

ENFORCING THE VERIFICATION MECHANISM OF THE REGISTRY FOR SPACE ARMS CONTROL

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INTRODUCTION

Nearly every interest in the exploration and use of outer space is relevant to the implications of strategic uses of outer space ensuring national security, due to the dual-use nature of space technologies/systems.¹

“What could and may prevent outer space being transformed into an arena of military contest and arms-protected territory? [...] The answer lies not on the technical, but on the politico-legal plane. It is a matter of political will, of political decisions, of legal obligations. [...] the essential factor in restraining the militarization of outer space is international law.”²

This statement, expressed in 1990, described the nature of vague obstacles in restricting strategic uses of outer space and left hope to legal mechanism for the solution.

In 2004 it was reaffirmed in the General Assembly that the issue of “the prevention of an arms race in outer space”³ would avert a grave danger to international peace and security and that it is necessary to ensure the importance and urgency of preventing such an arms race.⁴ In 2005 the views were

Uses of Outer Space (COPUOS) that “the militarization of outer space risked undermining strategic stability and international security and could lead to an arms race,” suggesting the Legal Subcommittee establish “a comprehensive and effective legal mechanism to prevent the militarization and Weaponization of, and an arms race in, outer space,”⁵ because “the militarization of outer space also threatene[d] human security.”⁶

The author aims at tracing back to clauses relevant to strategic uses of outer space in order to highlight the role of the Registry in the Registration Convention⁷ and to strengthen the effectiveness of the verification mechanism of the Registry which is maintained by the Secretary General of the United Nations.

1. SPACE SECURITY CLAUSES

1.1. The Outer Space Treaty⁸

The Outer Space Treaty is know as the second treaty of “non-armament” modeled on the Antarctic Treaty⁹ and a precedent for the Convention on the Law of the Sea¹⁰ with a view to avoiding a new form of colonial competition.

1.1.1. Peace & Security Clause: Article III

To deepen the understanding of Article I of Freedom of Exploration and Use of Outer Space, it is recommendable to study through Article III to clarify the legal terminology used in Article I.

Article III requires States Parties to carry on activities in outer space in accordance with international law, including Charter of the United Nations, in the interest of maintaining international *peace* and *security* and promoting *international cooperation and understanding*.

Those terms of “peace,” “security,” and “international cooperation” do structure a definition of “peaceful” in the principle of peaceful uses of outer space, and the term “peaceful” is reiterated twice in Preamble: paragraph 2 and 4.

Paragraph 2 provides the principle of common interest leading up to “for peaceful purpose.” Paragraph 4 provides the principle of international cooperation in the aspects of science and law in the exploration and use of outer space “for peaceful uses.” Those terms and principles construct the sharable understanding that States Parties should ensure that activities in outer space be “for peaceful purposes” that maintain “peace,” “security” and “international cooperation.” Whole concepts are knitted into the principle of common interest of all mankind, which should be in accordance with international law including Charter of the United Nations.

1.1.2. Freedom of Outer Space Clause:

Article I

Article I consists of three freedoms: free access to outer space, free exploration of outer space, and free uses of outer space. Those three paragraphs read understandable; however, freedom should be in the interest of maintaining international peace and security.

Article I (1) imposes important conditions that the exploration and use of outer space should be carried out for the benefit and in the interests of all countries, irrespective of their degree of economic or scientific development, and shall be the province of all mankind.

Although it does not obligate a State to share specific space acquisitions, it may serve an even more important general interest.¹¹ The concept of “province of all mankind” was interpreted as “benefits of all mankind” by the U.S. Ambassador Goldberg, adding “this was a sort of a freedom-of-the-seas provision”¹² where the concept of *res communis* was applied to the ocean and attempted to analogize to the space environment.

The concept of *res communis* is related to free access to outer space in Article I (2) which let outer space be free for exploration and use by all States without discrimination of any kind, on a basis of equality and in accordance with international law, and there shall be free access to all areas of celestial bodies.

In short, any State has the right to access to outer space by launching satellites or even by downloading images taken by satellites.

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This concept is complemented by Article II which denies the appropriation by claim of sovereignty, by means, of use or occupation, or any other means.

Article I (3) ensures free use of outer space for scientific investigation in outer space, including the Moon and other celestial bodies and States shall facilitate and encourage international cooperation in such investigation. Free use of outer space is also complemented by Article II. Thus, Article I (2) (3) and Article II are co-related to ensure Freedom of Exploration and Use of Outer Space.

1.1.3. Demilitarization Cause: Article IV

“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 of conflict. The problems of outer space were fortunately not those of modifying an existing regime but of fashioning a new pattern of international behavior.”¹³ Thus, when the space age began in 1957 with the U.S.S.R. successful launch of Sputnik-1, it was realized as essential to formulate international rules and regulations for human exploration and use of outer space.

1.1.3.1. Article IV (1)

Article IV imposes the restriction on States Parties of military uses of outer space. The concept of Article IV was unanimously adopted in the UN resolutions in 1962 and 1963,¹⁴ though, it was criticized that Article IV was not legal in the strict sense of terminology but rather political.¹⁵ In fact, in

the Cold War era, political situations in reality between space powers were not in an amicable mood but desiring to maintain, by all means, their influence on the Earth as well as in the rest of space¹⁶.

Article IV (1) stipulates that States Parties to the Treaty undertake not to place in orbit around the Earth any objects carrying nuclear weapons or any other kind of weapons of mass destruction, install such weapons on celestial bodies, or station such weapons in outer space in any other manner.

(i) Limited Scope

The content of Article IV (1) is based on the U.S. proposal by President Eisenhower submitted the General Assembly in 1960.¹⁷ He suggested “to promote the peaceful use of space and utilize the new knowledge obtainable from space science and technology for the benefit of mankind”,¹⁸ quoting from the Antarctic Treaty.¹⁹ In response to it, the U.S.S.R. President Khrushchev stated that “[it] prepared to conclude an agreement which provide for the prohibition of the use of outer space for military purposes”.²⁰ Interpreting from those statements, the original aim of Article IV (1) was to avoid hostilities or destructive conflicts in outer space and to prevent interferences with space applications for benefit of mankind.

This provision is a customary international law by reaffirming the similar provision in the UN General Assembly Resolution 1884 (XVIII) which urged refraining “[F]rom placing in orbit around the

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Earth any objects carrying nuclear weapons or any other kinds of weapons of mass destruction or from installing such weapons on celestial bodies.” The interpretation of this phrase differs as some observer described that Resolution 1884 as “[N]ot purport to state the existing law or to create any new obligation.”²¹ In the U.S.S.R. literature on this Resolution was treated as a specific form of international agreement as reaffirmed in the U.S.S.R.-U.S. agreement on not deploying weapons of mass destruction in outer space.²²

Resolution 1884 contributed to attempt to prevent the arms race from spilling over into space. In comparison with Article 1(1) (a) of the Moscow Nuclear Test Ban Treaty of 1963,²³ which forbids “any nuclear weapon test explosion, or any other nuclear explosion” not only “in the atmosphere” but also “beyond its limits, including outer space,” Article IV (1) of the Outer Space Treaty scopes all areas exclusively beyond terrestrial space with such terms as “in orbit around the Earth”, “on celestial bodies” and “in outer space”. Due to lack of indication on any other weapons, Article IV (1) does not ban ballistic missiles and rockets.²⁴ Moreover, Article IV (1) does not apply to weapons that are based on the Earth and transit space without achieving orbit such as ballistic missiles.

(ii) Limited Target

The phrase of “any other kind of weapons of mass destruction” was formulated by the U.S. in the early 1960s. In

1962, the former Deputy Secretary of Defense Roswell Gilpatric stated that it was the U.S. policy not to orbit in space satellites that contained nuclear weapons “or any kinds of weapons of mass destruction.” It again appeared in the U.S. declaration in the UN resulting in a U.S.-U.S.S.R. joint declaration, later resulting into the UN Resolution 1884 (XVIII) of 1963.

Thus, the original phrase regarding weapons of mass destruction was traceable in the statement of the U.S. who agreed to the U.S.S.R. proposal of its inclusion into the Outer Space Treaty.²⁵ It was constructive progress; however, there was no element on arms control in the U.S. Draft Treaty of 1966 which had dealt only with the exploration of the Moon and other celestial bodies²⁶

1.1.3.2. Article IV (2)

Article IV (2) stipulates that the Moon and other celestial bodies shall be used by all States Parties to the Treaty exclusively for peaceful purposes. The establishment of military bases, installations and fortifications, the testing of any type of weapons and the conduct of military manoeuvres on celestial bodies shall be forbidden. The use of military personnel for scientific research or for any other peaceful purposes shall not be prohibited. The use of any equipment or facility necessary for peaceful exploration of the Moon and other celestial bodies shall also not be prohibited.

The wording of Article IV (2) is based on Article I of the Antarctic Treaty which stipulates that: 1. Antarctica shall be used for

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peaceful purposes only; there shall be prohibited, *inter alia*, any measures of a military nature, such as the establishment of military bases and fortifications, the carrying out of military manoeuvres, as well as the testing of any type of weapons; 2. The present Treaty shall not prevent the use of military personnel or equipment for scientific research or for any other peaceful purpose.

Difference between those two provisions is the extent of prohibition. The definition of "peaceful" in Article IV (2) is "non-aggressive"²⁷ not "non-military" like in Article I (1) which ensures "any measures of a military nature" are *inter alia* prohibited.²⁸ It might be considered that the wording of "the use of military personnel for scientific research or for any other peaceful purposes shall not be prohibited" leaves military nature on the Moon activities, however, it could not be an obstacle to understand that Article IV (2) be interpreted in good faith, and that no activity serving a military purpose should be pursued on celestial bodies.²⁹

2. VERIFICATION MECHANISM OF THE REGISTRY

2.1. Role of the Registry

The Registration Convention³⁰ mandates a launching State to register the space object in an appropriate national or institutional registry as well as a United Nation Registry which is maintained by the Secretary General.³¹ The original role of the registry is to identify the linkage between space objects and a launching States with a view to

enforcing the Liability Convention.³² In accordance with Article VIII of the Outer Space Treaty, a launching State has jurisdiction and control over registered space objects. In the present, the role of the Registry is potential to find out the linkage between space weapons and a launching State who is responsible for damage to another State Party or to its natural or juridical person by Article VII of the Outer Space Treaty. In addition, there is no limit on the scope where the damage caused "by such object, or its component parts on the Earth, in air space or in outer space, including the Moon and other celestial bodies."

2.2. Function of the Registry

The original function of the Registration Convention was to support the application of the Outer Space Treaty, the Rescue Agreement,³³ and the Liability Convention.³⁴

When the draft Convention was presented to the First Committee, the Chairman of COPUOS proclaimed as follows: "[it] was an indispensable instrument for ensuring that claims of innocent victims under the Liability Convention, in the sense that *it would facilitate procedures for identification of space objects in case of doubt*. In that sense, the draft convention on registration is a significant contribution, we believe, to complement the existing body of international law in this field; hence it represents an important step forward in the progressive development and codification of

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international space law."³⁵

The Chairman of the Legal Subcommittee reiterated the same view adding as follows: "[the draft Convention would become] an important instrument in *bringing harmony and order into the new domains of States activities in outer space*; thus becoming, if I may say so, a set of traffic regulations for a growing number of countries engaged in the peaceful exploration of that new realm of human creativeness, which outer space has undoubtedly become."³⁶

Thus, the original function of the registry was to facilitate procedures for identification of space objects in case of *doubt*, and its purpose was to bring harmony and order into the new domains of States activities in outer space. In the present, the role of the Registry is critical for space arms control if its mechanism is enforced effectively and fairly since the only flaw in the "content" of registry is not on a compulsory basis, but on a voluntary basis by Article II (3).

2.3. Content of the Registry

As to the content of a register, Article IV (1) demands each State of registry to furnish to the Secretary-General of the United Nations, *as soon as practicable*, the following information concerning each space object carried on its registry: (a) Name of launching state or States; (b) An appropriate designator of the space object or its registration number; (c) Date and territory or location of launch; (d) Basic orbital

parameters, including: (i) Nodal period; (ii) Inclination; (iii) Apogee; (iv) Perigee; (e) General function of the space object.

Article IV (2) requires each State of registry to provide, the Secretary-General of the United Nations, who is obliged to maintain a Register,³⁷ with additional information concerning a space object carried on its registry *from time to time*.

Article IV (3) stipulates that in the case of registered space objects being out of Earth orbit, each State should notify it to the Secretary-General *to the greatest extent feasible and as soon as practicable*.

2.4. Proposed Amendment

In order to enforce the verification mechanism of the Registry, Article IV needs to be amended by requiring the acceptance of "a majority" of States Parties, not a consensus. The information stipulated in Article IV (1) (e) "General function of the space object" is possibly amended as "Specific function, capability and mission of the space object" with clarification of its nature as "civil", "commercial" or "military". If the nature is changed from "military" to "commercial", each State should notify it to the Secretary-General in accordance with Article IV (3).

As to Article IV (2) and (3), the timing of furnishing the information of space objects is critical for space arms control. With the existing computer technologies, it is possible to establish the effective Registry that a launching State can register space objects

“before” and “after” launching by simple procedure. Furthermore, it is beneficial to analyze the enhanced Registry to forecast traffic accident in order for space security including risk management and space arms control, and to detect which launching State is liable for such an accident.

3. VERIFICATION PROCEDURE

In general, verification procedure is defined as the process of monitoring by satellites, seismic detection, or on-site inspections, to make a judgement about compliance or non-compliance with a treaty or agreement, on a unilateral or a reciprocity basis. Inspection systems are categorized into two types as: (a) the inspections by States Parties on a reciprocity basis, and (b) the on-site inspection by international organization (e.g. IAEA) on a unilateral basis. The compliance with disarmament treaties through inspection contributes to “confidence-building” between Contracting States and to enhancing the effectiveness and fairness of treaties.

In the case of verifying the Registry of the Registration Convention, it is type (a) that monitoring and inspection need to be conducted on a reciprocity basis and both require the use of space systems as national technical means. Therefore, it is worth analyzing the inspection systems in the Antarctic Treaty and the Outer Space Treaty (2.5.1) in order to clarify the existing verification mechanism (2.5.2).

3.1. Inspection Systems

Three provisions are relevant to the verification procedure: Article XII facilitates an opportunity for inspection on the Moon and other celestial bodies; Article X for inspection in orbit around the Earth; and Article XI which enforces effectiveness of those two Articles.

3.1.1. Article X: Inspection in Orbit around the Earth

While the Low Earth Orbit (LEO) is the most critical place to be filled with military space assets in the present military strategy, the principle of international cooperation is reiterated in Article X to enable inspection in conformity with the purpose of the Outer Space Treaty.

Article X stipulates that in order to promote international cooperation in the exploration and use of outer space, including the Moon and other celestial bodies, in conformity with the purpose of this Treaty, the States Parties to the Treaty shall consider on a basis of equality any requests by other States Parties to the Treaty to be afforded an opportunity to observe the flight of space objects launched by those States. The nature of such an opportunity for observation and the conditions under which it could be afforded shall be determined by agreement between the States concerned.

It is required to reach an agreement between the States concerned on an opportunity for observation and the conditions, so it could read that any request is allowed to make, though, there is no

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guarantee to make it possible. However, the role of this provision could be significant in terms of preventing an arms race in outer space for effective verification of the Registry.

3.1.2. Article XII: Inspection on the Moon and other Celestial Bodies

According to VII of the Antarctic Treaty, in order to verify the demilitarization provision, an effective system of inspection by observers was incorporated, requiring such observers should be designated by the original contracting States and other Parties conducting substantial scientific research activity in Antarctica.³⁸ For the same purpose, Article XII was elaborated based on the U.S. draft and agreed by the U.S.S.R. over debates on the requirements and the condition of reciprocity.

Article XII stipulates that all stations, installations, equipment and space vehicles on the Moon and other celestial bodies shall be open to representatives of other State Parties to the Treaty on a basis of reciprocity. Such representatives shall give reasonable advance notice of a projected visit, in order that appropriate consultations may be held and that maximum precautions may be taken to assure safety and to avoid interference with normal operations in the facility to be visited.

In the process of reaching an agreement, the U.S.S.R. emphasized that "reciprocity should be understood in the traditional sense of the word in international law"³⁹ and the

U.S. clarified the requirement of giving "reasonable advance notice of a projected visit" was for safety reasons. In common understanding between them, neither this requirement nor the condition of reciprocity implied any "veto" right.⁴⁰

Thus, the function of this inspection system is quite potential even though the problem of technical and financial feasibility to visit the Moon remains, so does the problem of its limited scope that applies only to the Moon and other celestial bodies which is enforced by Article XV (1) of the Moon Agreement.

3.1.3. Article XI: Reporting System

The Antarctic Treaty ensured that advance information on proposed activities in Antarctica be informed to all other Contracting Parties, for the purpose of facilitating the inspection system of the treaty.⁴¹ In the U.S. draft for Article IX of the Outer Space Treaty, it was once regarded that States Parties are obliged to make public information on activities on celestial bodies, as well as obliged to allow free access to all installations on them.⁴² The scope of this application was desired by several States to be extended to activities in outer space.⁴³

It is noteworthy that a few representatives in the Legal Subcommittee focused on the duty of making results of space exploration freely available. Referring to Article VIII of the Outer Space Treaty, the Japanese representative emphasized, with the Indian representative,⁴⁴ that the General

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Assembly Resolution of 1721B (XVI) which called on all States to inform the United Nations of all launching of objects into space, should be incorporated into the treaty as a legal obligation.⁴⁵

Unfortunately it was not accepted even though such system could have enforced the demilitarization provision in Treaty. However, such efforts were reflected as “to the greatest extent feasible and practicable” in Article XI which reiterates “international cooperation in the peaceful exploration and use of outer space,” and mandates States Parties to inform the Secretary-General of the United Nations as well as the public and the international scientific community, to the greatest extent feasible and practicable, of the nature, conduct, locations and results of such activities. As to the role of the Secretary-General of the United Nations, it is required to “be prepared to disseminate it immediately and effectively.”

In this provision, the necessary elements of the purpose, contents to register, and key player are stipulated to support the effectiveness of the Registry.

3.2. Other Verification Mechanism in Non-Armament Treaties

Provisions for verification of non-armament area are Article VII of the Antarctica Treaty and Article III of the Seabed Arms Control Treaty.⁴⁶

3.2.1. Article VII of the Antarctica Treaty

Article VII ensures the effective

“inspection” and “observation” in all area of Antarctica.

Article III stipulates that each Contracting Party has the right to designate observers to carry out any inspection; observers shall be nationals of the Contracting Parties which designate team; and such inspection to have complete freedom of access at any time to any or all areas of Antarctica, including all stations, installations and equipment within those areas, and all ships and aircraft at points of discharging or embarking cargoes or personnel there. Aerial observation is not an exception. It may be carried out at any time over any or all areas of Antarctica by any of the Contracting Party with the right to designate observers.⁴⁷ Last, some information should be given by other Contracting Party “in advance” about (a) all expeditions to and within Antarctica, on the part of its ships or nationals, and all expeditions to Antarctica organized in or proceeding from its territory; (b) all stations in Antarctica occupied by its nationals; and (c) any military personnel or equipment intended to be introduced by it into Antarctica subject to the conditions prescribed in paragraph 2 of Article I of the present Treaty.

In this provision, the balance between the right and the obligation is well kept to enforce the legal mechanism towards non-armament of the Antarctica.

3.2.2. Article III of the Seabed Arms Control Treaty

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Article III ensures the effectiveness of the verification procedure: Article III (1) reiterates “international cooperation” and provides each State Party for the right to verify through observations the activities of other States Parties; Article III (2) facilitates an opportunity to remove reasonable doubts found through observation; Article III (3) allows States Parties to notify and make appropriate inquiries of State Parties in the case of failing to identify the doubts by observation in order to strengthen the verification procedure of such doubts; and Article III (4) prepares for the case of non-verifiable doubt by allowing a State to notify to the Security Council of the United Nations.

To find “doubts” is the first step towards verification and the notification to the Security Council is effective to ensure non-armament of the Seabed. In order to find “doubts”, the right to verify through observation is necessary for States Parties to enforce the role of the Registry.

CONCLUSION

The role of the Registry is potential for space arms control to find out the linkage between space weapons and a launching State who is responsible for damage to another State Party. The inspection system in the Outer Space Treaty has three provisions: Article XII facilitates an opportunity for inspection on the Moon and other celestial bodies; Article X for inspection in orbit around the Earth; and Article XI which

enforces effectiveness of those two Articles.

Thus, the function of this inspection system is quite valuable even though the problem of technical and financial feasibility to visit the Moon still remains, so does the problem of its limited scope that applies only to the Moon and other celestial bodies.

In order to enforce the verification mechanism of the Registry, Article IV of the Registration Convention needs to be amended by requiring the acceptance of “a majority” of States Parties, not a consensus. The information stipulated in Article IV (1) (e) “General function of the space object” is possibly amended as “Specific function, capability and mission of the space object” with clarification of its nature as “civil”, “commercial” or “military”. If the nature is changed from “military” to “commercial”, each State should notify it to the Secretary-General in accordance with Article IV (3).

As to Article IV (2) and (3), the timing of furnishing the information of space objects is critical for space arms control. With the existing computer technologies, it is possible to establish the effective Registry that a launching State can register space objects “before” and “after” launching by simple procedure. Furthermore, it is beneficial to analyze the enhanced Registry to forecast traffic accident in order for space security including risk management and space arms control, and to detect which launching State is liable for such an accident.

According to Article VII of the Antarctic

Treaty, it is important to keep good balance between the right and the obligation to enforce the legal mechanism for the verification mechanism.

According to Article III of the Seabed Arms Control Treaty, the term "doubts" is used as necessary element in the verification and the notification of doubts to the Security Council is effective to ensure non-armament of the Seabed. In order to find "doubts", the right to verify through observation is necessary for States Parties to enforce the role of the Registry.

In conclusion, it is important to enforce the verification mechanism of the Registry by amending relevant provisions in space law and learning key points from non-armament treaties in order for the prevention of an arms race in outer space.

¹ COLLINS, J.M., *Military Space Forces: The Next 50 Years (Future Warfare Series Vol. 4)*, 1st edition, Brassey's Inc, November of 1989, at 42.

² KAMENETSKAIA, E.P., *International Legal Problems of Preventing an Arms Race in Outer Space, in Perestroika and International Law*, edited by W. E. Butler, Martinus Nijhoff Publishers, the Netherlands, 1990, at 147.

³ UN Doc. A/C.1/59/L.36.

⁴ Press Release, GA/DIS/3282, "Texts on Outer Space Arms Race, United States-Russian Federation Nuclear Arms Reduction Introduced in First Committee".

⁵ A/AC.105/850, [17], at 6.

⁶ Ibid., [18], at 6.

⁷ Convention on Registration of objects Launched into Outer Space, 12.11.74, 1023 UNTS 15.

⁸ Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies, 27.1.1967, 610 UNTS 205.

⁹ The Antarctic Treaty, 1.12.1959, 402 UNTS 72.

¹⁰ The United Nations Convention on the Law of the Sea, 10.12.1982, 21 ILM 261.

¹¹ CHRISTOL, C.Q., *Space Law: Past, Present, and Future*, Kluwer Law and Taxation Publishers, Deventer, The Netherlands, 1991, at 70.

¹² Statement of the U.S. Ambassador Goldberg, Treaty on Outer Space, Executive D., at 69.

¹³ UN Doc. A/AC.105/C.2/SR.29-37, at 78.

¹⁴ A/RES/1884 (XVIII), A/RES/1962 (XVIII).

¹⁵ REIJNEN, G.C.M., 1981: *Utilization of Outer Space and International Law*, Elsevier Scientific Publishing Company, Amsterdam, 1982.

¹⁶ BENKO, M., *Space Law in the United Nations*, Martinus Nijhoff Publishers, 1985, at 163.

¹⁷ A/AC.105/C.2/SR.65 (22.7.66), at 9-10 (USA); *ibid.* /SR.66 (25.7.66), at 6-7 (USSR).

¹⁸ An Explanatory Statement prepared by the President's Science Advisory Committee 1, "Introduction to Outer Space", 195).

¹⁹ CHENG, B., *Studies in International Space Law*, Clarendon Press, Oxford, 1997, at 245.

²⁰ "President Khrushchev to the President", 38 Department State Bull, 1958, at 814.

²¹ JENKS, C.W., 1965: at 303-304.

²² ZHUKOV, G.P., "Kosmicheskoye pravo" Mezhdunarodniye otnosheniya, Moscow, 1966, at 82.

²³ Treaty Banning Nuclear Weapon Tests in the Atmosphere, in Outer Space and Under Water, 5.8.63, 480 UNTS 43.

²⁴ DIEDERIKS, V., *An Introduction to Space Law* (second revised edition), Kluwer Law International, the Hague, The Netherlands, 1999, at 28.

²⁵ A/RES/1884 (XVIII), 3, in Outer Space Treaty Hearings, at 132.

²⁶ Treaty on Outer Space. Hearings before the committee on Foreign Relations, U.S. Senate, 90th Con, 1st Sess., at 34 (March 7, 1967) See, for example, the exchange between Senator Frank Carlson (R., Kansas) and UN Ambassador Arthur Goldberg,

²⁷ ILA, *Report of the 50th Conference, Brussels*, 1962, at 50.

²⁸ See n. 19 above, at 518.

²⁹ A/ACC.105/C.2/SR.66, at 3-4.

³⁰ See n. 7 above.

³¹ See n. 7 above, Article III.

³² Convention on International Liability for Damage Caused by Space Objects, 29.3.72, 961 UNTS 187.

³³ Agreement on the Rescue of Astronauts, the Return of Astronauts and the Return of Objects Launched into Outer Space, 22.4.1968, 672 UNTS 119.

³⁴ See n. 32 above.

³⁵ UN Doc. A/C.1/PV.1998, at 7.

³⁶ UN Doc. A/C.1/PV.1998, at 26.

³⁷ See n. 7 above, Article III.

³⁸ See n. 9 above, Article III.

³⁹ A/AC.105/C.2/SR.64 (21.7.66) at 9.

⁴⁰ A/C.1/SR.1492 (17.12.66), at 428. *Ibid.*, 3, at 250.

⁴¹ See n. 9 above, Article VII (3).

⁴² A/AC.105/C.2/SR.64 (21.7.66) at 11-12.

⁴³ India, A/AC.105/C.2/SR.64 (21.7.66) at 13; Japan, *ibid.*, at 13-14; Sweden, *ibid.*/SR.70 (3.8.66); Lebanon, *ibid.*/SR.65 (22.7.66); Mexico, *ibid.*/SR.71 and Add.1(4.8.66) at 19-21.

⁴⁴ A/AC.105/C.2/SR.64, 21.7.66, at 13.

⁴⁵ *Ibid.*, at 13-14.

⁴⁶ Treaty on the Prohibition of the Emplacement of Nuclear Weapons and other Weapons of Mass Destruction on the Seabed and the Ocean floor and in the Subsoil Thereof, 18.5.72, 955 UNTS 115.

⁴⁷ *Ibid.*