration State or the launching State

Article VI: The appropriate State

- Again the need to establish the jurisdictional link and the variability of the result
- Possible multiplicity of jurisdictional links
- The case of the operation of satellites by New Skies Satellites (NSS), a company registered in the Netherlands

Article VI : the obligation of authorization and continuing supervision

- The obligation of authorization and continuous supervision of the activities of non-governmental entities within the jurisdiction of a State
- The degree to which specific legislation is required depends on the level of nongovernmental space activities conducted by nationals of a given State or from the territory of one State (including the legal persons active in space matters incorporations)

Conclusions

- States parties to the OST can meet this international obligation by enacting national space legislation
- National legislation should comprise at least a regulatory scheme of authorization (i.e. licensing) and supervision and the setting up of a national registry for space objects
- The transfer of space activities from one's State supervision to another's should be accompanied by a notification to the UN OOSA for the purpose of the UN Registry of Space Objects

Rescue Agreement

1968 Rescue Agreement – An Overview

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Introduction

The Agreement on the Rescue of Astronauts, the Return of Astronauts, and the Return of Objects Launched into Outer Space, 1968 (hereafter "1968 Rescue Agreement") was adopted on 19 December 1967. It was opened for signature on 22 April 1968, and it entered into force on 3 December 1968.

As of 1 September 2003, 88 States are parties and another 25 States are signatories. In addition, one international organization, the European Space Agency, has declared that it accepts the rights and obligations in the Agreement.

The parties to the 1968 Rescue Agreement include all of the space powers. In East Asia, China, Japan, Mongolia, Republic of Korea and the Russian Federation are parties. The Democratic People's Republic of Korea is not a party to this Agreement or to any of the other treaties on outer space. In South Asia, India, Maldives, Nepal and Pakistan are parties; Bangladesh and Sri Lanka are not. In Southeast Asia, the status of the 1968 Rescue Agreement is more mixed. Four States are parties (Indonesia, Laos, Singapore and Thailand); four States are signatories (Malaysia, Myanmar, Philippines and Vietnam); and two States are neither parties nor signatories (Brunei and Cambodia).

I. Background

The 1968 Rescue Agreement was the second of the four space law treaties to be adopted, and the first to be adopted after the 1967 Outer Space Treaty. The Soviet Union pushed for this agreement to be concluded before the agreement on liability. The Soviet Union attached great importance to this agreement because it had fewer resources than the United States for recovering returning spacecraft and astronauts from the high seas in all parts of the world, and it was therefore more likely than the United States to require assistance from third States.

The 1968 Rescue Agreement was drafted and adopted in record time. Like the other international instruments on space law that were agreed upon during the Cold War, the two super-space powers, the United States and the Soviet Union, played a predominant role in drafting the text. The two major space powers agreed upon a text and jointly submitted it to Legal Sub-Committee of COPUOS on 13 December 1967, just one day before it was scheduled to meet. The

Legal Sub-Committee met in a Special Session on 14 and 15 December, and proposed several amendments to the draft text before forwarding the draft to the COPUOS. The COPUOS met on Saturday 16 December to consider the draft. It approved it with minor amendments. The Draft was then sent to the General Assembly, which received it and approved the text on Tuesday 19 December 1967 by a unanimous vote.

Although many delegates complained of the lack of time for proper consideration of the joint draft text submitted by the two major space powers, both the Legal Subcommittee and COPUOS did play a role in the process, and they were able to make several amendments to improve the text. This is significant because the Legal Sub-Committee had been by-passed in the drafting of the two principle international instruments on space law – the Declaration on Legal Principles Governing the Activities of States in the Exploration and Use of Outer Space, 1963 (hereafter 1963 Declaration) and the Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies, 1967 (hereafter "1967 Outer Space Treaty").

II. Object and Purpose

The objective of the 1968 Rescue Agreement is to deal with two issues. The first issue arises from the conduct of national manned space flight programmes. It recognises that accidents or mistakes may occur, and that astronauts may have to be rescued from space vehicles if they reenter the earth's atmosphere from outer space and land somewhere outside the territory of the launching State. The second issue arises from manned and unmanned space programmes. It recognises that accidents or mistakes may occur and that as a result space objects or their component parts may re-enter the earth's atmosphere and land in areas outside the territory of the launching State.

As the preamble to the 1968 Rescue Agreement suggests, the Agreement, especially the provisions relating to the rescue and return of astronauts, was motivated by "sentiments of humanity". It is also consistent with one of the basic principles of outer space law, which is to promote international cooperation in the peaceful exploration and use of outer space.

The basic principles governing the rescue and return of astronauts and the return of foreign space objects had been set out previously in both the 1963 Declaration and the 1967 Outer Space Treaty . As its preamble states, the purpose of the 1968 Rescue Agreement was "to develop and give further expression" to the duties set out in the 1967 Outer Space Treaty.

III. Overview of the Provisions in the Agreement

The 1968 Rescue Agreement has 5 substantive provisions. Articles 1 to 4 deal with the rescue and return of astronauts. Article 5 deals with foreign space objects landing in the territory of another Contracting Party. Articles 1 to 5 set out obligations of Contracting Parties to the Agreement as well as obligations of the "Launching Authority". Article 6 defines Launching Authority as the State or intergovernmental authority responsible for launching. The remaining four articles deal with the technical matters common to all international agreements such as signature, ratification, entry into force, depositaries, amendment and withdrawal.

It should also be noted that like the 1967 Outer Space Treaty, the 1968 Rescue Agreement contains no provisions setting out any procedure for the settlement of disputes that arise between Contracting Parties with respect to the interpretation or application of the Agreement. Any dispute would therefore be subject to the general provisions on dispute settlement that are set out in Article 33 of the United Nations Charter.

IV. Launching Authority

At first glance, the definition of Launching Authority in Article 6 seems odd, as the relevant provisions in the 1963 Declaration and the 1967 Outer Space Treaty refer to "the State on whose registry the space object or space vehicle is launched." However, the term Launching Authority is less ambiguous when viewed in light of the negotiations leading up to the Agreement. Western countries in CUPUOS proposed that this Agreement be extended to international organizations that might engage in space activities. The acceptance of this proposal was viewed as a major concession by the Soviet Union. Since it was agreed to extend the Agreement to international organizations as well as States, the phrase Launching Authority was used because it was broad enough to include both.

It should also be noted that this Convention was adopted almost seven years before the Convention on Registration of Objects Launched into Outer Space, 1975. It seems reasonable today to conclude that as far as States are concerned, the term Launching Authority would refer to the launching State on whose registry the space vehicle or space object is launched, as that State would be responsible for the launch.

V. Scope of Application of the Obligations

1. Territory under the jurisdiction of a Contracting State

The 1968 Rescue Agreement has several provisions relating to spacecraft or space objects that have landed in territory under the jurisdiction of a Contracting State. One would assume that territory under the jurisdiction of a Contracting State would include not only the land territory of a state, but also its territorial sea. This is logical because under the United Nations Convention on the Law of the Sea, 1982 (1982 LOS Convention), the sovereignty of a State extends to its territorial sea. Similarly, the sovereignty of island archipelagic States like Indonesia and the Philippines extends to their archipelagic waters, which are the waters inside the archipelagic baselines connecting the outermost points of the outermost islands.

2. Any other place not under the jurisdiction of any state

The 1968 Rescue Agreement also has various provisions that refer to spacecraft or space objects that have landed "on the high seas or in any other place not under the jurisdiction of any state". These provisions would have been clearer if the term "sovereignty" had been used rather than jurisdiction, as coastal States have jurisdiction over certain matters in their Exclusive Economic Zone or on their Continental Shelf, even though such areas are not within their territorial sovereignty. Nevertheless, in the context, it seems to me that the phrase in the Agreement is intended to mean those areas of ocean space that are not under the territorial sovereignty of the coastal State, which is to say, the areas seaward of the outer limits of the territorial sea.

The phrase "any other place not under the jurisdiction of any State" would also include Antarctica. It would also in principle include outer space, the moon and celestial bodies. However, the 1968 Rescue Agreement does not appear to be intended to govern spacecraft or space objects that are in outer space or that have landed on the moon or celestial bodies. With respect to space objects, Article 5 makes it clear that it governs a space object that "has returned to earth". The articles on the rescue and return of astronauts can also be interpreted to be limited to areas on the surface of the earth that are not under the jurisdiction of any State. Although the wording of Articles 1 to 4 is not clear, the negotiating history suggests that what the drafters had in mind were landings or other emergencies on the surface of the earth.

Even if the 1968 Rescue Agreement does not apply to accidents or emergencies on board manned spacecraft in outer space, there is a principle of space law that would apply in such situations. Paragraph 2 of Article V of the 1967 Outer Space Treaty provides that in carrying out their activities in outer space or on celestial bodies, the astronauts of one State Party shall render all possible assistance to the astronauts of other States Parties.

For ease of reading, in the remainder of this paper any reference to the phrase "on the high seas" should be understood to mean "on the high seas or in any other place not under the jurisdiction of any State".

VI. Rescue and Return of Astronauts

1. Personnel of a spacecraft

The first four articles of the 1968 Rescue Agreement set out obligations concerning the rescue and return of astronauts. However, the term "personnel of a spacecraft" is used in the 1968 Rescue Convention rather than the term "astronauts". Some writers have suggested that the phrase "personnel of a spacecraft" is intended to be wider than astronauts, and would include any crewmembers or scientists that have responsibility under the mission.

The issue arises as to whether the term "personnel of a spacecraft" would and should include "space tourists" or "passengers" who have no responsibility under the mission, and who may pay a substantial fee for the thrill and adventure of travelling in space. Given that the rationale for the rescue provisions is "sentiments of humanity", it does not seem logical to make any distinction between the categories of persons on board the spacecraft. If there is an accident or emergency, the objective of the provisions is purely humanitarian - to try to save lives that are in grave danger. It is difficult to imagine that the captain of any naval vessel that found a space capsule floating on the high seas would take the astronauts and scientists on board, and refuse to rescue any space tourists because they were not "personnel of a spacecraft".

In addition, Article 10 of the 1979 Agreement Governing the Activities of States on the Moon and Other Celestial Bodies (hereinafter "1979 Moon Treaty") supports a wide reading of the phrase "personnel of a spacecraft". It provides that States Parties shall adopt all practicable measures to safeguard the life and health of "persons on the moon". It further provides that for this purpose States Parties shall regard any "person on the moon" as part of the "personnel of a spacecraft" within the meaning of the 1968 Rescue Agreement. It also provides that States Parties shall regard any "person on the moon" as an "astronaut" within the meaning of Article V of the 1967 Outer Space Treaty.

For ease of reading, I will use the term "astronauts" in the remainder of this document rather than the more cumbersome phrase "personnel of a spacecraft".

2. Notification of accidents and emergencies involving astronauts (Article 1)

Article 1 deals with the situation where a Contracting Party learns that a manned spacecraft has suffered an accident or is in an emergency situation within its territory or on the

high seas. It imposes an obligation on the Contracting Party to immediately notify the Launching Authority and the UN Secretary-General. If it cannot identify or immediately communicate with the Launching Authority, it must immediately make a public announcement by all appropriate means of communication at its disposal.

This provision imposes a minimal duty on Contracting Parties to notify the most interested parties of an emergency situation that threatens the lives of astronauts on board a spacecraft. One wonders why, as a matter of policy, Contracting Parties do not have a similar obligation if they learn of astronauts who have suffered an accident or emergency in another State's territory. In some cases it is very likely that technologically-advanced States could learn of such situations before the State in whose territory the astronauts have landed. Surely a Contracting Party should be under a humanitarian duty to notify both the Launching Authority and the State in whose territory the astronauts have landed.

3. Search and rescue within the territory of party (Article 2)

If due to an accident or other emergency astronauts land in the territory of a Contracting Party, the Contracting Party has an obligation to immediately take all possible steps to rescue them and render them all necessary assistance. The Contracting Party must also inform the UN Secretary-General and the Launching Authority of the steps it is taking and the progress.

The Launching Authority also may have obligations in this situation. If its assistance would help to effect a prompt rescue or would contribute substantially to the effectiveness of search and rescue operations, it is obliged to cooperate with the Contracting Party in the search and rescue operations. The cooperation of the Launching Authority is subject to the direction and control of the Contracting Party, but the Contracting Party is obliged to act in close and continuing consultation with the Launching Authority.

The net result of the provisions is that both States have a duty to cooperate in the search and rescue operation, while at the same time recognising that the Contracting Party must have direction and control over the search and rescue operation because it has sovereignty over its territory.

It should also be noted that there is no provision providing that the Launching Authority will bear the expenses incurred by the Contracting Party in the search and rescue operations.

4. Search and Rescue on the high seas (Article 3)

This provision applies when astronauts have alighted on the high seas (or in any place not under the jurisdiction of any State). Contracting Parties that are in a position to do so shall, if necessary, extend assistance in search and rescue operations to assure the speedy rescue of the astronauts. Contracting Parties who render assistance are obliged to inform the Launching Authority and the UN Secretary-General of the steps they are taking and their progress.

This provision seems intended to provide that States with naval forces in or near the scene of an accident would render assistance if necessary. The provision would also apply to search and rescue operations in Antarctica. The phrase "have alighted" suggests that this article is not intended to place an obligation on Contracting Parties to assist in search and rescue operations in outer space or on the moon or other celestial bodies.

5. Return of Astronauts (Article 4)

Article 4 provides for the safe and prompt return of astronauts who landed in the territory of a Contracting Party or on the high seas because of an accident or other emergency. The obligation to return the astronauts promptly to representatives of the Launching Authority would be on the Contracting Party in whose territory they have landed or on the Contracting Party who rescued them on the high seas.

There was some discussion and debate on whether the obligation to return would be absolute or would be subject to certain exceptions, such as the right of a State to grant political asylum to anyone in its territory. This matter would be governed by general principles of international law.

6. Space Objects Landing in Territory of a Contracting Party (Article 5)

Article 5 of the 1968 Rescue Agreement deals with the situation where a space object that has returned to earth lands in the territory of a Contracting Party or on the high seas (or any other place not under the jurisdiction of any State). The obligations in Article 5 apply to space object or its component parts.

Again, for ease of reading, I will refer only to "the space object" rather than to "the space object or its component parts."

Paragraph 1 provides for notification of the landing. If a Contracting Party receives information or discovers the landing of a space object in its territory or on the high seas, it is obliged to notify the Launching Authority and the UN Secretary-General.

Paragraph 2 provides for recovery of a space object that has landed in the territory of a Contracting Party. Upon the request of the Launching Authority and with assistance from that authority if requested, the Contracting Party is obliged to take such step as it finds practical to recover the object or its component parts.

Paragraph 3 provides for the return of the space object to the Launching Authority if it is found outside the territory of the Launching Authority. It provides that the space object shall be returned to or held at the disposal of representatives of the Launching Authority. It also provides that the Launching Authority shall, upon request, furnish identifying data prior to the return of the space object.

Paragraph 5 provides that the Launching Authority shall bear the expenses of a Contracting Party in fulfilling its obligation under paragraph 2 to recover a space object or its obligation under paragraph 3 to return a space object.

Paragraph 4 provides for the situation where a Contracting Party discovers that a foreign space object in its territory, or recovered by it elsewhere, is of a hazardous of deleterious nature. If the Contracting Party so notifies the Launching Authority, the Launching Authority is obliged to immediately take effective steps to eliminate possible danger of harm. The steps taken by the Launching Authority must be under the direction and control of the Contracting Party.

This provision is one reason why States not parties to the 1968 Rescue Agreement should consider becoming parties to the Agreement. States that are not parties would not be able to argue

that the Launching Authority is under a legal obligation to immediately take effective steps to eliminate possible danger of harm.

There appears to be one gap in this Article. If a Launching Authority has knowledge that its space object has landed in the territory of another State or on the high seas and that such space object may be hazardous or dangerous, it seems reasonable that it should have an obligation to notify the State where it has landed that the space object may be hazardous or dangerous. If the space object has landed on the high seas, the Launching Authority should be under an obligation to notify all States, and the UN Secretary-General, that the space object may be hazardous or dangerous. It does not seem reasonable to leave it to the State in whose territory the space object has landed or which has recovered the space object on the high seas to discover that it is hazardous or dangerous.

7. Evidence of Customary International Law

One question that arises is whether it can be argued that some or all of the substantive provisions in the 1968 Rescue Convention are binding not only on Contracting Parties under the law of treaties, but on all States as rules of customary international law.

In the North Sea Continental Shelf Cases the International Court of Justice set out the criteria that must be satisfied in order for provisions in multilateral conventions to be binding on all States as rules of customary international law even though the convention did not crystallize or codify a rule of customary international law. First, the provisions must be norm-creating. Articles 1 to 5 of the 1968 Rescue Agreement are norm-creating because they set out specific legal rights and legal obligations. Second, there must have been widespread and representative participation in the convention, including the States whose interests are most seriously affected. The 1968 Rescue Agreement also satisfies these criteria. Not only was it adopted by a unanimous vote, but there are 88 Contracting States representing the various legal systems and regions of the world, including almost all of the space powers and potential space powers, who are the States whose interests are most seriously affected.

Third, State practice since the adoption of the Convention, including that of the States whose interests are specially affected, should have been both extensive and virtually uniform in the sense of the provision invoked, and should moreover have occurred in such a way as to show a general recognition that a rule of law or legal obligation is invoked. In this regard, the practice of the space powers is not decisive because they are all Contracting Parties and are under a treaty obligation to comply with the provisions in the Convention. The most important State practice would be that of States that have neither signed nor ratified the Convention. If the practice of such States is consistent with provisions in the Convention, it can be argued that the provisions of the Convention are the best evidence of the rules of customary international law governing the rescue and return of astronauts and the recovery and return of space objects.

With respect to recent State practice, the web page of the Office of Outer Space Affairs lists four cases since 2000 in which States have given official notifications to the UN Secretary-General under Article 5 of the 1968 Rescue Agreement. The notifications, which are set out in the Appendix, are from Japan, United States, South Africa and Saudi Arabia. What is most significant is that Saudi Arabia gave notice to the UN Secretary General and the United States, citing Article 5 (1) of the 1968 Rescue Agreement, even though it is not a party to the Agreement. It can be argued that if a State that is not a party to the 1968 Rescue Agreement has given a formal notification under Article 5, it must have done so believing that it is under a legal obligation to do so under customary international law. This is strong evidence in support of the

argument that Article 5 of the 1968 Rescue Agreement has become customary international law, especially if there is no State practice by non-parties that is contrary to Article 5.

It is difficult to consider the State practice with respect to the rescue and return of astronauts because there have not been any instances where search and rescue was required.

Even if all of the substantive provisions in the 1968 Rescue Agreement are not binding, as rules of customary international law, it can be argued that the general principles, set out in paragraphs 7 and 9, of the 1963 Declaration and Articles V and VIII of the 1967 Outer Space Treaty are binding on all States as rules of customary international law. The1963 Declaration was adopted unanimously. The 1967 Outer Space Treaty was not only adopted unanimously, it has an even larger number of States Parties than the 1968 Rescue Agreement.

Conclusions

The provisions of the 1968 Rescue Agreement are straightforward and rather uncontroversial. They set out provisions for the rescue and return of astronauts and for the recovery and return of space objects.

The provisions on rescue and return of astronauts favour the interests of the space powers, especially those who have goals of manned space flight. Contracting Parties have a legal obligation to assist in the rescue and return of astronauts who land in their territory. However, Contracting Parties have no guarantee that the expenses they incur in the search and rescue operation will be borne by the Launching Authority. Nevertheless, given the humanitarian spirit underlying the provisions and the general principles of cooperation and assistance that apply to the use of outer space, the obligations in the Agreement with respect to the rescue and return of astronauts do not impose a very onerous burden on Contracting Parties.

At the same time, the provisions on the recovery and return of foreign space objects give significant benefits to Contracting Parties. First, if a Contracting Party incurs expenses in recovering and returning a space object that has landed in its territory, the Launching Authority will be obliged to bear those expenses. Second, if a space object that lands in the territory of a Contracting Party is found to be of a hazardous or deleterious nature, the Launching Authority will be under an obligation to immediately take effective steps to eliminate possible danger or harm.

In addition, the provisions of the Agreement do not compromise the principle that States have sovereignty over their territory. If astronauts land in the territory of a Contracting Party, the Launching Authority may be under an obligation to assist the Contracting Party in the search and rescue operations. However, such operations are subject to the direction and control of the Contracting Party. Similarly, the Launching Authority may be under an obligation to take steps to eliminate possible danger of harm from hazardous space objects that have landed in the territory of Contracting Party. However, the steps taken by the Launching Authority are subject to the direction and control of the Contracting Party.

Another point in favour of States becoming Contracting Parties is that it in most States no implementing legislation will be necessary to implement the Agreement. The rights and obligations set out in the Agreement could be fulfilled in almost all States without the passage of additional legislation.

Finally, even though it can be argued that some of the obligations in the Agreement are binding on all States under customary international law, States who are not parties should consider becoming Contracting Parties so that their rights and obligations are more clear and certain.

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APPENDIX:

<u>NOTIFICATIONS UNDER ARTICLE 5(1) OF 1968 RESCUE AGREEMENT</u> (from OOSA web page, http://www.oosa.unvienna.org)

1) JAPAN

A/AC.105/735 (CUPOUS, 2 February 2000)

Note verbale dated 20 January 2000 from the Permanent Mission of JAPAN (Vienna) addressed to the Secretary-General

In accordance with article 5, paragraph 1 of the 1968 Agreement on the Rescue of Astronauts, the Return of Astronauts and the Return of objects Launched into Outer Space, the Permanent Representative of Japan hereby wishes to notify the Secretary-General that component parts of a space object have been discovered on Japanese territory. The object was found on the beach on Yoron Island in the Kagoshima Prefecture by inhabitants of the island on 8 November 1999. It is a cylinder-shaped object, which is 6m in length and 1.25m in diameter. It is believed to be a component part of a United States launch vehicle. An investigation concluded that the object poses no risk of hazards to people and property, and it is temporarily being kept at the village office on the island. At present, and in cooperation with the Government of the United States, efforts to identify the object are underway.

In accordance with article 5(1) of the 1968 Agreement cited above, the Government of Japan is also notifying the Government of the United States.

The Permanent Mission of Japan further has the honour to request that this communication be circulated to Member States as an official document of the United Nations Committee on the Peaceful Uses of Outer Space.

2) UNITED STATES

A/AC.105/737 (COPUOUS, 24 March 2000)

Note verbale dated 13 March 2000 from the Permanent Mission of the United States of America to the United Nations (Vienna) addressed to the Secretary-General

1. The Permanent Mission of the United States of America to the United Nations (Vienna) presents its compliments to the Office for Outer Space Affairs of the Secretariat and has the honour, on behalf of the Government of the United States of America, to notify the Secretary-General, in accordance with article 5, paragraph 1, of the Agreement on the Rescue of Astronauts, the Return of Astronauts and the Return of Space Objects Launched into Outer Space (the "Agreement"),1 that component parts of a space object have been discovered on territory of the United States of America. The object found had washed ashore near Corpus Christi, Texas, and appears to be part of the nose cone of a French Ariane rocket. It bears the following identifying lettering on a circular plate at the interior apex of the cone: "AEROSPATIALE, IE/AX, FLUXMETRE NO. SER.966-332, REF. DE DEF. A5-IK871-A-000 BLOCK CONTROLE: 25-.11.96". An investigation concluded that the object poses no hazard to people and property. It is being held temporarily by local authorities in Corpus Christi.

2. In accordance with article 5 of the Agreement, the Government of the United States of America has also notified the Government of France and invited it to identify the object.

3. The Permanent Mission of the United States of America further has the honour to request that this communication be circulated to Member States as an official document of the Committee on the Peaceful Uses of Outer Space.

3) SOUTH AFRICA

A/AC.105/740 (COPUOS, 11 July 2000)

Note verbale dated 3 July 2000 from the Permanent Mission of SOUTH AFRICA to the United Nations (Vienna) addressed to the Secretary-General

1. The Permanent Mission of South Africa to the United Nations (Vienna) presents its compliments to the Secretary-General of the United Nations and, in accordance with article 5, paragraph 1, of the 1968 Agreement on the Rescue of Astronauts, the Return of Astronauts and the Return of Space Objects Launched into Outer Space (General Assembly resolution 2345 (XXII), annex), wishes to notify the Secretary-General that three space objects have been discovered on South African territory. The objects were found in Durbanville, Worcester and Robertson, respectively, in the Western Cape Province of South Africa, on 27 April 2000.

2. The first object is a cylindrical steel vessel 2.7 metres long and 1.5 metres in diameter weighing 260 kilograms. The second object is a spherical metal object 60 centimetres in diameter and weighs approximately 33 kilograms. The third is a tapered, cylindrical and pipe-like object made from non-metallic, probably composite materials. It is approximately 60 centimetres long, 30 centimetres in diameter at "base" and 20 centimetres at "apex" and weighs approximately 30 kilograms. Preliminary investigations, in conjunction with Nicholas L. Johnston, Chief Scientist and Program Manager of the Orbital Debris Program Office at the Johnson Space Center of the National Aeronautics and Space Administration of the United States of America, revealed that the objects were believed to be component parts of a DELTA II second stage rocket used to launch a United States Global Positioning System (GPS) satellite on 28 March 1996. An investigation concluded that the objects posed no risk of hazards to people and property, and were being kept by the South African Astronomical Observatory in Cape Town.

3. In accordance with article 5, paragraph 1, of the 1968 Agreement, the Government of South Africa is also notifying the Government of the United States of America.

4) SAUDI ARABIA

A/AC.105/762 (COPUOS, 3 April 2001)

Note verbale dated 8 March 2001 from the Permanent Mission of SAUDI ARABIA to the United Nations (Vienna) addressed to the Secretary-General.

The Permanent Mission of Saudi Arabia to the United Nations (Vienna) has the honour to inform the Secretary-General, in compliance with article 5 of the Agreement on the Rescue of Astronauts, the Return of Astronauts and the Return of Objects Launched into Outer Space (the "Rescue Agreement", General Assembly resolution 2345 (XXII)), that a piece of space debris was discovered on 12 January 2001 on the territory of Saudi Arabia, at a location about 240 kilometres (km) west of Riyadh, the Saudi Arabian capital, about 1 km from the highway linking the capital with the city of Taef.

- The Permanent Mission wishes to report the following:
- (a) The object is a metallic cylinder, 140 centimetres (cm) long, 120 cm in diameter and weighing about 70 kilograms. Technical examination carried out by the Space

Research Institute at King Abdulaziz City for Science and Technology using space debris monitoring programmes suggested that the object was the titanium cover of a solid-fuel motor used on board a GPS2 satellite, launched in 1993, which had been expected to fall in northern Brazil. Thiokol, the American manufacturer of this type of motor, was contacted and provided with the serial number on the object. Thiokol confirmed that the debris was in fact the cover of a Star 48-type motor used on board a GPS2 satellite launched in 1993;

(b) The Government of Saudi Arabia will notify the Government of the United States of America in this regard, in compliance with article 5, paragraph 1, of the Rescue Agreement.

The Permanent Mission requests that the present note verbale be circulated as an official document of the Committee on the Peaceful Uses of Outer Space.

Author's Note: Saudi Arabia is NOT a Party to the 1968 Rescue Agreement

Discussion Paper:

1968 Rescue Agreement - An Overview

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1968 Rescue Agreement

Agreement on the Rescue of Astronauts, the Return of Astronauts, and the Return of Objects Launched into Outer Space, 1968 (1968 Rescue Agreement)

Adopted on 19 December 1967

Opened for Signature on 22 April 1968

Entered into Force on 3 December 1968

Status on 1 September 2003

88 States are parties, including all of the space powers

25 States are signatories

 European Space Agency has declared that it accepts the rights and obligations in the Agreement

Object and Purpose

To develop and give further expression to the duties set out in the 1967 Outer Space Treaty with respect to astronauts and space objects that have landed outside the territory of the state of registry

Provisions on rescue & return of astronauts are based on humanitarian principles

Provisions on recovery & return of space objects are based on principles of cooperation in the use of outer space

States with Obligations

Articles 1 to 5 set out the obligations of Contracting Parties and the Launching Authority

"Contracting Parties" are States that have ratified or acceded to the Agreement

The "Launching Authority" is the State or intergovernmental authority responsible for launching the space vehicle or space object

Scope of Application

Rescue Agreement applies to spacecraft or space objects that have landed in <u>territory under</u> the jurisdiction of a Contracting State

This should include maritime zones under the territorial sovereignty of a state, including the territorial sea and archipelagic waters
Scope of Application

Rescue Agreement applies to spacecraft or space objects that have landed <u>on the high seas</u> or in any other place not under the jurisdiction of any state

It would apply to spacecraft or space objects that have landed in Antarctica

The better interpretation is that it does not apply to spacecraft in outer space

Personnel of a Spacecraft

Rescue Agreement uses the phrase "personnel of a spacecraft" rather than "astronauts"

Issue of whether "space tourists" should be considered "personnel of a spacecraft"

Because the objective of the provisions on rescue are humanitarian, space tourists should be considered "personnel of a spacecraft"

Rescue & Return of Astronauts

Article 1. Notification of emergencies involving astronauts

Article 2. Search & rescue within territory of Contracting Party

Article 3. Search & Rescue on the high seas

Article 4. Return of Astronauts

Notification of emergencies involving astronauts (Article 1)

Article 1 applies where a Contracting Party learns that a manned spacecraft has suffered an accident or is in an emergency situation within its territory or on the high seas

It imposes an obligation on the Contracting Party to immediately notify the Launching Authority and the UN Secretary-General

Search & Rescue within territory of Contracting Party (Article 2)

If astronauts land in the territory of a Contracting Party due to an emergency, the Contracting Party must immediately take all possible steps to rescue them

If assistance from the Launching Authority would contribute substantially to the effectiveness of search & rescue operations, the Launching Authority must assist in the search & rescue operations

Search & Rescue on the high seas Article 3

Article 3 applies when astronauts have alighted on the high seas

 Contracting Parties that are in a position to do so shall, if necessary, extend assistance in search & rescue operations

Article 3 provides for assistance by naval forces in or near the scene of an accident

Return of Astronauts Article 4

Imposes obligation on the Contracting Party in whose territory astronauts have landed

Imposes obligation on the Contracting Party that has rescued astronauts on the high seas

The obligation is to return the astronauts promptly to representatives of the Launching Authority

Recovery & Return of Space Objects Article 5

Article 5 applies when a space object lands in the territory of a Contracting Party or lands on the high seas

The obligations in Article 5 apply to a space object or its component parts

 Obligations are set out in paragraphs 1 to 5

Recovery & Return of Space Objects Article 5

- Article 5(1) provides for <u>notification</u> of the landing of a space object in the territory of a Contracting Party or on the high seas
- Article 5(2) provides for <u>recovery</u> of a space object that has landed in the territory of a Contracting Party
- Article 5(3) provides for the <u>return</u> of the space object to the Launching Authority if it is found outside the territory of the Launching Authority

State Practice Under Article 5

The OOSA web page lists 4 cases since 2000 in which States have given official notifications to the UN Secretary-General under Article 5

The notifications are from Japan, United States, South Africa and Saudi Arabia (see Appendix to paper)

Saudi Arabia gave notice to the UN Secretary-General and the USA, and cited Article 5 (1), even though it is not a Contracting Party

Expenses of Recovery & Return Article 5(5)

Article 5(5) provides that the Launching Authority shall bear the expenses of a Contracting Party in fulfilling its obligations

under Article 5(2) to recover a space object or

under Article 5(3) to return a space object

There is no equivalent provision for the rescue and return of astronauts

Hazardous Space Objects Article 5(4)

Article 5(4) applies when a Contracting Party discovers that a space object in its territory (or recovered by it elsewhere) is hazardous

If notified, the Launching Authority must immediately take effective steps to eliminate possible danger of harm

The steps taken by the Launching Authority must be under the direction and control of the Contracting Party

Rescue Agreement and Customary International Law

It can be argued that Articles 5(1) - 5(3) on recovery and return of space objects are binding as customary international law because:-

There is widespread & representative participation in the convention, including the most seriously affected States

Even States that are not Parties (e.g. Saudi Arabia) have followed Article 5

Rescue Agreement and Customary International Law

It is more difficult to argue that the obligation on the Launching Authority under Article 5(5) to bear the expenses of Contracting Parties in the recovery & return of space objects is customary international law

Although there is an absence of state practice, it can be argued that Articles 1 to 4 on the rescue & return of astronauts are customary international law

Reasons for Ratification - 1

 Although the provisions on the rescue & return of astronauts favor the space powers, the obligations they place on Contracting Parties are not onerous.

Furthermore, they are consistent with humanitarian principles and the principle that all states should cooperate in the use of outer space.

Reasons for Ratification - 2

- The provisions on the recovery & return of space objects give benefits to Parties:
 - Launching Authority is obliged to bear the expenses of a Contracting Party in recovering and returning a space object
 - Launching Authority must take effective steps to eliminate possible danger of harm if a space object is found to be hazardous

Reasons for Ratification - 3

- 3. The Agreement does not compromise the principle of territorial sovereignty:
- Operations of Launching Authority to assist in search & rescue operations are subject to the direction & control of Contracting Party
- Steps taken by a Launching Authority to eliminate possible danger of harm from hazardous space objects are subject to the direction & control of Contracting Party

Reasons for Ratification – 4 & 5

 In most States it will not be necessary to pass legislation to implement the Agreement

 States that are not parties should consider becoming Contracting Parties so that their rights and obligations are more clear and certain

Conclusions

The provisions in the 1968 Rescue Agreement are as applicable today as they were 1968

The provisions are generally straightforward and non-controversial

States who are currently not Parties to the 1968 Rescue Agreement should consider becoming Parties

Commentary on "1968 Rescue Agreement – An Overview"

Setsuko Aoki Associate Professor, Faculty of Policy Management, Keio University, Japan

Introduction

After a most comprehensive and meticulous presentation by Prof. Beckman, I am afraid there may be little left for me to comment on as a contribution to this session. However, as a commentator to his discussion paper titled "1968 Rescue Agreement- An Overview", I shall add a few points.

I would like to refer to several points; first, I would also underline the desirability of universal acceptance of the Rescue Agreement as Prof. Beckman stated in his discussion paper. In order to reinforce our position, I would add an example that explains the necessity of the Rescue Agreement.

Second, in connection with point 1, it would be worth considering if the Rescue Agreement has become a rule of customary international law. If it is answered affirmatively, the universal application of that Agreement should be more easily accomplished. While I personally think that the major parts of the Rescue Agreement reflect rules of customary international law, being one of a few treaties adopted unanimously at the Committee on the Peaceful Uses of Outer Space (COPUOS) at the United Nations (UN), the true importance of the Agreement does not lie in its status at customary law, but in the ease in which a state can become a contracting party to the Agreement. If the Rescue Agreement falls short of being regarded as reflecting\ customary international law, then all that is required is the facilitation of ratification and accession to that Agreement that has to be emphasized. As an example of such easiness, I would mention the experience when Japan decided to become a party to this Agreement in 1983. Finally, before my conclusion, I will address some technical questions on the Agreement.

I. The desirability of universal acceptance of the Rescue Agreement

I completely agree with the opinions of Prof. Beckman who stated that the Agreement functions in favour of the Contracting Party to cooperate better when they are prompted to act by sentiments of humanity. Although sometimes the inequality in its obligations between space powers and non-space powers is overly criticized, such a problem now seems to be minimized for of the following reasons.

First and foremost, the situation with respect to public space law has been dramatically changed since that time by adopting new sets of instruments including the Convention on International Liability for Damage caused by Space Objects (Liability Convention) in 1972.

Second, an increasing number of states have embarked on space activities, which makes it necessary for the world community to prepare for the unexpected accidents. For example, lately, manned space programs have been conducted on a larger scale²⁵, and rapid commercialization of outer space has brought more space objects into outer space. New modes of transportation systems adds to the new danger as well.

1. Manned Space Program

Last month (or, in October 2003), China became the third state ever to send its national into outer space with its Shenzhou 3. It is also said that China plans to dispatch its astronauts to the Moon by 2010. It should not be forgotten that already many astronauts of various nationalities have been on board the US Space Shuttle and International Space Station (ISS) under construction. Moreover, since the conditions with respect to non - partner participation has been agreed upon among the participating partners of the ISS, it is expected that the personnel from a variety of nationalities will be seen in the future on the ISS. Thus, it is more important for sovereign States to well prepare for the accidents, both for astronauts and for space objects.

2. Commercialization of outer space

The last 15 years have witnessed the increasing use of outer space for commercial purposes. A Revolution in Military Affairs (RMA) and increasing civil uses of outer space has brought more satellites into outer space as well. In sum, we now see more space objects, functional and debris, in orbit that might cause accidents²⁶. On top of the increased number of objects in space, the danger of immature technology has to be pointed out. This is a variety of reusable space transportation system whose technology has not yet been tested. Some programs are for both reusable and manned projects including the famous "X Prize" system. Since a new space transportation system is more susceptible to accidents, this seems to need the clear and consistent application of the rescue principles and return conditions worldwide.

New types of expendable launchers using international areas have been used since the last decade. Examples would be Sea Launch and Pegasus. For such vehicles, the defined provisions of the Rescue Agreement to return the objects to a launching authority²⁷ found beyond the areas of any national jurisdiction can help avoid the conflicts.

Also an increasing number of programs involve recovery-type satellites to be returned to earth after being tested in outer space to obtain samples. As a result, all these phenomena indicate that a clear regime is required for accidents, one aspect in rescue and recovery of astronauts and space objects, the other, in liability.

3. The necessity of express conditions to be applied in case of a disaster

Concerning search and rescue on the high seas, international conventions adopted by the International Maritime Organization (IMO), a specialized organization of the UN, may be in most cases applied, or without them, prompted by seamanship, astronauts in distress would surely be

 ²⁵ US President Bush published a new space strategy "A Renewed Spirit of Discovery- The President's Vision for US Space Exploration" on 14 January 2004, which contained a human lunar exploration program as early as 2015, but not later than the year 2020.
 ²⁶ One estimate says that the number of space objects in orbit as of June 2000 is as follows: payloads being

²⁶ One estimate says that the number of space objects in orbit as of June 2000 is as follows: payloads being 2791, debris, 6146 and, total, 8937

²⁷ As Prof. Beckman pointed out, the term "launching authority" provided for in the Rescue Agreement should imply "launching state" seen in other UN space treaties. *See*, 4 (1) of this paper.

rescued. Elsewhere other than international areas, or places under the jurisdiction of any State, a spirit of international cooperation and a sense of humanitarian sentiment would play an important role in most cases. However, it is certainly more desirable if clear-cut rules be agreed among as many States as possible before a casualty occurs.

I would refer to one example showing the merit of having a clear-cut rule. When a component part of Pegasus launcher, launched in the US, was discovered in territory under Japan's jurisdiction in November 1999, the Japanese government followed the procedures provided for in the Rescue Agreement to return it to the US. Upon discovery, a village office of Yoron island, situated in the southern part of Japan, kept a 1.2 meter in diameter and 6 meter length component in accordance with Article 24 and 25 of the *Disaster-at-Sea Relief Act* of Japan²⁸. Then, according to Article 5 of the Rescue Agreement, the Japanese government notified the probable launching authority, the US, and the Secretary-General of the UN with such information in January 2000. The US, confirming that such component was launched by its national, recovered the object with the payment of costs in February 2000. The US paid the recovering expenses of the component part based on Article 5, Paragraph 5 of the Agreement²⁹. Neither country had to search for mutually acceptable conditions on recovery, return and expenses thanks to the Rescue Agreement.

II. The Rescue Agreement as a Customary International Law

1. Important Practice by Saudi Arabia

As of October 2003, 88 states are parties to the Rescue Agreement. Considering all spacefaring states are parties, it could be said that it is a sufficient number to make it a customary rule. However, it can also be said that States, which do not engage in space activities but are affected by such activities are in a position to judge the nature of a rule. In that regard, I agree with Prof. Beckman who states that the most important state practice would be that of States that have neither signed nor ratified the Treaty. Accordingly, the practice by Saudi Arabia, a non-party, in 2001 has to be underlined as one possible evidence of this agreement being a customary rule. I shall add another example.

2. EXPRESS Case

The Experiment Re-Entry Space System (EXPRESS) was the first joint German-Japanese space development program the purposes of which included the conduct of versatile microgravity experiments in outer space and the acquisition of technologies on re-entry and recovery of the test capsule. The German-Japanese Science and Technology Cooperation Agreement in 1990 provided that Japan was responsible for launching a capsule-type object, while Germany was responsible for the recovery of the capsule. EXPRESS, scheduled to land at Woomera, Australia after circulating the earth for 5 days, was launched on January 15, in 1995 from the Kagoshima Space Centre in Japan. It was on 16 January when EXPRESS disappeared and was not be able to be tracked, and almost a year later, in December 1995, the German government informed Japan about an article found in an Australian space magazine which wrote that an EXPRESS-like component part was discovered in the northern part of Ghana. In January 1996, the German government confirmed such debris as a part of EXPRESS in Ghana, and it was returned to Germany the next month. As no damage had been caused to people or property in Ghana, it did

²⁸ Relief-At-Sea Disaster Act provides that a finder has to hand over an object to a local authority (Art.24) and public notice shall be conducted by such authority (Art.25).

²⁹ Asahi Shimbun, p.1 (2 February 2000) [in Japanese].

not claim any reparation from Germany. As a result, Germany paid full expenses for the recovery of 200.000 mark.

On the surface, all the procedure for recovering and returning EXPRESS to Germany was conducted in accordance with Article 5 of the Rescue Agreement. Different from Saudi Arabia, Ghana had already signed the Rescue Agreement, although it had not ratified it. Article 18 of the Vienna Convention on the Law of Treaties stipulates that a State which signs a treaty is obliged to refrain from acts which would defeat the object and purpose of that treaty³⁰. However, it should not imply that Ghana has to comply with the Rescue Agreement. In the North Sea Continental Shelf Case, the obligation of West Germany to comply with the provisions of the Convention on the Continental Shelf of 1958 was not recognized by the International Court of Justice (ICJ) since it had only signed the treaty and not ratified it. Similarly, Ghana does not have an obligation to comply with the Rescue Agreement. It is unclear if Ghana consciously abided by the Rescue Agreement with *opinio juris* when it transferred a component part of EXPRESS to Germany, but such smoothness and naturalness itself might be judged in favour of the opinion that the 1968 Agreement is seen as customary international law as a whole.

But, again, I would like to underscore that rather than having a prolonged discussion on whether the treaty has crystallized into customary international law, ratification and accession to the Agreement should be strongly recommended. Fortunately enough, as Prof. Beckman stated, in most States, no implementation legislation seems to be necessary to implement the Agreement. It is a blessing for a State to be able to avoid the onerous process of making new law in order to become a party to an Agreement.

III. Ease of becoming a Party to the Rescue Agreement

Japan is one of the States, which experienced what Prof. Beckman stated when it acceded to the Agreement in 1983. While Japan was an original member to the Outer Space Treaty, it did not become one to the Rescue Agreement in 1968. When Japan studied if it could accede to the Rescue Agreement simultaneously with another two UN space law conventions, the following were the main subjects of concerns in respect of the Rescue Agreement.

1. Inequality of the obligations

Among the five substantive provisions of the Rescue Agreement, the Contracting Party, which does not have a robust space program, seems under a stronger obligation than that which often becomes a launching authority. In fact, according to substantive provisions of the Rescue Agreement, a Contracting Party has eight obligations while a launching authority has only four in Article 2 and Article 5, paragraph 3, 4 and 5. However, considering the fact that the strong obligations under which a Contracting Party is placed is related to the rescue of astronauts, the inequality of obligations can be explained, at least, in part, especially because this Agreement was prompted by the sentiments of humanity. In Japan's case, examination of each provision of the Agreement led to the conclusion that territorial sovereignty was in tact with respect to search, rescue, recovery and return of astronauts and space objects to the launching authority.

³⁰ Although Ghana is not a party to the Vienna Convention on the Law of Treaties, the contents of Article 18 is regarded as a rule of customary international law.

2. Extradition

For a State considering to become a party to the Rescue Agreement, possible conflicts with domestic law and extradition policy have to be clearly addressed. Article 4 of the Rescue Agreement provides that personnel of a spacecraft landed in territory under the jurisdiction of a Contracting Party shall be safely and promptly returned to the representatives of the launching authority. Is it an unconditional duty for a Contracting Party to return astronauts to the launching authority? That was the question discussed and opinions divided in two camps at the time of adoption in 1968. Some delegation expressed the view that the safe and the prompt return of astronauts was subject to national legislation such as the right of asylum and established rules of international law on extradition. Other States emphasized that the obligation was absolute and unconditional³¹. Taking note of the fact that the Rescue Agreement was drafted based on Article V of the Outer Space Treaty, it seems that when an astronaut clearly acted against the provisions of the Outer Space Treaty, no Contracting Party was under the absolute obligation to unconditionally return such astronaut. The same interpretation seems to be applied should an astronaut commit a crime after landing, or in case he or she expresses the hope of taking refuge in the receiving country.

The Japanese government studied these issues most carefully before acceding and concluded that taking into consideration the scope and purposes of the Agreement, the established rules of the international and national laws of extradition were not changed by the agreement³².

3. Article 5 and the property rights of private persons

At the same time, the procedure of the State to fulfil its treaty obligation was studied in case a private person found and obtained a space object. Studying the provisions of two domestic laws concerned, the Disaster-at-Sea Relief Act and Lost Property Act, Japan concluded that such national laws could function to better implement the treaty obligation, not adversely affecting the effects of the Agreement.

4. Current Situation

The current situation seems more favourable than in the early 1980's, when Japan acceded to the Agreement, for non-parties to ratify the Agreement. A stable package deal has been accomplished through four of the UN space treaties to which an increasing number of States are Parties³³. In addition, efforts are being made at the legal subcommittee of the COPUOS in terms of facilitating the ratification of the Agreement (item 4) and clarification of definitions such as "launching state" (item 9, between 2000 and 2002). I would like to reiterate the easiness of becoming a member of the Rescue Agreement that brings advantages to States, which are thinking of embarking on space activities.

 ³¹ Prof. Bin Cheng judged that on the basis of the Agreement as it was presently worded, the interpretation of the unconditional return appeared correct. Bin Cheng, "The 1968 Astronauts Agreement", in Bin Cheng, *Studies in International Space Law*, (Clarendon Press, 1997), p.283.
 ³² In 1968, Japan raised a problem by negating the duty of a contracting party to return a space object

³² In 1968, Japan raised a problem by negating the duty of a contracting party to return a space object intended primarily for the development of a bombardment system to be placed into an orbit. Bin Cheng, *ibid.*, pp.283-284.

³³ As of October 2003, 97 States are parties to the Outer Space Treaty, while 88 States to the Rescue Agreement, 82 States to the Liability Convention, 44 States to the Registration Convention and 10 States to the Moon Agreement

IV. Other Questions on the Rescue Agreement

1. "Launching Authority" and "Launching State"

Finally, some technical questions should be pointed out. Prof. Beckman rightly pointed out that as far as States are concerned, "launching authority" is construed as launching State. I think that such interpretation is more strongly supported now than before due especially to the new interpretation of launching State "which procures the launching." These days, some States apply the interpretation that a State whose national owns or operates a space object is a launching State as a State, which procures the launching. That means exactly the definition of "launching authority", which "shall refer to the State responsible for launching" (Article 6).

In practice, as is seen in the United Kingdom-China Letter of Exchange, the domineering trend is that a State which is more responsible for a certain stage of launching activity is deemed to be the sole launching State *per se*. In other words, a State which has enforcement jurisdiction is given the status of the sole launching State *per se*.³⁴. In the said Letter of Exchange, risk allocation between the multiple launching States were conducted as follows: from launching to separation of a satellite, China is liable 100 percent to the third state (China has enforcement jurisdiction), and after separation of a satellite, the UK, since its national operates a satellite, is 100 percent liable in terms of third party liability (the UK has enforcement jurisdiction on the basis of quasi-territorial jurisdiction). A State, which has enforcement jurisdiction in a certain stage of space activities, is a State responsible for it, and that means the one specific launching State of launching states means the launching authority³⁵.

2. Possible Conflicts between Article 5 and the Prospective Space Assets Protocol

There might be some conflicts in application between the Rescue Agreement and Space Assets Protocol being considered at the Institut International pour l'Unification du Droit Privé (UNIDROIT). Possible conflicts could be pointed out between Article 5 of the Rescue Agreement and the rights of creditors under the Space Assets Protocol. A space object as part of 'space assets'³⁶ can be transferred to a creditor, but the State of his nationality might differ from that of the registry, or launching authority where a space object has to be returned according to the Rescue Agreement. Can a launching authority claim the return of such an object to the creditor? Or can a creditor ask the transfer of the object after it is once returned to the launching authority?³⁷ Clear answer cannot be given here. Often it is answered that the future Space Protocol cannot become an obstacle to the application of the Rescue Agreement since it regulates the private legal conditions while the Rescue Agreement controls public law sphere³⁸. The relationship between the Space Protocol and international public space law including the Rescue Agreement has been discussed at the legal subcommittee of the COPUOS (item 8).

³⁴ Part Ten: III Outer Space, UK Materials on International Law 1996, LXVII *BYIL* (1996), pp.804-805.

 $^{^{35}}$ This interpretation is not necessarily in line with the purposes of the drafters.

³⁶ Definition of "space assets" is broader than that of "space object".

³⁷ P.B. Larsen, "UNIDROIT Space Protocol: Comments on the Relationship Between the Protocol and Existing International Space Law", *Colloq. L. Outer S.*, vol.44 (2001), pp.191-192.

³⁸ See, *e.g.*, A/AC.105/C.2/L.233, 14 March 2002: UNIDROIT 2002 Study LXXIIJ-Doc.10, February 2002, p.vi.

3. The Status of International Organization

Since the Rescue Agreement entered into force in the 1960's, the treatment of international governmental organization (IGO) may not be satisfactory in today's evaluation. However, that limitation should not be exaggerated as a problem. Up to now, 88 states are parties, in many cases, all an IGO has to do is to declare the acceptance of the treaty conditions to be a Party (Article 6).

Conclusion

Finally, I would like to underscore again that in an era of increasing manned and commercial space activities, it would be to the benefit of any sovereign state to be a Contracting Party to the Rescue Agreement.

Commentary to the Discussion Paper "1968 Rescue Agreement – An Overview" by Prof. Beckman

> Nov.3, 2003 Setsuko Aoki Japan

Contents of Commentary

- Desirability of universal acceptance of the 1968 Rescue Agreement
- 2 1968 Rescue Agreement as customary international law
- 3 The easiness of acceding the Treaty
- 4 Some technical questions

1 Desirability of universal acceptance of the Rescue Agreement

- (1) Further development of space exploitation
 → manned space program for "astronauts" and space tourists
- (2) In the era of commercial use of outer space →more space objects
- (3) Emerging transportation systems

Manned Space Program

- October 2003 Success of China's Shenzhou 3 3rd state accomplished a manned space program
- international space station (ISS)
 crews from many nationality
 N2002 non-partner participation in the ISS

Increasing Commercial Uses of Outer Space

About 250 commercial satellites in orbit

The number of space objects as of June 2000
Payloads 2791
Debris 6146
Orbit total 8937

Emerging Transportation Systems

- 1 Experiments of various types of reusable vehicles
- 2 New types of launchersform high seas/ form public air space
- 3 Unmanned experimental space objects \rightarrow the necessity of recovery

The necessity of express conditions to be applied in case of a disaster

Prompted by "sentiments of humanity"

Search and rescue treaties made at IMO (IMCO)

Seamanship

International cooperation, comity

The desirability of the clear-cut rules

The Merits of the Party: Japan's Case

April 1993 Pegasus rocket launched

- November 1999 components parts of Pegasus discovered on Japanese territory
- Kept at the village office based on arts 24 and 25 of Relief of Disaster-at-Sea Act
- Jan. 2000 notification to the SG and requested the US to identify the object
- Feb. 2000 US recovered the object with the payment of the costs

2 Rescue Agreement as customary international law?

1contents "vereingbarung" (von Triepel)

- 2 88 states parties to the Agreement sufficient numbers?
- 3 State practice of non parties
- Cooperation by Ghana to recover the "Express" debris in 1996

Debris of Express discovered in Ghana

- Express= unmanned space experimental system for recovery
 - joint project between Germany and Japan
 - launched from Kagoshima, Japan, to circulate the earth for 5 days and to return to Australia
- * recovery of express capsule →Germany
Express Case (2)

- 15 Jan. 1995 launched
- 16 Jan. 1995 Disappeared
- Jan. 1996 Discovered in Ghana
- 20 Feb. 1996 Express transferred to Germany
 - no damage to people and property
 - no claim by Ghana of reparation
- Expenses of recovery paid by Germany 200.000 M.
- =Art.5 (5) of the Rescue Agreement

Status of Ghana to the Agreement

Ghana signed the Agreement, but not ratified. Art. 18 of the Vienna Law of Treaties

- A state is obliged to refrain from acts which would defeat the object and purpose of a treaty when:
- (a) it has signed the treaty---, until it shall have made its intention clear not to become a party to the treaty; or--

Easiness acceding to the Rescue Agreement

" in most States no implementing legislation will be necessary to implement the Agreement" (by Prof. Beckman)

Japan's case :

1983 ratification of 3 Space Treaties after investigating the necessity of the amending or additional legislation

Points considered (1)

Art.2

launching authority may engage in the rescue,but under the direction and control of theContracting Party

territorial sovereignty intact

Points Considered (2)

- Art. 4 shall be safely and promptly returned to the representatives of the launching authority
 ★ The scope and the purpose of the Agreement,
 the international and national laws of extradition →intact
- * limitation to the obligation of of this article e.g. Art. 4. of the OST

Points considered (3)

- Art. 5
- ① territorial sovereignty of the Contracting State intact
- 2 implementing legislation when a private person discovers the space object
- Discretion to the Contracting Party
- ex. Distress-at-Sea Relief Act, Lost Property Act

Current situation easier to ratify the Rescue Agreement

- 1 Liability Convention (82 States)
- and Registration Convention (44 States)
- in force (comprehensiveness of the rights and obligations)
- 2 definition: more clarified
- e.g. Legal subcommittee item 4

item 9 (2000-2002)

4 Some Technical Questions(1) launching state ①

- 1 launching authority definition
- As Prof. Beckman pointed out, as far as States are concerned, launching authority = launching state
 - * the emerging definition of launching state which procures the launching seems fits launching state=launching authority

(1) Launching state ②

States which procures the launching

= state the nationality of which the company owns/ operates a satellite is a launching state

(emerging interpretation)

Risk allocation between the multiple launching states

- 1 Launching to separation of a satellite = territorial jurisdiction
- 2 After separation of a satellite = the state whose nationality an operating company holds = quasiterritorial jurisdiction

Both jurisdiction= enforcement jurisdiction =responsible states=launching state =launching authority

(1)Launching State 3

Risk allocation between launching state The launching state in one stage holds enforcement jurisdiction

=responsible states

Launching state=launching authority

(2) Prospective Space Assets Protocol ①

Possible conflicts between Art.5 of the Rescue Agreement and the the rights of creditors of space assets, since space assets can be transferred to a person the state of his nationality is neither a state of registry nor launching authority (=state).

(2) Prospective Space Assets Protocol (2)

- 1 Launching state as to whether it would request the return of such a space object ?
- 2 creditor can request to transfer the object after it is returned to the launching authority

public law and private law superior nature of UN space treaties

The status of int'l organization

1 currently, since more states are parties to the Rescue agreements, it is easier for an IGO to act as a launching state.

The treatment of the partial denial for an IGO of the legal personality minor problem ISS= coalition of the willing type convention Rescue Agreement to be applied

Conclusion

1968 Rescue Agreement

The contents customary nature acquired

indispensable in the era of increasing manned and commercial space activities

Package rights and obligations thanks to Liability and Registration Convention

More acceptance highly recommended

The Convention on International Liability for Damage Caused by Space Objects and the Domestic Regulatory Responses to its Implications

Ricky J. Lee Lecturer School of Law, University of Western Sydney, Australia

Introduction

The fundamental concern of any enterprise in outer space would likely be liability. From the very beginnings of international space law, it has been recognised that States would have to accept international liability for any damage or injury they cause to third parties through the conduct of space activities. This is partly because space activities have been regarded by the international community as being inherently risky and dangerous and, consequently, third party States should be protected from any injury, loss or damage suffered as a result of the conduct of activities in outer space.

When the Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies (the "Outer Space Treaty") was adopted by the United Nations General Assembly in 1968, space activities were the exclusive domain of the Soviet Union and the United States.³⁹ This remained the case when the Convention on International Liability for Damage Caused by Space Objects (the "Liability Convention") was adopted in 1972.⁴⁰ At the time, there were no international joint efforts, even less the participation of the private sector, in space activities. Three decades later, however, most space activities today are conducted by commercial concerns operating on a multinational level. The United Nations space treaties, in particular the Liability Convention, are proving to be inadequate in addressing the issues of third party liability, private space activities and the settlement of disputes.

The privatisation and commercialisation of space activities in recent decades have prompted several States to pass on their international liability for private space activities to the launch operators. In order to comprehensively assess the liability regime applicable to private space activities, it is necessary not only to consider the international treaties but also the relevant domestic legislation concerning space activities.

³⁹ (1967) 610 U.N.T.S. 205; 6 I.L.M. 386.

⁴⁰ (1972) 961 U.N.T.S. 187; 10 I.L.M. 965.

I. Effects of the Liability Convention

- 1. International Liability
- 1.1. Development of the Liability Convention

One of the earliest issues debated among legal scholars with an interest in space law was the subject of responsibility and liability. In as early as 1958, for example, it was suggested that:

- 1. The State launching a spacecraft to accept full responsibility for possible damage;
- 2. The State to be entitled to make certain reservations as under the Warsaw Convention excluding, for example, liability in the case of *force majeure*; and
- 3. The creation of an International Guaranty Fund to pay for damage caused by satellites except for intentional acts.⁴¹

In 1959, coinciding with this debate in academic circles, the Government of the United States circulated a proposal within the United Nations which suggested that, among other matters, the question of international liability for damage caused by the launching, flight and re-entry of payloads and associated launch vehicles must be a priority issue.⁴² During the first meeting of the Legal Sub-Committee to the United Nations Committee on the Peaceful Uses of Outer Space ("COPUOS") in 1962, a set of substantive principles on liability was proposed by the United States.⁴³ Subsequently, it was agreed by all participating States to include a provision relating to liability in the Declaration of Legal Principles Governing the Activities of States in the Exploration and Use of Outer Space, adopted by the General Assembly in 1963.⁴⁴

The provision found in the 1963 Principles Declaration was substantially reproduced in Article VII of the Outer Space Treaty, which states that:

"Each State Party to the Treaty that launches or procures the launching of an object into outer space, including the Moon and other celestial bodies, and each State Party from whose territory or facility an object is launched, is internationally liable for damage to another State Party to the Treaty or to its natural or juridical persons by such object or its component parts on the Earth, in air space or in outer space, including the Moon and other celestial bodies".

With ninety-eight State Parties and an additional twenty-seven signatories as at 1 January 2003,⁴⁵ it is likely that the Outer Space Treaty or at least some of its essential provisions may be considered to have crystallised into customary law. The widespread acceptance of the Outer Space Treaty, the absence of objections by States and the repetition of its provisions in subsequent instruments are often cited as *indicia* of its crystallisation.⁴⁶ The difficulty in declaring

⁴¹ Isabella Rode-Verschoor, *The Responsibility of States for the Damage Caused by Launched Space-Bodies* (1958) 1 PROC. COLL. L. OUTER SPACE 103.

⁴² U.N. Doc. A/AC.105/C.2/L.4.

⁴³ U.N. Doc. A/AC.105/C.2/L.4.

⁴⁴ General Assembly Resolution 1962 (XVIII).

⁴⁵ U.N. Doc. A/AC.105/C.2/2003/CRP.5 of 25 March 2003.

⁴⁶ See, for example, the discussion in Vladlen S. Vereshchetin and Gennady M. Danilenko, *Custom as a Source of International Law of Outer Space* (1985) 13 J. SPACE L. 22; Durica Krstic; *Customary Law Rules in Regulating Outer Space Activities* (1976) 20 PROC. COLL. L. OUTER SPACE 320; and Ricky J. Lee and Steven R. Freeland, *The Crystallisation of General Assembly Space Declarations into Customary*

with any certainty the extent of the crystallisation of the provisions of the Outer Space Treaty, especially those dealing with international responsibility and liability, is the continuing absence of state practice that remains a prerequisite for the formation of custom.⁴⁷

The United States made a series of proposals for a set of principles on liability to the Legal Sub-Committee through the 1960s.⁴⁸ In its view, there must be four essential elements for a working international treaty on liability for activities in outer space:

- 1. An explicit rule that the demonstration of fault cannot be a requirement of or prerequisite to liability;
- 2. The standards to be applied to evaluate the damage suffered and the appropriate compensation payable;
- 3. A denial of the traditional requirement for the claimant to exhaust all appropriate local remedies; and
- 4. The imposition of specific time limits on negotiations for settlements and the establishment of impartial claims commission to "advise" the parties.⁴⁹

In addition to the proposals put forward by the United States, there were also several proposed texts from Belgium.⁵⁰ Herbert Reis, Legal Adviser to the United States Mission to the United Nations at the time, suggested that the Soviet Union did not pay serious attention to such proposals and "preferred … not to put forward proposals under its own name but instead to rely upon Hungary".⁵¹ Such a characterisation would appear to understate the contributions that the representatives of the Soviet Union made towards the formulation and discussion of the treaty.

While the Hungarian proposals did not differ from the United States proposals on the subject of absolute liability, they did suggest that the nature and amount of compensation payable should be determined by the law of the launching State.⁵² The proposals also included a provision that rules of exception or exoneration from liability should have no application for "unlawful activities".⁵³

After over a decade of negotiations, the Liability Convention was adopted by the General Assembly in 1972. It was observed that the Liability Convention contained the fundamental elements sought by the United States through its proposals, while some less fundamental proposals were excluded in the interest of reaching a compromise. Reis suggested that it gave "maximum assurance that a launching State which has ratified the convention will pay a just claim" and encourages space powers not to "deal arrogantly with justified damage claims" from claimant States.⁵⁴ In order to scrutinise such claims, the provisions of the Liability Convention should be examined in detail.

International Law, paper presented at the 46th Colloquium on the Law of Outer Space, 30 September 2003 in Bremen, Germany.

⁴⁷ Military and Paramilitary Activities in and against Nicaragua (Merits) (Nicaragua v United States) [1986] I.C.J. REP. 14 at 94; and North Sea Continental Shelf Cases (Germany v Denmark; Germany v the Netherlands) [1969] I.C.J. REP. 3. See, for example, Ian Brownlie, PRINCIPLES OF PUBLIC

INTERNATIONAL LAW (1998), at pp. 4-11.

⁴⁸ U.N. Doc. A/AC.105/C.2/L.8.

⁴⁹ Herbert Reis, Some Reflections on the Liability Convention for Outer Space (1978) 6 J. SPACE L. 161.

⁵⁰ U.N. Doc. A/AC.105/C.2/L.7.

⁵¹ Reis, *supra* note 49, at 126.

⁵² U.N. Doc. A/AC.105/C.2/L.10/Rev.1, Article II.

⁵³ *Ibid.*, Article V.

⁵⁴ Reis, *supra* note 49, at 128.

1.2. Liability Provisions

The Liability Convention introduces the concept of a "launching State" which is subsequently used in the Convention on the Registration of Space Objects (the "Registration Convention") and other instruments on the law of outer space. Article I defines the terms "launching State" and "space object" with the cumulative effect that a "launching State" for the purposes of the Liability Convention includes:

- 1. A State that launches a space object, its component parts, its launch vehicle or parts thereof;
- 2. A State that procures the launch of a space object, its component parts, its launch vehicle or parts thereof;
- 3. A State from whose territory a space object, its component parts, its launch vehicle or parts thereof is launched; and
- 4. A State from whose facility a space object, its component parts, its launch vehicle or parts thereof is launched.

It is clear from the above definition that it is possible to have more than one launching State for each space object. For example, a satellite owned and to be operated by a French private concern to be launched by a German launch operator from a Russian facility located in Australia may result in France, Germany, Russia and Australia all being regarded as launching States. The Liability Convention imposes joint and several liability on the multiple launching States and each launching State may present claims for indemnity or contribution from other launching States or to appropriation their liability by agreement.⁵⁵ In the earlier days, in which launch activities were the field of governmental agencies, this joint and several liability was much less of a concern than it is today with each segment of a launch operation being conducted by private multinational companies, making the imposition of international liability significantly more difficult.

Article II of the Liability Convention provides for absolute liability for any damage caused by space objects that are suffered on the surface of the Earth or in airspace. It is not clear whether the deep seabed would be considered part of the "surface of the Earth". The provision states that:

"A launching State shall be absolutely liable to pay compensation for damage caused by its space object on the surface of the Earth or to aircraft in flight".

Provided that the space activity was conducted in accordance with international law, particularly the Charter of the United Nations and the Outer Space Treaty, the launching State would be exonerated from absolute liability to the extent that the damage resulted wholly or partly from the gross negligence or an intentional act or omission of the claimant State or its nationals.⁵⁶ There is no explicit definition in the Liability Convention as to what would constitute gross negligence and this has been a matter of substantial academic discussion.⁵⁷

Article III of the Liability Convention, on the other hand, provides that liability for damage caused in outer space by a space object will be determined on the basis of fault. It states:

⁵⁵ Liability Convention, Article V.

⁵⁶ *Ibid.*, Article VI.

⁵⁷ See, for example, Marc Firestone, *Problems in the Resolution of Disputes Concerning Damage Caused in Outer Space* (1985) 59 TUL. L. REV. 747.

"In the event of damage being caused elsewhere than on the surface of the Earth to a space object of one launching State or to persons or property on board such a space object by a space object of another launching State, the latter shall be liable only if the damage is due to its fault or the fault of persons for whom it is responsible".

It is unclear at first glance what is meant by "another launching State" in Article III. However, considering the context of the provision as a whole, it is reasonable to assume that the appropriate meaning is "a launching State other than the launching State of the first object". In other words, Article III has application only where the damage caused is international and not domestic in nature.

Article IV (1) states:

In the event of damage being caused elsewhere than on the surface of the Earth to a space object of one launching State or to persons or property on board such a space object by a space object of another launching State, and of damage thereby being caused to a third State or to its natural or juridical persons, the first two States shall be jointly and severally liable to the third State, to the extent indicated by the following:

- 1. if the damage has been caused to the third State on the surface of the Earth or to aircraft in flight, their liability to the third State shall be absolute;
- 2. if the damage has been caused to a space object of the third State or to persons or property on board that space object elsewhere than on the surface of the Earth, their liability to the third State shall be based on the fault of either of the first two States or on the fault of persons for whom either is responsible.

This provision deals with the situation where a collision between two space objects in outer space and then causes damage to a third State, either on the surface of the Earth or in outer space. It should be noted that the provision deals only with the primary damage being caused in outer space and not if it is caused on the surface of the Earth. The liability of the two States is to be approportioned on the basis of the extent to which each one of them was at fault or, if the extent of fault cannot be established, approportioned equally between them.⁵⁸

The Liability Convention does not apply to damage caused by a space object of a launching State to nationals of *that* launching State and to:

"Foreign nationals during such time as they are participating in the operation of that space object from the time of its launching or at any stage thereafter until its descent, or during such time as they are in the immediate vicinity of a planned launching or recovery area as the result of an invitation by that launching State".⁵⁹

If the provision is to be interpreted with its *prima facie* meaning, the reference to *that* launching State instead of *a* launching State appears to indicate that, in the case of damage caused

⁵⁸ Liability Convention, Article IV (2).

⁵⁹ *Ibid.*, Article VII.

by a space object that has multiple launching States, a claim may be made by the nationals of one launching State against the other launching States. This is questionable because if the claimant State presents a claim on behalf of its nationals against the other launching States, these States would have a right to indemnity or contribution from the claimant State, making the provision somewhat redundant. The appropriate interpretation thus appears to be the exclusion of claims made by nationals of launching States against any or all of the launching States from the scope of the Liability Convention.

The standard for determining the amount of compensation payable under the Liability Convention is found in Article XII, which provides that it is to be determined:

... "in accordance with international law and the principles of justice and equity, in order to provide such reparation in respect of the damage as will restore the person, natural or juridical, State or international organisation on whose behalf the claim is presented to the condition which would have existed if the damage had not occurred".

2. Modern Liability Controversies

2.1. Launching State

Since the provisions of the Liability Convention have never been specifically invoked in anger (except in heated academic discussions), there are significant uncertainties in the interpretation of its provisions. The first and perhaps the most controversial today remains the definition of a "launching State" and its application to the multinational nature of the space industry today. This was particularly difficult in the context of the Sea Launch project, which involves a private joint venture of companies from Russia, the United States, Ukraine and Norway with the rockets launched from a converted oil drilling platform in the high seas.⁶⁰ Some scholars have suggested that this creates a lacuna in the application of the Liability Convention.⁶¹ This may not be necessarily true as the launch operator in the case of a launch from the high seas or in airspace above the high seas and the satellite operator who procured the launch would nevertheless be easily identifiable, and all the launching States are jointly and severally liable.

In practice, States would generally prefer for "launching States" to be defined as narrowly as possible, especially in the context of "procuring" the launch, as a broad definition may have the effect of stifling participation by some States in international endeavours or to approve the tangential involvement of their private concerns in order to avoid potential international liability.⁶²

One other commercial reality in the launch industry today is that the launch operator is generally not the entity that will operate and control the satellite once it has been inserted into orbit. In such a case, it would be an injustice to continue to impose liability on the "launching States", namely the States responsible for the launch, when they no longer had any control or

⁶⁰ Armel Kerrest, *Launching Spacecraft from the Sea and the Outer Space Treaty: The Sea Launch Project* (1997) 40 PROC. COLL. L. OUTER SPACE 264.

⁶¹ Kai-Uwe Schrogl and Charles Davies, A New Look at the "Launching State": The Results of the UNCOPUOS Legal Subcommittee Working Group "Review of the Concept of the 'Launching State'" 2000-2002 (2002) paper presented at the 45th Colloquium on the Law of Outer Space, 15 October 2002, Houston, the United States.

⁶² William B. Wirin, *Practical Implications of Launching State – Appropriate State Definitions* (1994) 37 PROC. COLL. L. OUTER SPACE 109 at 112.

influence over the operation and control of the satellite. It should be noted that some States today conclude bilateral agreements pursuant to Article V (2) of the Liability Convention to require the "operating States" to indemnify the "launching States" for any damage caused after orbital insertion. This is particularly important as the fault liability that forms the basis of liability for damage caused in outer space is based on the fault of the launching States collectively and there is no treaty basis for the apportionment of liability between the launching States except by private agreement. However, the practical enforcement of these agreements may be problematic considering that such agreements "shall be without prejudice to the right of a State sustaining damage to seek the entire compensation due under this Convention from any or all of the 'launching States".⁶³

In addition to the conceptual difficulties associated with the definition of a "launching State", there are further interpretation problems associated with the wording of the definition itself. One such controversy is the issue of suborbital launches, which Gyula Gál suggested to be excluded from the scope of the Liability Convention.⁶⁴ Karl-Heinz Böckstiegel suggests that not all suborbital launches would be excluded as the definition of "launch" includes attempted launches, though what would constitute an attempted launch was not clarified.⁶⁵ Stephen Gorove suggested that, as with criminal law, an "attempt" must be intended and involves "perpetration" or "execution" of adequate means that have come close to success.⁶⁶ This approach does not appear to have met with widespread acceptance and, in any event, this would limit the scope of the applicability of the Liability Convention in a way which the drafters may not have intended.

The issue of "procuring" a launch for the purposes of the Liability Convention has also raised some questions, particularly in the context of private launch activities. Böckstiegel suggested that the mere link of nationality of a private launch operator is sufficient to make that State a launching State — the State must actively request, initiate or promote the launching of the space object to have "procured" the launch.⁶⁷ This view is shared by Peter Nesgos in the context of the "procuring" role of the State when one of its private enterprises provides a space object to be launched by a foreign State or a launch operator of a foreign State.⁶⁸ In light of the obligation imposed on the "appropriate State" to authorise and continually supervise space activities of non-governmental entities and to take international responsibility for them under Article VI of the Outer Space Treaty, such an active role on the part of the State of nationality may be considered unnecessary for a State to be considered to have "procured" a launch.⁶⁹ In such a context, the suggested view by William Wirin that "procurement" requires actual control over the launch or the payload in orbit is clearly an acceptable one.⁷⁰

2.2. Space Object

⁶³ Liability Convention, Article V.

⁶⁴ Gyula Gál, Space Treaties and Space Technology: Questions of Interpretation (1972) 15 PROC. COLL. L. OUTER SPACE 105 at 106.

⁶⁵ Karl-Heinz Böckstiegel, *The Term "Launching State" in International Space Law* (1994) 37 PROC. COLL. L. OUTER SPACE 80 at 81.

⁶⁶ Stephen Gorove, Space Transportation Systems: Some International Legal Considerations (1981) 24 PROC. COLL. L. OUTER SPACE 117 at 118.

⁶⁷ Böckstiegel, *supra* note 65, at 81.

⁶⁸ Peter Nesgos, International and Domestic Law Applicable to Commercial Launch Vehicle Transportation (1984) 27 PROC. COLL. L. OUTER SPACE 98 at 102.

⁶⁹ This is partly suggested in Gorove, *supra* note 66, at 120.

⁷⁰ Wirin, *supra* note 62, at 113.

The Liability Convention defines a "space object" as including "component parts of a space object as well as its launch vehicle and parts thereof". It has often been noted that this is no more than a partial definition, or clarification, of a "space object", which in any event refers to itself.⁷¹ Bin Cheng suggested that "space objects" covers "any object launched by humans into outer space, as well as any component part thereof, together with its launch vehicle and parts thereof" and so objects launched into Earth orbit and beyond are *ipso facto* regarded as space objects.⁷² A similar definition for "space object" has been proposed by Vladimír Kopal.⁷³

This has particular relevance in the case of a space object launched by a rocket deployed from an aircraft in airspace. Karl-Heinz Böckstiegel suggested that, as the aircraft may be considered the first stage of the launch vehicle, the take-off of the aircraft would be considered the start of the launch procedure and therefore the State from whose territory the aircraft took off would be considered a launching State.⁷⁴ Stephen Gorove suggested that it is more likely for the State in whose airspace the aircraft launched the rocket would be considered a launching State.⁷⁵ In order to resolve this conceptual impasse, it may be more appropriate to consider the aircraft as the "facility" for the launch and the airspace the "territory" from which the space object is launched. This is particularly so considering one would be unlikely to consider the last port of call of the launch platform to be a launching State for a launch from sea.

The definition of "space object" has particular relevant in the context of attributing liability for damage caused by space debris. It is clear that pieces, fragments and other substances of an object would generally be regarded as "parts" of that object. The problem is that the partial definition in the Liability Convention refers to the inclusion of *component parts* of the space object and *parts* of its launch vehicle. As "component parts" has a clear meaning, the argument may therefore be forcefully made that the drafters of the Liability Convention intended for such a distinction to be maintained in the case of the "component parts" of a space object vis-à-vis the "parts" of a launch vehicle. However, as Stephen Gorove suggested, such a technical distinction does not appear to be maintained by state practice and, in practice, there does not appear to be a sound policy justification for such a distinction.⁷⁶

One practical consequence of not maintaining a distinction between "component parts" and "parts" is that the launching States would be liable for damage caused by the orbital debris generated from their space objects to the space objects of other States. It is for this reason that William Wirin suggested that the use of the term "component parts" was to specifically exclude small pieces and fragments that are not capable of surviving a re-entry into the atmosphere of the Earth.⁷⁷ On the other hand, Stephen Gorove was of the view that separating orbital debris from

⁷¹ See, for example, Stephen Gorove, *Definitional Issues Pertaining to "Space Object"* (1994) 37 PROC. COLL. L. OUTER SPACE 87 at 88.

⁷² Bin Cheng, "Space Objects", "Astronauts" and Related Expressions (1991) 34 PROC. COLL. L. OUTER SPACE 17.

⁷³ Vladimír Kopal, Some Remarks on Issues Relating to Legal Definitions of "Space Object", "Space Debris" and "Astronaut" (1994) 37 PROC. COLL. L. OUTER SPACE 99 at 101.

⁷⁴ Karl-Heinz Böckstiegel, *The Terms "Appropriate State" and "Launching State" in the Space Treaties: Indications of State Responsibility and Liability for State and Private Space Activities* (1992) 35 PROC. COLL. L. OUTER SPACE 15.

⁷⁵ Gorove, *supra* note 71, at 91.

⁷⁶ Stephen Gorove, *Toward a Clarification of the Term "Space Object": An International Legal and Policy Imperative?* (1993) 21 J. SPACE L. 11 at 13-14.

⁷⁷ William B. Wirin, *Space Debris and Space Objects* (1991) 34 PROC. COLL. L. OUTER SPACE 45. This was a view supported in He Qizhi, *Review of Definitial Issues in Space Law in the Light of Development of Space Activities* (1991) 34 PROC. COLL. L. OUTER SPACE 32.

the definition of "space objects" would appear to run counter to the intention of the drafters of the Liability Convention.⁷⁸ Bin Cheng further pointed out that "fragments of a space object that fall on the Earth are... given the same status as the whole object ... [and] nothing suggests otherwise, or that shattered fuel tanks or flakes of paint from space objects in outer space should be treated any differently".⁷⁹

2.3. Fault

The concept of "fault" as used in Article III of the Liability Convention has different meanings in different legal systems. In civil law systems, fault is generally interpreted by the courts on a case-by-case basis, while fault is often associated with negligence in common law systems, thus necessitating considerations of the applicable duty and standard of care.⁸⁰

In practice, this discrepancy in the legal notion of "fault" in different legal systems may not be of substantial consequence, as the facts of the circumstances in which damage was suffered may be *res ipsa loquitur*. For example, a satellite operator may be considered to be at fault if it placed the satellite in an orbit known to be already occupied by another satellite with which it is likely to collide or if the "victim" satellite operator failed to move its satellite out of the way of a known inert or "dead" satellite.

Consequently, one of the most noteworthy difficulties in the imposition of international liability for damage caused by orbital debris is not the identification of the origin of the debris but rather the attribution of fault on the part of the launching States. In the context of common law notions of fault, it would be difficult to suggest that the launching States would be at fault as, although the risk of collisions with the generated debris is reasonably foreseeable, the launching States are unlikely to be able to take steps to prevent such a collision short of not launching the original space object at all or to use a substantial amount of fuel to take the satellite into either a sufficiently high "parking" orbit or to deorbit it back into the atmosphere of the Earth.

2.4. Nuclear Power Sources

The requirements of the Outer Space Treaty and the liability provisions of the Liability Convention are repeated in the Principles Relevant to the Use of Nuclear Power Sources in Outer Space (the "NPS Principles") as declared by the General Assembly in 1992 in the context of space objects with nuclear and radio isotopic power sources onboard.⁸¹ Similarly, the provision relating to the determination of the amount of compensation payable under Article XII of the Liability Convention can also be found in the NPS Principles.⁸²

In relation to the costs of the recovery and the clean-up, the Agreement on the Rescue of Astronauts, the Return of Astronauts and the Return of Objects Launched into Outer Space (the "Rescue Agreement"), adopted by the General Assembly in 1968,⁸³ and the NPS Principles contain two substantially identical but procedurally different provisions. Under the Rescue Agreement, the expenses incurred for the recovery and return of the components of the space are

⁷⁸ Gorove, *supra* note 76, at 15.

⁷⁹ Cheng, *supra* note 72, at 24.

⁸⁰ Edward A. Frankle, *International Regulation of Orbital Debris* (2000) 43 PROC. COLL. L. OUTER SPACE 369.

⁸¹ NPS Principles, Principle 9(1).

⁸² *Ibid.*, Principle 9(2).

⁸³ (1968) 672 U.N.T.S. 119; 7 I.L.M. 149.

to be reimbursed by the States responsible for the launch.⁸⁴ The costs of the clean-up and other steps taken to eliminate the hazardous nature of the returned components are excluded from this reimbursement provision. Presumably this is because the costs of the recovery and return are technically not "damage", while the clean-up costs of eliminating hazardous materials are necessarily "damage". Consequently, it is appropriate to establish a head of liability for recovery costs that is separate to that for damage.

The NPS Principles, on the other hand, provide that the compensation payable by the launching States in accordance with the Liability Convention and the Outer Space Treaty includes the reimbursement for "duly substantiated expenses for *search, recovery* and *clean-up* operations, including expenses for assistance received from third parties".⁸⁵ This means that, subject to the added requirement of "duly substantiating" the expenses, these costs are to be considered part of the "damage" to be compensated by the launching States. If the above analysis relating to the Rescue Agreement is correct, then the two provisions are clearly inconsistent. While this produces a procedural discrepancy, in practice it is doubtful that the relevant States concerned would make two separate claims relating to recovery costs and the damage arising from the return of a space object.

3. Calculation of Damages

3.1. Approach

Article I of the Liability Convention defines "damage" as being "loss of life, personal injury or other impairment of health; or loss of or damage to property of States or of persons, natural or juridical, or property of international intergovernmental organisations". Article XII further provides that the damages payable in compensation is to be determined "in accordance with international and the principles of justice and equity" to the extent of restoring the injured parties to the condition prior to the damage occurring.

It has been noted previously that the Liability Convention does not appear to include environmental damage as part of the potential "damage" caused by space objects. This approach has particular importance and relevance in considering clean-up costs of nuclear and radio isotopic power sources as discussed above.

3.2. Direct Damage

Article I of the Liability Convention refers to four specific heads of recoverable direct damage, namely, loss of life, personal injury, other impairment of health and loss of or damage to property. In the context of these damages, a claimant State would be required to demonstrate that the harm claimed flowed directly or immediately from and as the natural or probable result of the space object.⁸⁶ Some commentators have noted that "impairment of health" can result from both contamination as well as physical injury and that it is not necessary to have direct contact with the space object to suffer harm.⁸⁷ In this context, the radiation damage caused by the unexpected re-

⁸⁴ Rescue Agreement, Article 5(5).

⁸⁵ NPS Principles, Principle 9(3).

⁸⁶ Carl Q. Christol, International Liability for Damage Caused by Space Objects (1980) 74 A.J.I.L. 346 at 359.

⁸⁷ W. F. Foster, *The Convention on International Liability for Damage Caused by Space Objects* (1972) 10 CANADIAN Y. B. INT'L. L. 137 at 155; and Carl Q. Christol, *Protection of Space from Environmental Harms* (1979) 4 ANNALS AIR & SPACE L. 433.

entry of *Cosmos-954* would be a recoverable damage, even without the need to rely on the NPS Principles.⁸⁸

Carl Christol suggested that, in accordance with the United States view of the position in international law, compensation for the following items would also be appropriate and would be considered "direct" damages:

- 1. Lost time and earnings and impaired earning capacity;
- 2. Destruction or deprivation of the use of property, including where the property has been rendered unfit for its intended purposes;
- 3. Loss of profits resulting from business interruption;
- 4. Loss of rents;
- 5. Reasonable medical, hospital and nursing costs associated with injuries sustained by natural persons;
- 6. Physical and mental impairment;
- 7. Pain and suffering;
- 8. Humiliation;
- 9. Reasonable costs for the repair of property; and
- 10.Costs incurred in acts taken to mitigate the damage caused by the space object.⁸⁹

3.3. Indirect Damage and Economic Loss

It is unclear from the Liability Convention whether it is intended to cover indirect or consequential damage. Articles II and III both refer to the damage being "caused" by the space object. Hungary and the Soviet Union opposed an interpretation that would allow recovery of indirect damage, while Italy and Japan both favoured it. In the end, the question was left open, as "the word 'caused' should be interpreted as merely directly attention to the need for some causal connection between the accident and the damage, while leaving a broad discretion so that each claim can be determined on its merits".⁹⁰

There appears to be some academic support for the proposition that, as "caused by" requires no more than a causal connection between the space object and the damage, the Liability Convention covers both direct and indirect damage.⁹¹ In the context of *Cosmos-954*, for example, Peter Haanappel suggested that search and recovery costs incurred by Canada were incurred to mitigate probable damage and were recoverable indirect damage for the purposes of Article VII of the Outer Space Treaty and the Liability Convention.⁹²

3.4. Moral or Punitive Damages

In international law, moral damage is identified as the injury to the dignity or sovereignty of a State, such as a breach of a treaty obligation that does not produce a material injury and yet the violating State would be expected to pay adequate monetary penalties. Similarly, pain and suffering and the loss of capacity to enjoy life may also be considered to be moral damage to natural persons.

⁸⁸ Paul Dembling, Cosmos 954 and the Space Treaties (1978) 6 J. SPACE L. 129 at 133.

⁸⁹ Christol, *supra* note 86, at 359.

⁹⁰ Foster, *supra* note 87, at 158. It should be noted that the same view can be found in Nicholas Matte, AEROSPACE LAW (1977) at p. 157.

⁹¹ Christol, *supra* note 86, at 362.

⁹² Peter Haanappel, Some Observations on the Crash of the Cosmos 954 (1978) 6 J. SPACE L. 147 at 148.

The term "equity" has been noted as referring not to the common law concept of equity but rather to signify "moral justice".⁹³ In other words, the assessment of damages is a task to be undertaken with reference to the actual losses suffered rather than through the application of domestic or secondary international principles.

The United States has long expressed the view that moral damages are covered by the Liability Convention and that, if a claim is made in the future by the United States, such a claim would include a component for moral damages.⁹⁴ While the moral damage done to a natural person may establish a sufficient causal link with the space object, it is difficult to see how the moral damage suffered by a State would be recoverable if a causal connection cannot be made to the space object, considering the mere causation of damage by a space object is not *prima facie* a breach of an existing principle of treaty law.

Punitive damages have been considered by commentators to be both unnecessary and unrecoverable.⁹⁵ The reason why punitive damages may be considered unnecessary is because of the provision for unlimited liability under the Liability Convention that allows the victims to recover sufficient compensation for their damages sustained. There appears to be three reasons why punitive damages may be unrecoverable:

- 1. The provisions of Liability Convention is very specific in tying the causation of the damage sustained to the space object and punitive damages cannot be included as they are not by its very own nature compensation for damage sustained by the claimant State;
- 2. Punitive damages are generally assessed by tribunals only to punish the intentional acts of tortfeasors while the Liability Convention does not make any distinction on the liability of the launching States for intentional, reckless, negligent or accidental damage; and
- 3. In the case of the launching State acting in breach of an existing legal principle, the appropriation "sanction" is the unavailability of any exoneration from absolute liability under Article VI of the Liability Convention and not the imposition of punitive damages.
- 4. Procedural Issues
- 4.1. Right to Claim

The Liability Convention is an international legal instrument that deals only with liability between States, even where it is not the State itself that suffers damage caused by space activities. Consequently, the right to claim for compensation under the Liability Convention is held by the States and not private nationals.

Article VIII of the Liability Convention provides that, in the case of damage suffered by private entities, the right to claim is first given to the State of nationality.⁹⁶ If the State of nationality does not present a claim, then the State on whose territory the damage sustained may

 ⁹³ Ronald E. Alexander, Measuring Damages under the Convention on International Liability for Damage Caused by Space Objects (1978) 6 J. SPACE L. 151 at 153.
 ⁹⁴ Senate Committee on Foreign Relations, CONVENTION ON INTERNATIONAL LIABILITY FOR DAMAGE

⁹⁴ Senate Committee on Foreign Relations, CONVENTION ON INTERNATIONAL LIABILITY FOR DAMAGE CAUSED BY SPACE OBJECTS (1972) S. EXEC. REP. 92-38, 92nd Cong., 2nd Sess. 9 at 7; and S. Neil Hosenball, *Space Law, Liability and Insurable Risks* (1976) 12 THE FORUM 141 at 151.

⁹⁵ See, for example, Christol, *supra* note 86, at 365-366.

⁹⁶ Liability Convention, Article VIII (1).

present a claim.⁹⁷ If neither State presents a claim, then any other State may elect to present a claim on behalf of the natural persons or private entities that suffered the damage.⁹⁸ However, there is no indication in the provisions as to how much time is to be given to each State to decide whether to present a claim to the launching State(s) for the damage sustained, nor does it specify whether a State must make a positive act to indicate its intention not to present a claim before the right to claim transmits to the next eligible State in accordance with Article VIII.

Claims for compensation made under the Liability Convention must be presented within one year from the date the damage is sustained or, if the occurrence of the damage or the identity of the launching State was not known, the time limit shall run for one year from the date the claimant State knew or ought reasonably to know of the unknown information.⁹⁹ These limits apply even if the claimant State did not know the full extent of the damage sustained, but the claimant State has the right to amend any claim presented within one year of knowing or ought reasonably to know the full extent of the damage sustained.¹⁰⁰

The Liability Convention specifically exempts the claimant State from the customary requirement to exhaust all local remedies before making an international claim.¹⁰¹ The claimant State or its nationals may elect to pursue remedies through the domestic courts and tribunals of the launching State prior to presenting a claim under the Liability Convention. However, a claim cannot be made under the Liability Convention while a domestic remedy is being pursued.¹⁰² Presumably, this does not prevent a claim from being presented *after* the failure of the domestic action, nor does this prevent the claimant State from pursuing local remedies after a claim under the Liability Convention had been resolved and the claimant State remain unsatisfied.

4.2. Procedure and a Claims Commission

The Liability Convention provides that a claim for compensation for damage shall be presented to a launching State "through diplomatic channels", which includes existing bilateral diplomatic representations, through another State that maintains diplomatic relations with the launching State or the Secretary-General of the United Nations.¹⁰³ With the utilisation of such diplomatic mechanisms, the claimant State and the launching State are to negotiate a settlement on the appropriate amount of compensation payable, if any.

If the claimant State and the launching State fail to arrive at a settlement within one year of presenting the claim, either party may request for the establishment of a Claims Commission.¹⁰⁴ The Claims Commission comprises three members: one appointed by the claimant State and another appointed by the launching State, with the Chairman to be selected jointly by both parties.¹⁰⁵ The size of the Commission does not increase if there are multiple claimant States or launching States, as the claimant States or the launching States are to collectively appoint one member of the Claims Commission.¹⁰⁶

⁹⁷ Ibid., Article VIII (2).

⁹⁸ *Ibid.*, Article VIII (3).

⁹⁹ *Ibid.*, Article X (1) and (2).

¹⁰⁰ *Ibid.*, Article X (3).

¹⁰¹ Ibid., Article XI (1). ¹⁰² Ibid., Article XI (2).

¹⁰³ *Ibid.*, Article IX.

¹⁰⁴ *Ibid.*, Article XIV.

¹⁰⁵ Ibid., Article XV (1).

¹⁰⁶ *Ibid.*, Article XVII.

The claimant State and the launching State are given two months from the establishment request to appoint the members of the Claims Commission and four months to agree to the appointment of the Chairman.¹⁰⁷ If a party fails to appoint "its" member of the Claims Commission within that time, then the other party may request the Chairman to constitute a single-member Claims Commission.¹⁰⁸ If the parties fail to agree on a choice of Chairman, either party may request the Secretary-General of the United Nations to appoint the Chairman.¹⁰⁹

The Claims Commission is charged with one task only: to decide the merits of the claim for compensation and determine the amount of compensation payable, if any, in accordance with Article XII of the Liability Convention.¹¹⁰ The Claims Commission is to determine its own procedure except that the award is to be decided by a majority vote.¹¹¹

One of the strongest criticisms made against the procedure for the Claims Commission as contained in the Liability Convention is that, unless the parties agree otherwise, the award made by the Claims Commission is of no more than a recommendatory nature, which the parties are to consider in good faith.¹¹² As suggested by some commentators, this means that nothing more than a conciliation procedure is assured under the Liability Convention and only if the parties agree to be bound by the Claims Commission would it then resemble an arbitral tribunal.¹¹³

II. Domestic Implementation

1. Provisions Dealing with Liability

1.1. Overview

As the Liability Convention imposes international liability for damage caused by space objects on the launching States, several governments with an active private space sector have recognised the need to pass on this liability to private operators through domestic legislation. This is in combination with the obligation to authorise and continually supervise the space activities of non-governmental entities under Article VI of the Outer Space Treaty.

Most of the existing domestic legislation in force concerning private space activities imposes some regime of indemnification in order to transfer the liability risk from the government to the private operators. It should be noted that the existence of domestic legislation dealing with liability does not affect the rights and obligations of the State at an international level. The State remains liable internationally pursuant to the Liability Convention and the legislation does no more than to provide a legal basis by which the State can then seek to recover any compensation paid from the private operator through domestic legal channels.

1.2. Australia and Russia

¹⁰⁷ *Ibid.*, Article XV.

¹⁰⁸ *Ibid.*, Article XVI (1).

¹⁰⁹ *Ibid.*, Article XV.

¹¹⁰ *Ibid.*, Articles XVIII and XIX (1).

¹¹¹ *Ibid.*, Article XVI. Indeed, it would be unworkable for the Liability Convention to suggest that a consensus is to be reached, considering that one of the members of the Claims Commission is to be appointed by each of the parties.

¹¹² Liability Convention, Article XIX.

¹¹³ See, for example, Karl-Heinz Böckstiegel, *Settlement of Disputes Regarding Space Activities* (1993) 21 J. SPACE L. 1 at 3.

Both the Australian and the Russian legislation, for example, provide that the private operators are liable to the governments as well as domestic victims for damage resulting from their space activities.¹¹⁴ The Russian legislation provides a guarantee on the part of the Russian Government for compensation for *direct* damage resulting from space activities and cause imposes liability on the private operators either absolutely, in the case of damage caused on the surface of the Earth, or to the extent of fault in the case of damage caused in outer space.¹¹⁵ In Australia, the *Space Activities Act 1998* (Cth) states that the "responsible party" is liable for the launch and/or return of a space object to pay compensation for any damage caused on Earth or to aircraft in flight and also in outer space to the extent that the damage was the result of the fault of the responsible party.¹¹⁶

1.3. United Kingdom

Unlike the laws of Australia and Russia, which utilise the language and context of Articles II and III of the Liability Convention in requiring the private operator to indemnify the government for international liability, the United Kingdom had chosen to impose a more comprehensive indemnity on the private operator. Specifically, the *Outer Space Act 1986* (UK) states that:

"A person to whom this Act applies shall indemnify Her Majesty's government in the United Kingdom against any claim brought against the government in respect of damage or loss arising out of activities carried on by him to which this Act applies".¹¹⁷

1.4. Sweden

This is similar to the position taken under the *Act on Space Activities 1982* of Sweden, which states that:

"If the Swedish State on account of undertakings in international agreements has been liable for damage which has come about as a result of space activities carried on by persons other than the Swedish State, the persons who have carried on the space activity shall reimburse the State what has been disbursed on account of the above-mentioned undertakings, unless special reasons tell against this".¹¹⁸

1.5. Norway and the United States

The laws of Norway and the United States do not specifically require the private operator to indemnify the government for claims for damage under international law. The *Act on Launching Objects from Norwegian Territory into Outer Space 1969* of Norway does no more than to provide for the authorisation and continuing supervision of private activities in accordance with the requirements of Article VI of the Outer Space Treaty. The *Commercial Space Launch*

 ¹¹⁴ Michael Gerhard and Kai-Uwe Schrogl, REPORT OF THE PROJECT 2001 WORKING GROUP ON NATIONAL SPACE LEGISLATION: NEED AND PROSPECTS FOR NATIONAL SPACE LEGISLATION (2001), at p. 18.
 ¹¹⁵ Law of the Russian Federation on Space Activities, Article 30. It should be noted that the guaranteed

¹¹⁵ *Law of the Russian Federation on Space Activities*, Article 30. It should be noted that the guaranteed compensation payable by the Russian Government is limited only to direct damages, reflecting the former Soviet view that indirect damages are not payable under the Liability Convention.

¹¹⁶ Space Activities Act 1998 (Cth), Sections 67-68.

¹¹⁷ Outer Space Act 1986 (UK), Section 10(1).

¹¹⁸ Act on Space Activities 1982 (Sweden), Section 6.

Act 1984 of the United States, on the other hand, chooses not to pass on the liability on the private operator but instead requires the private operator to obtain insurance for the Federal Government, as detailed below.

2. Launching State

2.1. Overview

Although there appears to be some continuing disagreement in academic circles over the scope and definition of a "launching State" for the purposes of the Liability Convention, the state practice as demonstrated through domestic legislation has been somewhat consistent. Of course, it is inappropriate to take into consideration the approach found in the Norwegian legislation as it preceded the Liability Convention.

2.2. Sweden and Australia

The 1982 Swedish legislation appears to draw on three of the four segments in the definition of "launching State" contained in Article I of the Liability Convention. It defines space activities about being activities carried out in outer space and all measures to manoeuvre or in any other way affect objects launched into space.

Specifically, the law provides that:

"Space activities may not be carried on from Swedish territory by any party other than the Swedish State without a licence. Nor may a Swedish natural or juridical person carry on space activities anywhere else without a licence.¹¹⁹"

A similar position can be found in the Australian law, with one notable exception. The *Space Activities Act* requires the launch of space objects from Australia, the operation of launch facilities in Australia and the overseas launch of a space object by an Australian national.¹²⁰ In addition, the law also regulates the return to Australian territory of a space object, regardless of where the space object was launched, even though the return of a space object to Australia would not make Australia liable as a launching State for that space object.¹²¹

2.3. United Kingdom

The United Kingdom has a unique approach to the applicability of its domestic launch legislation. The law applies to the launch or procuring the launch of a space object, operating a space object or any activity in outer space, whether carried on in the United Kingdom or elsewhere.¹²² The law then proceeds to restrict its applicability to nationals of the United Kingdom only.¹²³

In this way, only United Kingdom nationals would be subject to the provisions of the legislation. In other words, a foreign national that conducts space activities in the United Kingdom would not be subject to regulation under the legislation. This results in the United Kingdom not being adequately protected as a launching State if a foreign national launches a

¹¹⁹ *Ibid.*, Section 2.

¹²⁰ Space Activities Act 1998 (Cth), Sections 11, 12 and 15.

¹²¹ *Ibid.*, Sections 13-14.

¹²² Outer Space Act 1986 (UK), Section 1.

¹²³ *Ibid.*, Section 2.

space object from the United Kingdom that causes damage to third parties outside the United Kingdom.

2.4. The United States

The United States legislation requires the licensing of any launch of a launch vehicle or to operate a launch facility in the United States and the launch of a launch vehicle or the operation of a launch facility outside the United States by a "citizen of the United States".¹²⁴ The law defines a "citizen of the United States" as:

- 1. An individual who is a citizen of the United States;
- 2. An entity organised or existing under the laws of the United States or a State; or
- 3. An entity organised or existing under the laws of a foreign country if the controlling interest ... is held by an individual who is a citizen of the United States or an entity organised or existing under the laws of the United States or a State.¹²⁵

In this way, the United States legislation applies also to foreign entities of which there is a substantial holding by a United States citizen or entity. For example, a company incorporated under the laws of the British Virgin Islands would nevertheless be subject to the licensing requirements of the United States law if forty percent or more of its shareholding is in American hands.

- 3. Compulsory Insurance
- 3.1. Overview

Domestic legislation dealing with liability is connected with its provisions dealing with compulsory third party insurance. This is because establishing a compulsory insurance requirement is a way of ensuring that the government is financially protected in its liability exposure under the Liability Convention.

The governments will still be required to pay the damages awarded, but they would be indemnified by the insurers, either through imposing liability on the launch operator or requiring the launch operator to have policies insuring the governments. In the latter case, it would indeed be unnecessary to make the private operators legally responsible for indemnifying the government if they are required to insure the government for any third party liability arising under international law.

3.2. Russia

The Russian legislation states that the private operators are required to have insurance cover for third party damage.¹²⁶ The insurance is required is to cover the "damage to the life and health of the cosmonauts and the personnel at the ground and other objects of space infrastructure, as well as against property damage to third parties" at an amount to be determined by the Russian Government.¹²⁷

¹²⁴ Commercial Space Launch Act 1984 (US), § 70104.

¹²⁵ *Ibid.*, § 70102(1).

¹²⁶ Law of the Russian Federation on Space Activities, Article 25.

¹²⁷ Ibid.

The Russian law specifies that the liability of the private operator is limited to the amount of the insurance cover. However, despite this limitation, the law appears to suggest the possibility of recourse against the property of the private operators in the event that the insurance cover is insufficient to cover the presented claims.¹²⁸

3.3 The United States

The United States framework for compulsory third party insurance is comparatively more detailed than the Russian one. In the United States law, compulsory insurance is required of the licensee unless it can demonstrate direct financial responsibility sufficient to cover the same amount of liability.¹²⁹ The amount of insurance or financial responsibility is based on the maximum probable loss ("MPL").¹³⁰

The United States law does provide for a statutory ceiling in the amount of insurance or financial responsibility required, being US\$500,000,000 for third party claims and US\$100,000,000 for claims by the Federal Government in relation to damage or loss of government property resulting from a licensed space activity.¹³¹ This ceiling may be lowered further if it can demonstrate that the maximum liability insurance on the world market at reasonable cost is less than US\$500,000,000.¹³²

Except in cases where the damage resulted from the wilful misconduct of the licensee, the United States Government would pay for claims arising from damage caused by licensed space activities up to US\$1,500,000,000 as adjusted for inflation since 1 January 1989.¹³³ In other words, the Government would accept liability on behalf of the private operator for liability up to US\$1,500,000,000, part of which was to be indemnified by the launch operator's insurance policy. Clearly this provision can have effect only in relation to domestic claims, as the Government of the United States has unlimited liability under the Liability Convention.

3.4. Australia

In Australia, the holder of a permit or an authorisation has to be insured against any liability to pay compensation for the damage to third parties or otherwise to prove its direct financial capacity.¹³⁴ Similar to the position in the United States law, a private operator is also required to take out an insurance policy covering the amount of the MPL that insures the launch operator and the Commonwealth Government concerning any claims arising from the Liability Convention.¹³⁵

A summary of the Australian position can be found in Figure 1.

¹³⁰ *Ibid*.

¹²⁸ *Ibid.*, Article 30.

¹²⁹ Commercial Space Launch Act 1984 (US), § 70112.

¹³¹ *Ibid.*, § 70112(3).

¹³²*Ibid*.

¹³³ *Ibid.*, § 70113.

¹³⁴ Space Activities Act 1998 (Cth), Sections 47 and 48.

¹³⁵ *Ibid.*, Section 47 and 48 (1) (d); and Michael E. Davis and Ricky J. Lee, *Financial Responsibility and Government Indemnities for Commercial Space Launch Activities-The Australian Approach* (1999) 42 PROC. COLL. L. OUTER SPACE 240; and Ricky J. Lee, *The Australian Space Activities Act 1998: Building the Regulatory Capacity for a Launch Industry* (2002), paper presented at the United Nations / International Institute of Air and Space Law, 17 November 2002, The Hague, The Netherlands.



Figure 1. Summary of Liability Issues under the Space Activities Act 1998 (Cth)¹³⁶

¹³⁶ Lee, *supra* note 135, at 40.

3.5. South Africa and the United Kingdom

Neither the United Kingdom nor the South African legislation require launch operators to have compulsory third party insurance, though both laws specifically allow the government to impose such a condition upon the grant of a licence. It is presumed that, except in the case of scientific or educational organisations, such a condition would be imposed.

In relation to indemnification, the United Kingdom law requires a licensee to indemnify the Government against any claim brought against it concerning damage or loss arising from the licensed activities.¹³⁷ Unless specifically required as a condition of the licence, it would presumably be a commercial discretion on the part of the licensee whether to attain third party insurance. In the case of South Africa, the liability to be passed on to the private operator is determined by the Government as a condition of licence on a case-by-case basis.¹³⁸

3.6. Other Civil Law States

In Sweden, the law requires the private operator to indemnify the Government in case of any liability arising from international law.¹³⁹ However, similar to the position in the United Kingdom, there is no specific legal requirement on the private operator to obtain third party insurance, though presumably the Government may choose to impose this requirement as a condition of licence, even though such discretion is not explicitly stated in the law.

Niklas Hedman suggested that special statutes exist to deal with the strict liability of private operators to reimburse liability incurred by the State.¹⁴⁰

4. Procedure

4.1. Overview

The domestic legislation dealing with launch activities do not tend to specify the particular procedures to be adopted by domestic claimants or foreign claimants wishing to pursue local remedies. It is presumed that, in the case of domestic remedies, the claimants would utilise existing domestic legal mechanisms, courts and tribunals to pursue their claims.

One notable exception is that of Australia, which specifically details the procedure to be adopted in the case of a liability claim in its legislation.

4.2. Case Study: Australia¹⁴¹

The *Space Activities Act* provides for proceedings for compensation under the Act to be brought in the Federal Court of Australia within one year from the day the damage occurred or the day the plaintiff became aware of the damage or would have become aware of the damage if

¹³⁷ Outer Space Act 1986 (UK), Section 10.

¹³⁸ Space Affairs Act 1993 (SA), Section 14.

¹³⁹ Act on Space Activities 1982 (Sweden), Section 6.

¹⁴⁰ Niklas Hedman, Presentation of the Swedish Legislation on Space Activities, in PROCEEDINGS OF THE PROJECT 2001 WORKSHOP ON NATIONAL SPACE LEGISLATION: NEEDS AND PROSPECTS FOR NATIONAL SPACE LEGISLATION 136 at 137.

¹⁴¹ For more information, see Lee, *supra* note 135.

due diligence was exercised.¹⁴² In the case of a foreign third party bringing proceedings in Australia pursuant to the Act, the third party is not allowed to "double-dip" if proceedings brought under the Liability Convention or otherwise in accordance with international law has already been presented to the Australian Government.¹⁴³

One issue of particular interest to Australian space lawyers, from an international and constitutional point of view, is whether the Act is capable of being an exclusive code concerning liability arising from launch activities. From established legal principles, it appears that the Act cannot apply extraterritorially to the extent that it requires a foreign plaintiff to take proceedings only in Australia and only under the Act and, as a result, the possibility of legal actions in foreign courts remains a source of liability for Australian launch operators. On the other hand, if a foreign third party chooses to sue in Australia, then the third party is likely to be bound by any Australian law limiting the liability of a launch operator or satellite operator. In other words, if the Act can validly abolish tort actions by third parties in Australia, the abolition or limitation would apply equally to both Australian and foreign third parties suing in Australia, though it is likely to have no effect on limiting the rights of foreign third parties suing in foreign courts.

It is unclear, however, whether the Act in fact abolishes common law claims based on tort law in Australia. The Australian Government has signalled an intention that the Act was intended to abolish all other third party liability in Australia, especially tort liability, for launch operators.¹⁴⁴ However, there are reasons why an Australian court may not give such effect.

These reasons are:

- 1. The Parliament may not have the legislative power to abolish such common law claims under the Constitution;¹⁴⁵
- 2. The Act does not expressly specify that it intends to substitute or abolish the tort liability of launch operators;
- 3. The Parliament may be considered to have done no more than to limit the amount of compensation payable rather than to abolish tort claims altogether; and
- 4. Section 69(4) of the Act lends further support to the view that the legislative intention was not to exclude tort claims.

On a practical level, the Act effectively limits the compensation payable by launch operators but not to abolish the liability itself. As it is possible for a launch operator to be found liable for an amount exceeding the insured amount, the launch operator is only required to pay compensation equalling the insured amount. While this would be the end of the process for an action brought under the Act, this is not the case if an Australian third party brings an action in tort. This is because Section 69(4) will then have application as the Government will compensate an Australian third party up to an amount of A\$3 billion in excess of the insured amount. If the excess liability exceeds A\$3 billion, no further compensation is payable as the Act effectively exonerates the launch operator or the Government from being required to pay any further compensation to an Australian third party. The reason why the Government indemnity is not

¹⁴² Space Activities Act 1998 (Cth), Sections 72 and 73(1).

¹⁴³ *Ibid.*, Section 73(2).

¹⁴⁴ *Ibid.*, Section 64.

¹⁴⁵ Similar to the constitutions of some federal countries, Section 51 of the Australian Constitution sets out the areas on which the Federal Parliament can legislate, two of which are corporations and external affairs.

available in actions brought under the Act is because the liability would not have arisen "apart from this Section", being Section 69 of the Act.

Where a foreign third party brings a tort claim in Australia or overseas, the governmental contribution provided under the Act is not available as it applies only to liability of the launch operator to Australian nationals.¹⁴⁶ Consequently, in the case of a claim brought overseas, the launch operator is liable for the entire amount awarded to the foreign third party, subject to its ability to call on its insurance cover for at least part, if not all, of the compensation awarded. If the foreign third party brings proceedings in Australia, however, the Act will have application to limit the launch operator's liability and the total compensation that may be received by the third party to the insured amount, regardless of whether the action was framed in tort or pursuant to the Act. As a result, it may be more beneficial for a foreign third party to bring proceedings in its domestic courts concerning large claims, if possible, to maximise the compensation payable.

The Liability Convention provides that a State may bring a claim against Australia where the State or one of its nationals has suffered injury, loss or damage caused by a space object for which Australia is a launching State.¹⁴⁷ The Liability Convention also provides for a claim to be negotiated through diplomatic channels between the governments and, in the event that negotiations fail to resolve the claim, a Claims Commission is to be established to determine the claim.¹⁴⁸ While the Liability Convention does not require the exhaustion of local remedies before bringing a claim, it does prevent a claim to be brought when domestic proceedings have already begun.¹⁴⁹ In other words, a foreign third party may take action privately in domestic courts or to promote its government to take up its claim through the Liability Convention, but not both.

The Act provides that the launch operator is liable to reimburse the Australian Government for the full amount of the compensation or the insurance amount, whichever is lower, provided that the launch was authorised and fully compliant with the conditions of the relevant Space Licence and Launch Permit.¹⁵⁰ As liability under the Liability Convention is imposed on the Australian Government, this effectively means that the Government would pay any amount in excess of the insurance amount claimed by the foreign government.

Conclusions

Since 1972, the Liability Convention has provided guidance on the legal principles to be applied in the case of damage caused by space activities. However, its provisions have to this day remained untested and some of the uncertainties that exist in the Liability Convention continue to fuel academic debates on many occasions. This is further complicated by the increasing privatisation and globalisation of the space industry at a pace not foreseen by the framers of the Liability Convention, prompting several States to recognise the need to legislate in order to be able to pass on its unlimited international liability under the Liability Convention to private operators, through requirements of compulsory third party insurance and indemnification.

While this is unlikely to occur in the near future, it will eventually become necessary for States to reform the liability regime for space activities, similar to the liability frameworks in

¹⁴⁶ Space Activities Act, Section 69(4).

¹⁴⁷ Liability Convention, Article VIII.

¹⁴⁸ *Ibid.*, Article IX.

¹⁴⁹ *Ibid.*, Article XI(2).

¹⁵⁰ Space Activities Act, s 74(2).
place in international maritime and air law, in order to reflect the nature of the space industry and to reduce the emphasis being placed on States to be liable for the activities of private operators.

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The Liability Convention and Dom estic Regulatory Responses to its Implications

Ricky J.Lee

United Nations / Republic of Korea Workshop on Space Law aejeon, Korea -3 - 6 Novem ber 2003

Liability Convention

- Liability for dam age caused by space objects w as one of the first issues debated betw een States w ith in the fram ew ork of the LegalSub Comm ittee of COPUOS
 1967 Outer Space Treaty
 - Liability prescribed under Article VII

 States to take international responsibility for non-governm ental activities under Article VI

HE LIABILITY CONVENTION AND OMESTIC REGULATORY RESPONSES TO ITS IM PLICATION.

Liability Convention

- 1972 Liability Convention
 - Adopted after over a decade of discussions and various proposals
 - Herbert Reis suggested that it intended to give assurance to victim States that a launching State willpay a just claim
 - Substantial provisions can be divided into Liability Provisions and Procedural Provisions

HE LIABILITY CONVENTION AND OMESTIC REGULATORY RESPONSES TO ITS IM PLICATION

• Launching State

- Liability Convention imposes liability for dam age only on the "launching State"
- Possible to have more than one launching State for each launch – but not too many
- Should take into account:
 - Multinational nature of the industry
 - Launch operator and private satellite operator from different States
 - Sale and transfer of the satellite

HE LIABILITY CONVENTION AND OMESTIC REGULATORY RESPONSES TO ITS IM PLICATION.

Suborbitals / Attem pts

- Suborbital launches suggested to be excluded from the Convention
- Maybe covered as an "attempt" at launch
- Definition of "attem pt"
 - Must be intended to succeed
 - Involves perpetration or execution of m eans that have come close to success
 - This would excluded a suborbital launch intended not to reach orbit

Launch Vehicle / Space O bject

- No com plete definition of "space object"
- Definition of "launch vehicle" is a problem for air and sea-based launches
- A space object is defined to include its com ponent parts as w ellas its launch vehicle and parts thereof
- Particular issue of whether orbital debris can be classified as "space objects" by virtue of being a "component part" of one

•• Fault

- Article III of the Liability Convention
- Differences in perspectives on "fault" in civiland common law systems
- Particular problem s in the attribution of fault liability on launching States:
 - Satellites sold / transferred after launch
 D am age caused by debris left behind

by the non-operational satellite

HE LIABILITY CONVENTION AND OMESTIC REGULATORY RESPONSES TO ITS IMPLICATION.

D irectD am age

- Dam age defined as being "loss of life, personal in jury or other in pairm ent of health, or loss of or dam age to property"
 This gave rise to the Soviet position that only direct dam age under these four heads are recoverable
- Im pairm ent to health is considered to include physical, mentalor radio logical in jury to individual persons

HE LIABILITY CONVENTION AND OMESTIC REGULATORY RESPONSES TO ITS IM PLICATION.

DirectDam age

- Losttim e and earnings
- Im paired earning capacity
- Destruction and deprivation of the use of property
- Loss of profits from business interruption
- Loss of rents

E LIABILITY CONVENTION AND MESTIC REGULATORY RESPONSES TO ITS IM PLICATION

- Medicalcosts
- Mentalim pairm ent and nervous shock
- Pain and suffering
- Hum iliation
- Costs of repair to dam aged property
- Costs incurred to
 m itigate the dam age
 caused by the object

IndirectDam age

Academ ic support for the view that the term caused in Articles II and III refer to nom ore than amere causal connection between the space object and the dam age Econom ic loss suffered by third parties would be considered indirect dam age • Continuing inconsistency over search and recovery costs under the Rescue Agreem entand the NPS Principles

HE LIABILITY CONVENTION AND OMESTIC REGULATORY RESPONSES TO ITS IM PLICATION.

•• Moraland Punitive Dam ages

- The United Statesw as of the view that m oraldam ages, being nom inaldam ages aw arded for in jury to the dignity or sovereignty of a State, are recoverable
- It is difficult to see the causal connection between the space object and the dignity and sovereignty of a State
- Space objects causing dam age is not a breach of international law

HE LIABILITY CONVENTION AND OMESTIC REGULATORY RESPONSES TO ITS IM PLICATION.

•• Moraland Punitive Dam ages

- Punitive dam ages are unrecoverable under the Convention because:
 - The Liability Convention considers dam ages to be com pensatory in nature
 - Punitive dam ages are generally aw arded only for intentional acts
 - The liability of the launching States is already unlimited to the extent of restitutio in integrum

HE LIABILITY CONVENTION AND OMESTIC REGULATORY RESPONSES TO ITS IM PLICATION

Procedure:RighttoClaim

- Right to claim under the Convention:
 State of nationality of the victim (s)
 State on w hose territory the dam age is caused by the space object
 - Any other State
- There is no specific time limit that a State is allowed to decide on making a claim
- No requirem ent for a State to expressly state its intention not to make a claim

HE LIABILITY CONVENTION AND OMESTIC REGULATORY RESPONSES TO ITS IM PLICATION.

• Claim sCom m ission

- States are to negotiate through dip lom atic avenues to achieve settlem ent
 After one year of making the claim, an
 - unresolved claim can be referred to a <u>Claim s Commission</u>
- Unless the parties agree beforehand, the aw ard m ade by the C laim s C om m ission is recom m endatory on ly
- No com pulsory binding m echanism

HE LIABILITY CONVENTION AND OMESTIC REGULATORY RESPONSES TO ITS IMPLICATIONS

• Dom estic Responses

The Liability Convention does not require States to legislate on private space activities - only Article VI of the Outer Space Treaty in poses such a requirem ent States have found it desirable though not necessary to legislate to pass on liability under the Convention to private entities There are differences in the w ay in w hich States dealw ith liability issues

HE LIABILITY CONVENTION AND OMESTIC REGULATORY RESPONSES TO ITS IM PLICATION.

Liability

- Australia and Russia specifically refer to the Liability Convention to require the private operator to indem nify the Governm ent for international claim s
- Sweden and the UK.require indem nification of all claim s against the Government, regardless of its basis
- The U.S. law simply requires the launch operator to insure the Governm ent

HE LIABILITY CONVENTION AND OMESTIC REGULATORY RESPONSES TO ITS IM PLICATION.

• Launching State

- Most States refer to a territorial or nationality connection to the licensee – satisfying most (not all) of the lim bs of the launching State definition
- Australia requires licensing of returns to Australia, regard less of launch origin
- The UK.appears to apply only to British nationals - so a foreigner launching from the UK.may not require a licence

•• Launching State

- The U.S. requires licensing for:
 - Individual citizen of the U S.
 - Entity organised or existing under the law sof the U S.or a State
 - Foreign entity w ith a controlling interest held by a U S.national
- This is an expansion of the U.S.view of the definition of an "appropriate State" and not that of a "launching State"

HE LIABILITY CONVENTION AND OMESTIC REGULATORY RESPONSES TO ITS IM PLICATION.

•• Com pulsory Insurance

- U.S. law requires the launch operator to insure the Government
- Australia and Russia require operators to have insurance for their indem nity obligations to the Governm ents
- Australia and the U S.have liability ceilings to assist the launch industry
- South A frica and the UK.allow State discretion in their insurance conditions

HE LIABILITY CONVENTION AND OMESTIC REGULATORY RESPONSES TO ITS IM PLICATION.

•• Conclusions

- The Liability Convention, despite its clear benefits, still gives rise to som e problem s over the precise content of its provisions
- Mostim portant problem s are perhaps the inflexibility of the launching State definition and the lack of a com pulsory binding mechanism
- Hopefully there will never be a claim that will clarify the application of the term s

HE LIABILITY CONVENTION AND OMESTIC REGULATORY RESPONSES TO ITS IM PLICATION



Commentary Paper on The Convention on International Liability for Damage Cause by Space Objects and The Domestic Regulatory Responses to Its Implication

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Introduction

Space Activities important nowadays Regarded as risky and dangerous ۲ Liability most commonly discussed However, 1972 Liability Convention considered as ٨ inadequate in addressing: 1. Issues of 3rd party liability; 2. Private space activities; 3. Settlement of disputes. States have to consider adopting International treaties as domestic legislation

Development of Liability Convention

Being discussed since 1958

Proposed by US in 1962 during the 1st meeting of UNCOPUOS Legal Subcommittee. Adopted in 1972

Referring to Art. VII of OST

"... internationally liable for damage to another State Party to the Treaty..."

4 essential elements proposed by US:

I. An explicit rule that the demonstration of fault cannot be a requirement of or prerequisite to liability

2. The standards to be applied to evaluate the damage suffered and the appropriate compensation payable

3. A denial of the traditional requirement for the claimant to exhaust all appropriate local remedies

4. The imposition of specific time limits on negotiation for settlements and the establishment of impartial claims commission to "advise" the parties

Liability Provisions

Art. I Introduces the concept of a "Launching State" as states that launches, procures the launch, whose territory or facility used.

Q. Private multinational companies.

Art. II Provides for Absolute Liability for damage on the "Surface of the Earth" and "Aircraft in flight".

Q. Deep seabed.

Art. III Provides for Fault Liability for damage in outer space.

Q. Another launching state.

Art. IV(I) Provides on Joint and Several Liability based on absolute or fault.

Art. IV(II) Deals with compensation for the damage.

Art. IV Provides reasons for exoneration from absolute liability.

Art. XII Suggests way for determining compensation payable.

Modern Liability Controversies

- 1. Launching State
 - Sea Launch Project
 - Air Launch
 - Sub-orbital Launch
 - States procuring a Launch
- 3. Fault
 - Civil Law Systems
 - Common Law Systems

2. Space Object

- Space Debris
- Pieces and Fragments

4. Nuclear Power Sources
- Cost of recovery and clean-up
- NPS Principles; reimbursement

Calculation of Damages

1. Approach

- Art. I define damage
- Art. XII provides on damages payable in compensation.
- 2. Direct Damage
 - Art. I 4 kinds.
- 3. Indirect Damage and Economic Loss
 - Art. II and III damage 'caused' by space object
- 4. Moral or Punitive Damages
 - Moral International Law
 - Punitive Unnecessary and Unrecoverable

Procedural Issues

1. Right to Claim by / to States

Art. VIII - damage suffered by / to private entities to be presented within 1 year

2. Procedure and A Claims Commission

- Through diplomatic channels
- Establishment of Claims Commission
- Appointment of Claims Commission members

Domestic Implementation A. Provision Dealing within Liability Need to past on this liability to private operators through domestic legislation 1. Australia and Russia 2. United Kingdom 3. Sweden 4. Norway and United States **B.** Launching States 1. Sweden and Australia 2. United Kingdom 3. United States

Domestic Implementation

C. Compulsory Insurance

1. Russia

- 2. United States
- 3. Australia
- 4. South Africa and United Kingdom
- 5. Sweden

D. Procedure

- Case Study : Australia

Conclusion

The Liability Convention as a guidance and remained untested to this day.

Uncertainties in the Liability Convention continue its debates.

Revisiting the 1975 Registration Convention: Time for Revision?

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Introduction

One important step in the work of the Legal Sub-Committee of the Committee on the Peaceful Use of Outer Space (COPUOS) was successfully finalized in 1975: the UN Generally Assembly adopted the Convention on Registration of Objects Launched into Outer Space (Registration Convention), which contains detailed rules on the registration of space objects launched into outer space. The establishment of the registration requirement can basically serve two functions as identified by Prof. Diederiks-Verschoor: "(1) a well-ordered, complete and informative register would minimize the likelihood and even the suspicion of weapons of mass destruction being furtively put into orbit; (2) it is not possible to identify a spacecraft that has caused damage without an international system of registration."

The Convention, consisting of 12 Articles, supplements Article VIII 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 (Space Treaty). As an important international document, the Convention is not merely an attempt to resolve principles of public international law, rather it is an international effort to produce an international codification of administrative legal doctrine.

Scholars have commented on the Convention in depth concerning its application in space operations. Almost 30 years of its peaceful existence clearly demonstrates its applicability. According to Article X of the Convention, the question of the review of the Convention shall be included in the provisional agenda of the United National General Assembly in order to consider the necessity of revision. The Assembly decided that there was no such need in 1986, exactly ten years after the implementation of the Convention.

Nevertheless, with more and more space activities taking place on a daily basis, along with the trend of commercialization, severe challenges have been set on the continual application of the Convention. Particular concerns have been made with the trend of privatization of space activities. It is indeed time to carry out a serious review of the Convention and make revisions along with the development of space activities. Furthermore, as identified by several scholars, the Convention entails several drawbacks. We should take the opportunity to study the issues having been identified and make further improvements. Also as stated in Article X of the Convention, at the request of one third of the States Parties to the Convention and with the concurrence of the majority of the States Parties, a conference of the States Parties shall be convened to review the Convention at any time after the Convention has been in force for five years. Accordingly, a well-

informed research on the Convention at the present stage might serve a strong support and basis for the coming conference. The present paper intends to take up this challenging task and make tentative comments. Several areas for possible revision will be identified in the paper.

I. Clarification of Certain Conceptions

Following the example of the Convention on International Liability for Damage Caused by Space Objects (Liability Convention), the Registration Convention starts by defining several important terms: "launching state", "space object" and "state of registry". The definitions arouse serious discussions, which lead to the conclusion: the definitions are neither clear nor satisfactory.

1. Launching State

Among the most important rules figures the definition of "launching State", which is argued by many scholars as one of the major difficulties impeding the development of commercial space activities. A proper definition of "launching State" is vital to the determination of State liability for national activities under the Space Treaty and the Liability Convention.

The problems arising out of the definition can include: a proper understanding of a procuring State; the application of Article VIII of the Space treaty; the determination of a launching State in case of transfer of ownership; the relationship between a private entity and a State, etc. The current definition is criticized for failing to answer the new issues arising out of commercialization and privatization of space activities. While commercialization is an inevitable trend in outer space, it is urgent to clarify the concept of "launching State". One working group of the Legal Subcommittee of the UNCOPUOS presented its deliberations in 2002, offering the first result of intergovernmental discussions on this issue.

1.1. Transfer of Ownership (Non-Launching State)

The practice of transferring the ownership of satellites is not unusual. References can be made to the transferring of AsiaSat 1 from the UK register to the Chinese one during the transfer of sovereignty of Hong Kong to China. In this case, there will be no problem since China, as the place for the original launching, is one launching State.

However, problems will arise when a satellite is sold to a State, which is not an original launching State, as defined by the registration Convention. The new State, while not a launching State, shall not bear any liability according to the Liability Convention, which provides that only launching States will bear liability. This shall cause unfair results. Generally, the space object is under the new State's jurisdiction and control, but this new state will not undertake any liability for damages caused by the space object just because it is not an original launching State. Those original launching States are liable for damages, which they have no ability to prevent. To resolve this problem, it would be advisable to extend the meaning of "launching State" as follows: a launching State is not required to be an original launching State. Further determination of other possible definitions of launching State can be identified in the term "State of registry".

1.2. Involvement of Private Entities

Privatization of space operations is not a new topic. Private entities, including international organizations, multinational corporations, are increasingly involved in the launching activities. As far as an international organization is concerned, this is easy: the organization represents the total of States concerned. Such organizations can declare their acceptance of the

rights and obligations provided in the Convention. If no declaration is made, we might need to check their constituent documents trying to find out their legal personality in certain activities. Actually, even if the organization has the capacity to act as a virtual State of registry, it never has the capacity to exercise true jurisdiction, since that is a typical and very fundamental prerogative of a sovereign State.

When other private parties are involved, the situation becomes complicated. States are not necessarily aware of the detailed operations. Thus, it is still reasonable to subject a State, instead of the private entity directly involved in the operation, to possible liability? In a private launching activity, where States are not the right body to control the operations, is it still appropriate to restrict the body only to States?

The present author is for the existing system: launching States should be responsible for all space objects, commercial or government, launched into space. They are liable just because of the national registration system for the private entities. A corporation needs to be registered in a State, which shall examine the legality of the entity and issue certificate for its future operation. The activities of the corporations are subject to the State's supervision. Thus, to prevent unnecessary liability, the State should strengthen its registration system and issue the business permit. As provided by some national legislation, States should always maintain a register of space objects, no matter whether they are launched or procured by the Government or private entities. One potential approach as recommended by the working group of the UNCOPUOS is to implement national laws to authorize and provide continuing supervision of the activities of their nationals in outer space. Accordingly, States should act in good faith when passing national laws on the issues of authorization, supervision and licensing of private enterprises to operate launch services and ensure the availability of a just compensation to avoid international obligations becoming a dead letter. The same should also go to non-governmental organizations: the State of registration of the organization should be the State to take care of the issue.

1.3. Understanding of "Procurement"

Quite a lot of discussions have been in place concerning "a State procuring the launching". It is obvious from the wording of the Convention that a distinction was made between the act of launching and the procurement of a launching. Also it is evident from this term that a procuring State is acting on behalf of outside entities which have an active initiative to launch a space object. It has been suggested that a State has to be at least somehow actively involved by requesting, initiating, or at least promoting the launching of a particular space object in order to consider it as having "procured" the launching. The sole action of providing a space object per se will not satisfy "procurement"; the procurement requires active and substantial participation in launching activities. Accordingly, in an increasingly interrelated scientific and technological society, where a finished product is often the result of many components manufactured globally, there is a substantial need to know what is to be identified as a procurement and the circumstances upon which legal liability may be assessed.

Considering the sheer number of States, which might be involved in the launching, starting from production of space objects to the final registration, it is further proposed to ask for an "active and substantial participation" in the launch in order for a State to be considered as one of the launching States. No doubt, the term "procurement" should entail the elements identified by the statement above for "launching State": a procuring State is itself a launching state.
1.4. Application of Article VIII of Space Treaty

Acknowledging the difficult situation caused by the definition of "launching State", some may suggest that non-launching States can make use of Article VIII of the Space Treaty. This suggestion, while trying to accommodate the needs of bringing non-launching States to the liability regime, is in contradiction with the general legal practice. It has been widely recognized that the Registration Convention is a further elaboration of Article VIII of the Space Treaty: the purpose of the Registration Convention is to clarify and solidify this Article. In this sense, the Registration Convention is a specific regulation, the Space Treaty (or recognized as a constitution for outer space), is general law. According to jurisprudence, once there is conflict between general law and specific law, specific law shall be applied. Only when the subject matter is outside the scope of specific law, shall general law be resorted to.

The emergence of non-launching States results from the practice of transferring the ownership of space objects, which did not exist during the drafting of the Registration Convention. The Convention has specifically identified the scope of launching States, which has obviously fallen behind the present practice. The task for the time being is to make modifications to the present Convention, but not returning to the Space Treaty, which consists only of principles for further clarification. It is easy that the Space Treaty, with general principles, acts as a panacea; however, this will forestall the development of space law. Loopholes always exist in laws no matter how well they have been elaborated, the point is to improve the existing rules and complement the mechanism.

2. Space Object

It has been pointed out that the definition of "space object" is neither clear nor satisfactory. First of all, do space objects entailed in the Convention include those launched in outer space? There is no consensus on whether a spacecraft or satellite constructed or launched into outer space falls within the definition of "space object". For the present author, the location of the launching activities does not change the nature of the space object. Territorial connection only has relevance when defining launching States from whose territory space objects are launched. This can happen in the high seas, Antarctic, as well as in outer space where no State can claim sovereignty. The identification of such objects can be more difficult than those launched from a territory, however, the registration can be the way out.

Secondly, the Convention provides that States must notify the UN Secretary General of objects that are no longer in space; however, the status of space debris is not identified. Will the original launching States continue to be liable for damages caused by space debris from the original space object? If this space debris can be identified, then the issue is easy to resolve. Once a space object ceases operation, the original launching States should take some measures to prevent future damages; in case damages occur, these States should continue to be liable. Furthermore, the original launching States have more knowledge and necessary technology in alleviating the damage. The continual liability shall in turn make the original States more careful in initiating the original launching.

However, a difficult situation arises when the space object cannot be identified, and as a result, claims for damages can be very difficult to substantiate. Obviously, the Convention failed to foresee this situation, believing that registry of objects would facilitate claims by identifying the origins of space objects. Accordingly, it is important to address this problem and possibly provide in the Convention some guidelines for claims when the object causing the damages

cannot be identified. This shall be further elaborated later concerning the information to be furnished in the registration.

Thirdly, in case a space object consists of component parts individually registered by different States, the problem arises: how to identify the object as a whole? There are no obligatory guidelines available. The resolution of the problem relies on the cooperation among the States. The launching States should agree beforehand that the State of registry will register the complete structure as a new space object in accordance with the Convention. One good example can be the construction of the International Space Station. This shall be further discussed in the following part on cooperation among launching States.

3. State of Registry

The term can only be found in the Registration Convention. No other space treaties have made use of this term. For example, in the Liability Convention, launching State(s), not the State of registry, shall be liable for possible damages. Many scholars have come to the conclusion that State of registry is the launching State or one of the launching States. It is thus necessary to identify the purpose of defining the term "State of registry": is the sole purpose of using this term simply meant to require one State to register the space object? From the absence of the term in other treaties, we might come to a positive answer: the term does not help in regulating the status of space objects or the consequences of operating them. For this purpose, it is thus not necessary to identify nationality with relevant registration, although in practice it happens that the State of registry automatically confers its nationality on a space object.

Nevertheless, this understanding above can cause some problems. Is State of registry the one that has full control and jurisdiction over the space object? This might be true when the practice of selling space objects is not common. The launching States may agree upon the State of registry, which can exercise its jurisdiction and control the object. Accordingly, an agreement can settle the issue of registry. However, the transfer of ownership of space objects to a Sate which is not a "launching State" can take place, which shall result in the transfer of power of control. While not a launching State, the buyer is neither allowed to be the State of registry, nor undertakes any liability under the Liability Convention. This situation is totally ridiculous.

While it is possible that launching States may claim compensation from the buyer after paying the damage to a third party, it would be better to extend the State of registry to a Sate with true ownership. This would bring the Convention in line with the new development. One way out could be by adding one sentence afterwards: "in case of a non-original launching State, " the State of registry" further refers to a state maintaining its jurisdiction and control over the said space object". Several elements can assist in determining "jurisdiction and control": direct commercial benefits from the operation of the space object; the transfer agreement; the restriction of retransfer; etc.

II. Ambiguities in the Existing Registration System

The Convention provides the first move in formalizing the registration system. Proposals for revisions were submitted early in 1984. However, no measures have been taken. It is necessary to reiterate some shortcomings that have been identified and offer further comments on the existing registration system.

1. Provision of Information

Article IV provides the requirements for registration, in which five items are identified. This provision is challenged by the use of Nuclear Power Sources (NPS). The risks inherent in using NPS aroused the attention of scholars. A Resolution was adopted concerning the safe use of NPS in 1992: Principles Relevant to the Use of Nuclear Power in Outer Space. This Resolution provides that any State launching a space object with NPS on board shall in a timely manner inform States concerned if there is a malfunctioning of the space object with a risk of re-entry of radioactive materials to the Earth; furthermore, the updated information shall also be transmitted to the Secretary-General of the UN with the same frequency. As understood from COPUOS documents, the Registration Convention does not obligate States to furnish information on the presence of NPS on board space objects, although such information could be voluntarily given. Accordingly, one might think that the NPS Principles bring additional rules to the Registration Convention, which—being of only recommendatory character—may not be considered to amend the legally binding treaty.

It is thus necessary to consider whether the information concerning the use of NPS should be provided during the registration, a this question also goes to the information concerning the presence of arms systems on board space object. The purpose and functioning of space objects, etc. For example, the Convention provides that the "general function" of the space object needs to be disclosed, however, the term "general function" is subject to various interpretations, allowing for the protection of the identity of military satellites, which perform an entirely legitimate function under the law. Furthermore, while giving answers as to what objects are in outer space, the Convention fails to provide information on where the space objects can be found.

As identified earlier, the main problem emanating from the requirements above lies in the unwillingness of States to disclose relevant information concerning military purposes, spying etc. No better way can be found so far, nevertheless, the provision in the Convention shall further reiterate the principle of peaceful use of outer space and be used as a safety valve in case some serious violations occur. Some might argue that the inclusion of new requirements is not practicable in reality; however, this new inclusion can serve as a potential preventive force, which can constantly remind the potential launching States of the obligation of peaceful use.

Another matter having been raised is the timing of the information. The term "as soon as practically possible" is used in the Convention. This is a rather subjective criterion. Launching States may and do interpret the term as weeks or months following the launch. Scholars have rightly criticized the ambiguity of the term. A proposal has been put forward to impose a limit of two hours within which a report of a launch of a nuclear power source would have to be made to the UN Secretary General and a limit of 24 hours for reporting other satellite launches. This proposal might be too strict; some margin will have to be allowed for legitimate reasons. Some other proposals have been more lenient, requiring the change of the term to "the UN Secretary General shall be informed promptly". Thus, it is necessary to take into account all those proposals and set an appropriate line for determining the timing of the information. This will be helpful to assist the operability of the Convention.

2. Enforcement Mechanism

Becoming a party means that the State concerned needs to comply with the rules of the Convention, or some measures might be imposed on you in case of violation. It is without doubt that the Convention, as an important international treaty, obliges member States to fulfil the

commitments contained in the document. This is the same with the Registration Convention as well as with all other space law Conventions.

However, the fact is that space law treaties generally lack strong enforcement mechanisms. This situation is similar to the treaties related to protection of intellectual property rights. Thanks to the WTO TRIPs, strong enforcement and dispute settlement mechanisms are in place now, which provide a strong support to the enforcement of intellectual property rights. One may even consider space treaties as "quasi-soft law". While not soft-law in the real sense, the lack of enforcement mechanisms can depreciate the Conventions. The term "quasi-soft law" differs from "soft law" in that the latter cannot be considered as "full-fledged" rules of international law. The space law treaties are indeed rules of international law, however, "grey area" exists in the enforcement and in its compulsory nature, just the same as "soft law" in that there exists a considerable "grey area" between the white space of law and the black territory of non-law. Accordingly, the performance of the obligations in the space law treaties rests on the concept of good faith or voluntary compliance.

Consequently, some provisions might be added to describe in some detail how enforcement has to be handled, including rules for provisional measures, injunctions, damages and other penalties. Some body, say for example the UNCOPUOS or the UN Secretary General, should have the right, under certain conditions, to order the obligatory registration of certain objects and certain information.

3. Customary Law

Now it is very important to see whether the provisions in the Convention constitute customary law. This is relevant to the question of the application of the Convention to non-State parties since so far there are only 45 State Parties to the Convention. It is to be noted that early in 1961 the UN General Assembly had requested launching States to furnish information promptly to UNCOPUOS for the purpose of registration. However, only after the enactment of the Registration Convention in 1975, did the registration and provision of relevant information become a legal obligation.

To be regarded as customary law, two elements should be satisfied: practice and acceptance of such practice as law. It is rather doubtful that the provisions in the Registration Convention constitute customary law. Far fewer states are members to the Convention, compared with the Space Treaty, which has 97 members. More importantly, even among the members, some are unwilling to furnish information, which is deemed sensitive; some might provide information at a time totally at their own discretion. Often States delay registering or do not register completely. Accordingly, the practice has been rather divergent concerning registration.

This is contrary to the implication of customary law: the appropriate test for customary law would require universal acceptance of the proposition as a legal rule by States and recognition of it as a rule of *jus cogens* by an overwhelming majority of States, crossing ideological and political divide. Thus, Lauterpacht comments that "...assuming here that we are confronted with the creation of new international law by custom, what matters is not so much the number of states participating in its creation and the length of the period within which that change takes place, as the relative importance, in any particular sphere, of States inaugurating the change." To the extent customary law exists for space law at all, it binds all States whether their consent be express or implied by silence in the face of emerging legal norms. Consensus has developed that the customary law that applies to space activities includes essential principles of the Outer Space Treaty which have been accepted by all states active in outer space by practice and with *opinio juris* after ratification, and where no evidence of dissenting practice on the part of non-ratifying states is available. Unfortunately, this is not the case for the practice identified with the Registration Convention.

4. Cooperation among Launching States

Cooperation among launching States during the launching stage is vital to the successful launching. As provided in the Convention, in case of joint launching, agreement between the parties is required as to which of them is to be deemed the "State of Registry". Such cooperation should certainly continue at a later stage. As provided in the Convention, the launching States shall jointly determine the State of registry and shall be jointly and severally liable for any damage caused, etc. Thus, proper coordination among the States is important to sort out the issues above.

As far as this is concerned, the cooperation among the States involved in the International Space Station Project provides a very good example. An Intergovernmental Agreement (IGA) was reached in 1988, which was later substituted by a new one in 1998 with the participation of Russia. The IGA offers a long-term international cooperative framework for detailed design, development, operation, and utilization of a permanently manned civil Space Station for peaceful purpose. Article 5 of the IGA provides the issue on registration: jurisdiction and control. The agreement also establishes a distinct liability regime among the States, which can well resolve future disputes. Accordingly, it might be advisable that all launching States reach an agreement before carrying out launching activities laying down detailed arrangements of registration, liability, etc.

To conclude an agreement can be especially meaningful to unregistered space objects. By making reference to the agreement, the unregistered object can be well identified and liabilities arising out of the object can be well coordinated among the launching States, even though no one is the State of registry. Furthermore, agreements on applying national insurance and safety requirements can well resolve the issues of compensation at a later stage.

Conclusion

The Registration Convention is an important development in the history of space law legislations. The enactment of the Convention has helped clarify troubling issues concerning the identification of space objects and contributed to the application and development of international law governing peaceful use of outer space. However, as widely advocated by space lawyers, more mandatory and extensive requirements would improve the Convention. New developments in space activities and changing attitudes among space practitioners further necessitate the revision as desirable. It is under this fast changing background that the ongoing research tasks concerning the Convention are more than necessary: the discussion of loopholes and possible areas for improvement can hopefully lay a foundation for future work undertaken by the UNCOPUOS.

Revisiting the 1975 Registration Convention: Time for Revision?

United Nations/Republic of Korea Workshop on Space Law

> Yun ZHAO City University of Hong Kong

Registration Convention

- 12 Articles, supplementing Article VIII of the Outer Space Treaty
- Two functions:
- -minimizing the likelihood of putting in orbit weapons of mass destruction
- -identify a spacecraft
- International codification of administrative legal doctrine

Article X

The question of review to be included in the provisional agenda of UNGA ten years after the entry into force of the Convention
But the GA decided no need in 1986
New challenges afterwards: commercialization; privatization; etc.

The Need for Revisions

 Clarification of Certain Terms -Launching state -Space object -State of registry Multiple in the Registration System -provision of information -enforcement mechanism -customary law -cooperation among launching states

Launching State

- (A) A State which launches or procures the launching of a space object
- (B) A State from whose territory or facility a space object is launched
 - One of the major difficulties impeding the development of commercial space activities

Launching state: transfer of ownership

- Problems arise when a satellite is sold to a State, which is not an original launching state.
- Liability Convention: only launching states will bear liability---so dilemma
- So a launching state should not be required to be an original launching state

Launching state: private entities

- International organizations: represents the total of states concerned
- Other private parties: launching states should be responsible for all space objects since they control the national registration system (business permit)

Launching state: procurement

- Distinction between the act of launch and the procurement of a launching
- Procurement: a state has to be actively involved by requesting initiating, or at least promoting the launching of a particular space object (active and substantial participation)

Launching state: Article VIII of Outer Space Treaty

- Non-launching state: use this article?
- Specific law should prevail general law: Registration prevails article VIII in case of conflict
 - Registration Convention has clear mind of limiting to launching state, thus we need to modify and develop the rules, not simply falling back to Outer Space Treaty.

Space object

- The status of those launched in outer space: the location of launching activities does not change the nature of space object.
- Space debris: the continual liability shall in turn make the original states more careful in launching
 Component parts individually registered by different states; states should agree beforehand

State of Registry

- Normally it is the state which can exercise its jurisdiction and control the object.
- In case of transfer to a state not belonging to the original launching state, the new state cannot register.
 - It is better to extend to a state with true ownership: jurisdiction and control

Provision of information

- Article IV: five items to be identified
- Use of NPS, presence of arms systems, purpose and functioning of space objects, peaceful use of outer space

"as soon as practically possible": how to determine the timing of information?

Enforcement mechanism

- Quasi-soft law: no strong enforcement mechanism
- Grey area between the white space of law and the black territory of non-law
 - Rules for provisional measures, injunctions, damages and other penalties

Customary law

- 45 parties; some are unwilling to furnish information which is deemed sensitive
- Contrary to the implication of customary law: the appropriate test would require universal acceptance of the proposition as a legal rule and recognition of it as a rule of *jus cogens* by overwhelming majority of states, crossing ideological and political divide

Cooperation among launching states

- ISS project offers a good example: article 5 of IGA provides issues on registration
- An agreement is meaningful especially to unregistered objects

Conclusion

- An important legislation in space law
- More mandatory and extensive requirements would be needed

Thank You!

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Annex I

Observations and conclusions of the Workshop

I. United Nations treaties and principles on outer space

The Workshop agreed that the United Nations outer space treaties considered by it, taken together, provided a comprehensive legal framework for the exploration and use of outer space. It also agreed that the treaties offered numerous benefits and encouraged States to ratify them.

The Workshop further agreed that the United Nations principles addressed important specific space activities and were available for considering the ongoing development of space law.

1. The Outer Space Treaty

The Workshop noted that the Outer Space Treaty, in particular articles VI, VII and VIII, strongly encouraged States to consider establishing national space legislation, in particular where private entities became involved.

The Workshop encouraged States to authorize and provide continuing supervision for national space activities by way of national legislation or any other means in order to ensure that national activities were carried out in conformity with the provisions of the Outer Space Treaty. With reference to article VI of the Treaty, the Workshop noted that the concept of "international responsibility" was broader than "state responsibility" and included all acts and not only wrongful acts.

With reference to article II of the Treaty, the Workshop agreed that the principle of nonappropriation remained fully valid and vital.

With reference to article II, the Workshop noted the existence of divergent views as to whether, and if so, to what extent, the use of resources by private entities required specific authorization under article VI. Many legal specialists were of the view that authorization by the appropriate State party was always required, while others were of the view that no specific authorization was required and that any breach of obligations under the Treaty would be a matter to be resolved between the private entity and the State party. Nevertheless, the State party would have the international responsibility for any breach of the private entity.

The Workshop agreed that the use of resources by any private entity, whether or not specifically authorized, did not impute ownership of territory or resources in situ.

The Workshop agreed that development of an appropriate legal framework could encourage and facilitate the private use of space resources in ways that would be fully consistent with the principles of articles I-III and VI of the Outer Space Treaty. The Workshop noted that appropriate national space legislation should be a high priority for States involved in space activities.

2. The Rescue Agreement

The Workshop noted that some States not parties to the Rescue Agreement had nevertheless provided information to the Secretary-General of the United Nations on objects discovered in their territory. The Workshop welcomed such notifications and agreed that other States that had not yet become parties to the Rescue Agreement should be encouraged to provide information on objects discovered on their territories in accordance with the provisions of the Agreement. The Workshop discussed whether the continued provision of information by States not parties to the Agreement could lead to the conclusion that the notification provisions of article V of the Rescue Agreement had become customary international law.

The Workshop noted that under the Rescue Agreement "territory under the jurisdiction of a Contracting State" should include maritime zones under the territorial sovereignty of a State. The Workshop noted that, while the Rescue Agreement provided that the launching authority should bear the expenses of a contracting party in relation to fulfilling its obligations to recover a space object and to return a space object, there was no such equivalent provision for the rescue and return of astronauts.

The Workshop agreed that it was desirable for a launching authority to provide advance information to the greatest extent possible, to the States concerned and to the Secretary-General, on objects that are returning to Earth, in particular those of a potentially hazardous nature. The Workshop noted that such information could be provided under article IV of the Registration Convention, which provides that the State of registry may, from time to time, provide the Secretary-General of the United Nations with additional information concerning a space object carried on its registry.

The Workshop noted that States might wish to consider developing the principle of providing assistance for rescue of astronauts in outer space as set out in article V of the Outer Space Treaty.

The Workshop agreed that the term "personnel of a spacecraft" employed in the Agreement should be construed to encompass all persons on board a spacecraft. The Workshop noted that non-registration of a spacecraft under the Registration Convention was no impediment to the application of the Rescue Agreement with respect to such a spacecraft.

3. The Liability Convention

The Workshop noted that the changing nature of space activities, in particular the commercialization of outer space, had presented new challenges to the Liability Convention.

It also noted that the application of the concept of fault could be problematic in cases of damage to space objects in outer space where control of a space object was transferred from one State to another. While the Liability Convention clearly provided for direct damage to be compensated, indirect damage could only be claimed if a clear link between the space activity and the damage could be established. The Workshop noted the view that it was doubtful whether "moral" damages could be claimed.

The Workshop noted that, while the Liability Convention provided for the option of a non-binding Claims Commission award, there would, nevertheless, be a strong impetus for the States concerned to honour such an award.

4. The Registration Convention

The Workshop noted that the Registration Convention was useful both for space-faring and non-space-faring States, provided that timely, complete and up-to-date information was furnished by the State of registry. It also noted that effective national regulations and prompt and complete reporting on space objects launched on the national registry by the States concerned could further increase the effectiveness of the Convention.

The Workshop noted that a State's liability did not depend on whether or not that State registered a space object in accordance with the provisions of the Convention.

The Workshop noted that the Registration Convention did not provide for the transfer of control and supervision from the State of registry to another State.

The Workshop noted that any questions arising from the transfer of a space object from one State to another could possibly be addressed by the interpretation or application of the Registration Convention in such a manner as to enable the transferee to register the space object.

Conclusion

The Workshop expressed its appreciation to the Government of the Republic of Korea and the Office for Outer Space Affairs for organizing the Workshop.

Annex II

Programme

Monday, 3 November 2003 Morning Session

08:30 - 09:10 Registration

09:10 - 10:00

Convention Centre(M-130)

Opening Ceremony and Welcoming Statements

- 09:10 09:20 H.E.C. Koets, Counsellor and Deputy Chief of Mission, Royal Netherlands Embassy
- 09:20 09:30 Kak-soo Shin, Director General, Treaties Bureau, Ministry of Foreign Affairs and Trade, Republic of Korea
- 09:30 09:40 Cha-dong Kim, Director General for R&D Bureau, Ministry of Science and Technology, Republic of Korea
- 09:40 09:50 Yeon-seok Chae, President, Korea Aerospace Research Institute, Republic of Korea
- 09:50 10:00 Takemi Chiku, Chief, Committee Services and Research Section, United Nations Office for Outer Space Affairs

10:00 - 10:10 Break

10:10 - 12:30

Meeting Room (M-118)

Government official segment Introduction to United Nations Treaties and Principles on Outer Space

> 10:10 - 11:30 Joanne I. Gabrynowicz National Remote Sensing and Space Law Center University of Mississippi

11:30 - 12:30 Discussion

10:10-12:30

Convention Center (M-130)

Space law specialist segment Rescue Agreement

Chair: Mazlan Othman, National Space Agency, Malaysia

10:10 - 10:50 Discussion paper Robert C. Beckman National University of Singapore

10:50 – 11:10 *Commentary*

(1) Setsuko Aoki, Japan 11:10 – 11:30 Discussion
11:30 – 12:30 Observations and Recommendations

12:30 – 14:30 Lunch

Monday, 3 November 2003 Afternoon session

14:30 - 16:10

Convention Centre(M-130)

Government officials and space law specialists *National space policies and institutions*

Chair: Kak-soo Shin, Director-General, Treaties Bureau, Ministry of Foreign Affairs and Trade, Republic of Korea

14:30 - 14:50 E. Jason Steptoe, United States of America
14:50 - 15:10 Wenjuan Yin, China
15:10 - 15:30 Chiyoshi Kawamoto, Japan
15:30 - 15:50 Jong-bae Choi, Republic of Korea
15:50 - 16:10 Mazlan Othman, Malaysia

16:10 – 16:20 Coffee Break

16:20 - 18:00

Convention Center (M-130)

Government officials and space law specialists *National space policies and institutions*

Chair: Kak-soo Shin, Director-General, Treaties Bureau, Ministry of Foreign Affairs and Trade Republic of Korea

16:20 - 16:40 Michael Davis, Australia 16:40 - 17:00 C. Jayaraj, India 17:00 - 17:20 Rahmadi S. Ida Bagus, Indonesia

- 17:20 17:40 Mohamed Riffi Temsamani, Morocco
- 17:40 18:00 Nipant Chitasombat, Thailand

19:00 Reception				
Tuesday, 4 November 2003 <i>Morning session</i>				
09:00 – 10:40	09:00 - 10:40			
Meeting Room (M-118)	Convention Center (M-130)			
<i>Government official segment</i> Registration Convention and national registries	<i>Space law specialist segment</i> Liability Convention and national licensing regimes			
Peter van Fenema McGill University	Chair: C. Jayaraj, Indian Society for International Law 09:00 – 09:40 <i>Discussion paper</i> Ricky Lee Australia 09:40 – 10:00 <i>Commentary</i> (1) Fatimah Hashim, National University of Malaysia 10:00 – 10:40 Discussion			
10:40 – 10:50 Coffee Break				
10:50 - 12:30	10:50 - 12:30			
Meeting Room (M-118)	Convention Center (M-130)			
<i>Government official segment</i> Registration Convention and national registries	Space law specialist segment Registration Convention Chair: C. Jayaraj, Indian Society for International Law			
Coordinator.				

10:50 – 11:20 *Discussion paper* Y. Zhao City University of Hong Kong

10:50 - 11:30 Discussion

Peter van Fenema McGill University

11:30 – 12:30 Observations and Recommendations	 11:20 – 11:45 Discussion 11:45 – 12:30 Observations and Recommendations for Liability Convention and national licensing regimes and the Registration Convention 				
12:30 – 14:30 Lunch					
Tuesday, 4 November 2003 Afternoon session					
14:30 – 16:10	14:30 – 16:10				
Meeting Room (M-118)	Convention Center (M-130)				
<i>Government official segment</i> Liability Convention and national licensing regimes	Space law specialist segment Article VI of the Outer Space Treaty Chair: Soon-kil Hong Korean Association of Air and Space				
Armel Kerrest Brest University, France	 14:30 – 15:20 <i>Discussion Paper</i> "Article VI of the Outer Space Treaty" E. Back Impallomeni University of Padua, Italy 15:20 – 16:10 <i>Commentaries</i> (1) Doo-hwan Kim, Korean Association of Air and Space Law (2) S. Marchisio, University of Rome, Italy 				
16:10 - 16:20 Coffee Break					

16:20 - 18:00

Meeting Room (M-118)

Government official segment Liability Convention and national licensing regimes

> Coordinator: Armel Kerrest Brest University, France

16:20 – 17:00 Discussion

17:00 – 18:00 Observations and Recommendations

Wednesday, 5 November 2003 Morning session

09:00 - 10:40

Meeting Room (M-118)

Government official segment Outer Space Treaty

> Frans von der Dunk Leiden University The Netherlands

16:20 - 18:00

Convention Center (M-130)

Space law specialist segment Article VI of the Outer Space Treaty

> Chair: Soon-kil Hong Korean Association of Air and Space Law

16:20 - 17:00 Discussion

17:00 – 18:00 Observations and Recommendations

09:00 - 10:40

Convention Center (M-130)

Space law specialist segment Article II of the Outer Space Treaty

> Chair: E. Jason Steptoe, Associate General Counsel, Commercial and International Law Division, NASA

09:00 – 09:50 Discussion paper "Emerging system of property right in outer space" Hongkyun Shin, Hankuk Aviation University, Republic of Korea

09:50 – 10:40 *Commentaries* (1) Setsuko Aoki Keio University, Japan (2) Les Tennen, United States of America

10:40 - 10:50 Coffee Break

10:50 - 12:30

Meeting Room (M-118)

Government official segment Outer Space Treaty

Coordinator: Frans von der Dunk Leiden University The Netherlands

10:50 - 11:30 Discussion

11:30 – 12:30 Observations and Recommendations

10:50 - 12:30

Convention Center (M-130)

Space law specialist segment Article II of the Outer Space Treaty

Chair: E. Jason Steptoe, Associate General Counsel, Commercial and International Law Division, NASA

10:50 - 11:30 Discussion

11:30 – 12:30 Observations and Recommendations

12:30 - 14:00 Lunch

Wednesday, 5 November 2003 Afternoon Session

14:00 – 18:00 Excursion (Donghak Temple, KARI research facilities)

19:00 Reception

Thursday, 6 November 2003 Morning session

09:00 - 10:40

Convention Center (M-130)

Government Official Segment Rescue Agreement

09:00 – 09:30 Presenter and Coordinator: V. S. Mani Jawaharlal Nehru University, India 09:30 – 10:40 Discussion and Observations and Recommendations

10:40 – 10:50 Coffee Break

10:50 - 12:30

Convention Center (M-130)

Government officials and space law specialists Observations and Recommendations of the Workshop

Chair Vladimír Kopal, Chairman, Legal Subcommittee United Nations Committee on the Peaceful Uses of Outer Space

Rapporteur: UN Representative

10:50 – 11:35 Brief presentations by coordinators and chairs of the Government Official and Space Law Specialist Segments on the Observations and Recommendations of their sessions

11:35 - 12:30 Discussion

12:30 - 14:30 Lunch

Thursday, 6 November 2003 *Afternoon session*

14:30 - 16:10

Convention Center (M-130)

Government officials and space law specialists Observations and Recommendations of the Workshop

14:30 – 16:10 Discussion

16:10 - 16:20 Coffee Break

16:20 - 18:00

Convention Center (M-130)

Government officials and space law specialists Observations and Recommendations of the Workshop

16:20 – 17:30 Discussion

17:30 – 18:00 Closing remarks

Annex III

United Nations/Republic of Korea Workshop on Space Law United Nations treaties on outer space: actions at the national level

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