

The 5th Eilene M. Galloway Symposium on Critical Issues in Space Law

Art IX of the Outer Space Treaty and Peaceful Purposes: Issues and Implementation

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The 5th Eilene M. Galloway Symposium, held at the Cosmos Club, Washington DC, US on December 2, 2010, hosted by the National Center for Remote Sensing, Air, and Space Law and the International Institute of Space Law, dealt with the legal implications and the most important questions and issues arising from the interpretation and the enforcement of Article IX of the 1967 Outer Space Treaty.

Prof. Joanne Irene Gabrynowicz, Director of the National Center for Remote Sensing, Air and Space Law of the University of Mississippi and **Mrs. Tanja Masson-Zwaan**, President of the International Institute of Air and Space Law, welcomed all participants and in their introductory remarks reminded the audience of Mrs. Eilene Galloway's legacy as a pioneer in space law who dedicated her work to the peaceful uses of outer space. **Mrs. Masson-Zwaan** also thanked the organizers and coordinators of the 5th Symposium for their efforts, as well as **Dr. George Robinson** who kindly facilitated the hosting of the event at the Cosmos Club.

The Symposium comprised four sessions: (1) Background of Art IX., (2) Planetary protection, (3) Non-biological contamination and other environmental issues and (4) International relations and foreign affairs. In addition, a luncheon speech lecture was given by Mrs. Marcia Smith, President of Space and Technology Group, LLC.

SESSION I. BACKGROUND OF ARTICLE IX

Chair: Prof. Joanne Irene Gabrynowicz

Prof. Sergio Marchisio (University of Rome, Sapienza) presented the first paper, "**Article IX of the Outer Space Treaty: An overview**". He indicated that Art IX OST is the longest article in the Outer Space Treaty and consists of two parts. In the first part, Article IX codifies substantive

principles regarding cooperation, mutual assistance, non-harmful interference and non-contamination; in the second part, Article IX deals with consultation. Using rather complex language, Article IX unfortunately is a bit unclear and not very systematic, and poses more questions than that it provides answers. It is possible to divide the main ideas into substantive principles and procedural principles, such as the international cooperation principle.

Article IX is also full of references to other fields of international law such as the law of the sea and international environmental law. He mentioned Principle 21 of the 1972 Stockholm Declaration on Human Environment as one that must be considered as a customary rule of international law. Prof Marchisio stressed the importance of the principle of cooperation and mutual assistance, the principle of due regard, harmful interference and international consultation, all related to the exploration and use of outer space, including the Moon and other Celestial Bodies as conducted by State Parties to the Treaty.

The principle of cooperation and mutual assistance states the way in which Member States shall conduct their activities. This principle is linked to the principle of due regard in the sense that other State Parties must benefit from the activities of the so-called directly active State. In this sense it must be stated that Art IX seems to perceive Space as a *Res Communis Omnium* equivalent to the concept of High Seas. These ideas about Art IX should be considered as a tendency, because they are not explicit in any way.

Art IX OST also sets forth that States Parties shall pursue studies of outer space including the Moon and other celestial bodies and conduct exploration of them so as to avoid their harmful contamination and adverse changes of the environment of the Earth. Therefore Art IX OST indicates that it is necessary to develop technical standards to avoid any kind of contamination of

outer space in the sense that direct missions to outer space that could cause any harmful effect towards Earth shall be prevented (such as re-entry of space vehicles). Hence, the International Court of Justice, in its 1996 Advisory Opinion on the Legality of the Threat or Use of Nuclear Weapons, implicitly recognized the duty of control, preventive action and use of due diligence. Therefore, international consultations can be opened in accordance with Article IX in case a State would not prevent that activities within its jurisdiction and areas beyond its jurisdiction cause damage. Space, as a *Res Communis Omnium*, must be protected by all States Parties in order to avoid harmful interference (not harmful contamination). Finally, appropriate measures must be adopted in order to avoid any damage resulting from the introduction of extraterrestrial matters.

Regarding the Principle of international consultation, Prof. Marchisio noted that Article IX sets forth the possibility for States Parties to undertake international consultation either for their own activities or in case it believes that another State Party might cause potentially harmful interference with activities in the peaceful exploration and use of outer space, including the Moon and other celestial bodies.

Finally, Prof. Marchisio mentioned Art 42 and Art 48 of the Draft Articles on State Responsibility for internationally wrongful acts adopted by the International Law Commission in 2001. They set forth legal ways in the field of responsibility to protect the injured State. Under Article 42, the injured State is entitled to invoke such State responsibility as the State whose rights and interests are directly affected by a violation of conventional or customary norms protecting the space environment.

The next paper, “**Article IX of the Outer Space Treaty: Context and Considerations**”, was presented by Prof. Joanne Irene Gabrynowicz. She indicated that four principles stem from Article IX, namely Cooperation, Due Regard, Harmful Contamination and International Consultations. Prof. Gabrynowicz explained that the OST drafting negotiations took place during the Cold War. Specific events such as US high altitude tests and the so-called West Ford Experiment regarding copper needles played an important role in those days.

Prof. Gabrynowicz also explained that by some States, such as the former USSR, it was

considered important to have a prior state-to-state discussion, while other countries, like France, were radically against any kind of prior consultation. The USA insisted on open and public State activity. Prof. Gabrynowicz also focused on some other issues that must be taken into account. First, it is crucial to analyze the role of science and scientists with regard to the implementation of Article IX OST. Indeed, when space law was created, at a time when technology was dramatically evolving, countries such as the USA considered that a scientific committee addressing important issues played a key role within the evolution of space law. The relationship between law and politics occupies a major role within any drafting negotiation, hence determining the relationship between law and politics is a critical issue.

The scientific, legal or political nature of the principles emerging from Art. IX OST is also a key matter to be discussed. From a historical point of view, the years of drafting and discussion should be placed into perspective, and today, an *opinio iuris* and practice has developed. The increasing importance of the interpretation of international law through Article IX has also given rise to another approach. Today, 65% of all States have ratified the OST, but there still are various elements that need to be enforced, such as international cooperation, the principle of due regard and international consultations, in order to solve any possible dispute arising out of the enforcement of Article IX OST.

SESSION II. PLANETARY PROTECTION

Chair: Mrs. Tanja Masson-Zwaan

Dr. Catharine Conely, NASA Planetary Protection Officer, also on behalf of her co-author, **Dr. Gerhard Kminek**, ESA Planetary Protection Officer, presented the paper titled “**Planetary Protection and Article IX of the Outer Space Treaty**”. Concerns about the possibility that Earth contamination could compromise the search for life in the solar system were raised even before the advent of the Space Age. Policies and procedures for planetary protection have developed alongside other frameworks for guiding the exploration of space. During the past 50 years, a standard set of practices has been established and followed for all space missions traveling beyond the Earth-Moon system. COSPAR, through its standing Panel on Planetary Protection, maintains the international consensus

policy on planetary protection, that cites Article IX of the 1967 Outer Space Treaty as the basis for its establishment.

Dr. Conely explained that human exploration of the Earth has demonstrated that the thoughtless transportation of organisms from one location to another can cause significant and irreversible disruptions in the environments being explored. COSPAR's requirements are tailored to address the concerns related to the so-called "harmful contamination" and "adverse changes" concepts. The lead agency of a mission has responsibility for ensuring planetary protection compliance and for reporting to COSPAR on the outcome of the mission. COSPAR's Policy has been followed for all missions sent to date beyond low Earth orbit. Moreover, Dr. Conely also pointed out ESA's Planetary Protection Policy (ESA/C(2007)112), which specifies that "all missions launched by those agencies will follow COSPAR policy". In conclusion, the speaker stated that the purpose of ESA is "to provide for and to promote, for exclusively peaceful purposes, cooperation among European States in space research and technology and their space applications", as stated in Article II of its Convention.

Mr. Jean-François Mayence (Université Libre de Bruxelles. Member of the Belgian Delegation to UNCOUOS) presented a paper entitled "**Protection: Towards a Space Environmental Law?**". He explained what constitutes an "environment" and whether space can be considered as such. Also Mr. Mayence proposed to consider foreign, non-terrestrial beings as part of a so-called para-environment, different from the human environment. Mr. Mayence distinguished four primary dimensions of environmental law: the health dimension, the social dimension, the economic condition, and the ethical dimension. Moreover, he referred to Article III of the Outer Space Treaty, and explained how States moved from the idea of sovereignty over resources to environmental protection, as stated in the 1962 UNGA Resolution 1803 (XVII). Mr. Mayence indicated that there are three main fields of space environmental policy: planetary protection, orbital activities coordination, and protection from Near Earth Objects (NEOs). A fourth domain may possibly be added in the future: celestial bodies' resource management and sustainable exploitation, which goes far beyond the Planetary Protection and involves natural resources management policy. Mr. Mayence was of the view that the concept of 'space environment' is very

convenient for the purpose of encompassing a number of issues related to the negative effects of human activities in outer space. But he believes that we cannot qualify these issues as 'environmental issues'. Planetary Protection is about preservation of scientific areas, whereas orbital space systems protection is about safeguarding economical interests of space operators (rather than protecting human life on the surface of the Earth). Protection from Near-Earth Objects is about giving terrestrial life a shield against a very specific type of threat. Those issues are not environmental issues like, for instance, the protection of oceans, of the rain forest, of still water, of fertile soil, of atmosphere, etc., viz, any area or element which provides human beings with *living resources or vital conditions*, and constitutes the whole or part of an eco-system. Mr. Mayence concluded that the best incentive for working towards a better sustainability of space activities remains their harmful impact on big business ventures. Money calls for money and the early champions of space ecology are likely to be the space operators themselves or the space scientists. This supposes a large part of *self-regulation* in space activities.

Dr. George Robinson (Robinson and Robinson, LLC) then presented his paper on "**Article IX and Extraterrestrial Contamination**". The discussion focused on the genesis primarily of space-related exploration activities referenced in Article IX of the 1967 Outer Space Treaty and certain relevant issues deriving from adverse back contamination concerns. Dr. Robinson stated that there is a need for precise definitions in *specific contexts*, such as those referenced in Article IX, particularly when focusing on such words and phrases as "adverse" and "where necessary". The speaker also addressed certain issues of law relating to the early role of the U.S. Interagency Committee on Back Contamination (ICBC), and the subsequent role of UNCOUOS, the International Council of Scientific Unions (ICSU) and its *ad hoc* Committee on Space Research (COSPAR), the US Administrative Procedures Act (APA), and the US National Environmental Policy Act (NEPA). The early disfranchising by NASA of laws and procedures relating to public notice and certain provisions of domestic and international regulatory authority relating to Mars exploration and that of other celestial bodies, were discussed, as well as certain legal issues and concerns that relate to quarantine protocols potentially posed in the context of implementing the Rescue Agreement, the Liability Convention, and the Moon Agreement.

SESSION III. NON-BIOLOGICAL CONTAMINATION AND OTHER ENVIRONMENTAL ISSUES

*Chair: Dr. Les Tennen, Sterns & Tennen, Phoenix,
Arizona*

Dr. Tennen presented the first paper that he had co-authored with **Dr. Patricia Sterns**. Its title was **“Consideration of ‘Heavenly Matters’ and the Evolution of Article IX”**. Dr. Tennen explained that Article IX of the Outer Space Treaty had developed during the height of the cold war, a time of unprecedented fear and distrust between states. Yet within the realm of outer space, nations, especially the two superpowers, made significant efforts toward international cooperation, with consideration given to the interests of other states while space activities and experiments were conducted. While the course was neither without controversy nor difficulty, the UN Committee on Peaceful Uses of Outer Space was able to make great progress in the development of principles to govern the movement of humankind into space for peaceful purposes. The adoption of legal rules to protect the natural environment of space and celestial bodies grew out of diplomatic overtures and the personal involvements of both Presidents and Premiers. Dr. Tennen stated that the focus of protection of outer space environments was directed more toward the prevention of interference with the activities of states than for preservation of celestial bodies for scientific and other purposes. Nevertheless, the legal principles that emerged encompassed not only the promotion of international cooperation, but also prevention of harmful contamination of celestial environments as well as the modification of the environment of Earth from the introduction of extraterrestrial matter or otherwise. Dr. Tennen also traced the development of Article IX from UNGA Res. 1962 to the drafting of the Outer Space Treaty, with particular emphasis on the discussions within the COPUOS Legal Subcommittee.

Mr. Howard A. Baker (Department of Justice, Canada), presented his paper on **“Environmental Protection in Outer Space: Toward a Protocol to Article IX of the Outer Space Treaty”**. Mr. Baker indicated that the obligations found in Article IX of the Outer Space Treaty tend to support the principles of contemporary international environmental law, but are too general and have not been particularly effective. He proposed that a protocol to Article IX should

be enacted for the protection and preservation of the planetary environment, which includes Earth, celestial bodies and the space plasma. The protocol would have the primary objective of putting in place a planned, preventive environmental management scheme, and would be developed as a treaty instrument supplemental to the Outer Space Treaty. This instrument would consist of a framework agreement, setting out general principles and legal obligations, and supplemental protocols for specific substances and activities causing adverse effects on the planetary environment. The general principles for protection and preservation of the planetary environment would be: common planetary concern, good neighborliness, precautionary measures and sustainable development. The legal obligations for environmental management of outer space activities would be respect for nature, protection and preservation, and minimal impairment.

Next, **Prof. Francis Lyall** (University of Aberdeen, Scotland, UK) presented **“OST Art. IX Improvements: Cultural and Natural Heritage Elements”**. He mentioned that Art. IX is insufficient to deal with the protection of cultural and natural heritage interests in outer space. Three UNESCO Treaties and the Antarctic Treaty system show there is an imperative to protect, and provide models for the creation of a suitable mechanism through which these interests could be protected in space. As far as the 1972 Convention Concerning the Promotion of the World Cultural and Natural Heritage is concerned, Prof. Lyall stated that many countries protect and foster their heritage, both cultural and natural, through planning requirements, permissions and tax and other privileges. The 2001 Convention on the Protection of the Underwater Cultural Heritage, as elaborated by UNESCO, seeks the protection of “all traces of human existence” that have been under water, periodically or continuously for at least a hundred years, and the 2003 UNESCO Convention for the Safeguarding of the Intangible Heritage comprises practices, representations, expression knowledge and skills including oral traditions, performing arts and social practices among other issues. Finally the Antarctic System which operates for Antarctica, which was set aside for scientific purposes under the Treaty of 1959, and its further regulatory framework prohibits any activity in relation to mineral resources other than scientific research. It is important to remark that Californian agencies consider objects landed at Tranquility Base on the Moon as an object of protection but a negotiating

system is required in case a fully enforced harmonization is envisioned by States.

“A pragmatic approach to the “Harmful Contamination” Concept in art IX OST” was presented by **Mr. Mark Williamson** (Independent Space Technology Consultant). He stated that protection of space environment should be central to any space exploration or development program, but the space community as a whole has yet to appreciate the logic of a sustainable approach. Several aspects of space environment protection, such as limiting biological contamination of other planets and the production of debris in Earth orbit, have been raised, but policy and legislation must be broadened considerably before the goal of sustainability can even be approached. Article IX made an early attempt to address the issue of space environment protection, but understandably failed to predict the breadth of “peaceful purposes” for which the space environment would be used. The concept of “harmful contamination” has an obvious relevance in the recognized field of Planetary Protection, but this should be extended, *inter alia*, to the protection of unique geomorphological features and historic exploration sites. It is necessary to broaden the definition of harmful contamination in the context of space environment protection, while recognizing the challenges in developing policies and laws that will be endorsed at an international level. The author suggested that this requires a pragmatic approach that strikes a balance between protection and preservation on one hand, and exploration and development on the other. Part of the solution in this pragmatic approach is to include as many interested parties as possible in the decision-making process. Practical strategies include highlighting the concept of “environmental asset value” and “sustainability” and, in general, incorporating terrestrial best practice and lessons learned from terrestrial environmentalism. Finally, Mr. Williamson concluded that, given the rise in the orbital debris population and plans to send remotely operated rovers to the moon, it is time to negotiate a comprehensive and internationally agreed policy for protection of the space environment, and time is of the essence.

LUNCHEON SPEECH

During lunch, **Mrs. Marcia Smith** (Space and Technology Policy Group) gave a talk about **“The 2010 U.S. National Space Policy and Its Potential for Upholding the Principles of the Outer Space Treaty Regime”**. She reminded

participants that Article IX emphasizes that states parties shall conduct activities “with due regard to the corresponding interests of all other States Parties” and that this is what the Obama policy is about. As it states in its Introduction, the most striking feature of the Obama policy is a change in tone from the 2006 Bush policy. It is outward looking, inclusive of the international community, and conveys that the United States wants to work with like-minded countries to ensure space sustainability. The Bush policy was viewed as being highly nationalistic. Some even called it belligerent. The Obama policy essentially shifts the focus towards building a global sense of responsibility for sustaining the space environment so all can use it, and for partnerships in using and exploring space. And the partnerships are not only in civilian space activities. It applies to national security space as well. In May 2010, just before the policy was released, Gen. James Cartwright, vice chairman of the Joint Chiefs of Staff, spoke at a CSIS meeting and made what Mrs. Marcia Smith sees as truly “game-changing” remarks that presaged what the new policy would say. In conclusion, Mrs. Smith believes that the Obama policy goes a long way to embrace the principles of the Outer Space Treaty and particularly those that involve international cooperation and conducting activities with due regard for other countries’ interests.

SESSION IV. INTERNATIONAL RELATIONS AND FOREIGN AFFAIRS.

Chair: Dr. Marietta Benkö (Attorney-at-Law, Cologne)

Dr. Bin Li (Beihang University School of Law, China) talked about **“China's Current Legislative Efforts to Control and Manage Space Debris”**. After explaining the legislation hierarchy in China, Dr. Li focused on China's Legislation to Control and Manage Space Debris, stating that so far there has not been a comprehensive law to regulate space activities in China. Nevertheless, new efforts have been conducted in order to control and manage space debris. In January 2010, a new Department Regulation entered into force. Also an Interim Instrument of Space Debris Mitigation and Management, which has been promulgated by State Bureau of Science, Technology and Industry for National Defense (SBOSTIND) is intended to guarantee the normal operation of any spacecraft and to protect the space environment. This instrument also aims to implement international

obligations to control and mitigate any negative effect caused by space debris. Art 2 of the Interim instrument mentioned above states that space debris are ‘all man-made objects including fragments and elements thereof, in Earth Orbit or re-entering the atmosphere that are non-functional’. Dr. Li explained how the Interim Instrument is structured and what its main implications are.

Mrs. Theresa Hitchens (UNIDIR) then presented “**Article IX of the Outer Space Treaty, Data Sharing and Space Situational Awareness**” and stressed that Article IX establishes the principle of cooperation and mutual assistance among States Parties in conducting their space activities and obliges each State Party to consult with others if it “has reason to believe that an activity or experiment planned by it or its nationals in outer space, including the Moon and Other celestial Bodies would cause potentially harmful interference with the activities of other States Parties”. Thus the question arises whether Article IX confers an obligation on States Parties to develop and maintain space situational awareness (SSA) in order to determine whether the operations of its spacecraft might cause harm, or be harmed by, others in the vicinity. Further, does Article IX confer any obligation for any one State to share SSA data if it suspects that another State’s action may cause harm? Unfortunately, the language of Article IX is vague and there is little legal precedent to establish its scope or application. Similarly, state practice does not seem to establish a basis for assuming that these obligations apply under customary international law. Both these facts open up room for a broad range of competing interpretations regarding States’ obligations with regard to SSA.

Prof. Marchisio presented “**The principle of no harmful interference and the Draft Code of Conduct for Space Activities**”. He focused on analyzing the term “harmful interference” as featured in Article IX of the Outer Space Treaty. A consolidated draft of the Code of Conduct on Space Activities was endorsed by the Council of the EU on 27 September 2010. Prof. Marchisio indicated that the Code of Conduct is not a binding instrument but nevertheless contains several commitments that all Subscribing States accept to abide to. One of the most attractive qualities of “The Code” is its dynamic nature that encourages Member States to fulfill and implement the objectives and principles as contained in it; also it is very important to understand the complex nature of all space

activities and the uncertainties inherent to the management of such activities. Prof. Marchisio also addressed the main features of the Code explaining its purposes, which include the will to strengthen the existing UN treaties and the principles of Outer Space, and to complement them by codifying new best practices ensuring the safety, security and sustainability of space activities. He stated that the Subscribing States commit to conduct outer space activities refraining from any action which directly or indirectly intends to bring about damage, or destruction, and to take appropriate measures to minimize the risk of collision. As far as the cooperation mechanism is concerned, the Draft Code also regulates the notification of outer space activities, the information on outer space activities and a consultation mechanism aimed at offering an additional tool with respect to the consultation mechanism set out in Article IX of the OST. Prof. Marchisio concluded that there is a need for further commitments and standards to ensure the safety of space activities and operations for peaceful purposes and to avoid harmful interferences in outer space.

The last speaker in this session was **Mr. Michael Mineiro** (McGill University), and he talked about “**Principles of peaceful purposes and the obligation to undertake appropriate international consultations under Art. IX of the Outer Space Treaty**”. The speaker examined the conditions triggering international consultations under Art. IX, and concluded that there is an *ad minimum* threshold to satisfy the obligation which was defined. He distinguished three types of harmful interference in outer space: radio interference, observational interference, and physical interference. Mr. Mineiro also examined the erosion of Art. IX in light of state practice and proposed the inclusion of consultation provisions within space codes-of-conduct that further elaborate the procedure and substance of Art. IX OST. He also focused on the principle of due regard as stated in Article IX and said that in order to understand it, it is crucial to focus on the practical context of Article IX. As far as the three principles are concerned, they must be understood as “an obligation to take into account, both prior to (planned) and during (ongoing) space activities and experiments the legal rights of other States Parties in the peaceful use and exploration of outer space, the moon and other celestial bodies.

DISCUSSION PANEL

In the last session, moderated by **Prof. Gabrynowicz**, **Mr. Arthur Dula** (Space Law expert, Patent Attorney), **Mr. Rafael Moro Aguilar** (LL.M. University of Michigan), and **Mr. Jay Steptoe** (NASA) gave some concluding remarks. Mr. Moro Aguilar stated that from the discussions that were held, it had become clear that Article IX is a very important part of the OST, but is also ill defined and vague. The terms harmful contamination and harmful interference are not defined. The issue of planetary protection is raised, but not properly developed. The right of consultation between States Parties is not clear either. There is a need for further clarification of this article. A protocol to the OST, or some other international agreement, might be a good addition to current space law. However at this point, non-binding standards are more likely to be adopted by the international community.