

THE USAGE OF SPACE WEAPONS AND INTERNATIONAL LAW

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INTRODUCTION

Space weapons would be deployed in outer space for the US Missile Defense project (the MD) even though the legality of the usage of space weapons is not clarified in the existing international legal framework. Article IV of the Outer Space Treaty¹ imposes legal restrictions on placing objects carrying “nuclear weapons” or “any other kinds of weapons of mass destruction” in orbit around the Earth, however no restriction on using satellites/missiles interceptors or high energy lasers (HELs) for the MD operation.

In respect of space arms control, the ABM Treaty of 1972² played a significant role in preventing States from using space-based weapons for armed conflicts until the US withdrawal in 2002. The intensive controversy over space weaponization occurred in 1955 and 1972 before the “Star Wars” speech was given³ to originate the basic technical studies of space-based interceptors in 1983 by the

US Reagan administration⁴. In this article, the legality of using space weapons in outer space would be examined in terms of space weaponization⁵ considering that the restart of the MD project was declared by the George W. Bush administration in 2001.⁶

1. SPACE ARMS CONTROL

Since the 1950s, legal attempts towards space demilitarization had been elaborated in international law including outer space treaties. In this chapter, the definition of space weapons being used for the MD project would be given (1.1) and past legal attempts for space arms control would be given (1.2).

1.1. Space Weapons and Missile Defense

Although it is necessary to clarify the definition of space weapons for legal examination, there is no comprehensive definition agreed in the Conference on Disarmament (hereinafter: the CD).⁷ Based on statements presented in the CD, space weapons could be categorized and identified by scientific principles for their functional firepower: Kinetic Energy Weapons (KEWs) and Directed Energy

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Weapons (DEWs).⁸ By definition, the destructive power of KEWs is from the impact of weapon's mass with/by explosion of another object traveling in its path.⁹ The destructive power of DEWs is based on the wavelength of laser and particle beams as well as high-power radio frequency. It could deliver lethal amounts of energy at or near the speed of light on to their targets to overheat the target surface and internal equipments.¹⁰ In the MD project, in order to negate threat missiles in one or more phases of flight, interceptors and high energy lasers (HELs) would be used as space weapons from land, sea-, air-, or space-based platforms.¹¹

The R&D of space weapons have been progressed under the National Missile Defense Act of 1999.¹² It clarifies that the US policy requires deploying an effective National Missiles Defense system capable of defending the territory of the US against limited ballistic missile attack, as soon as technologically possible. The goal of the current MD project is to protect the US, its deployed forces, friends, and allies from ballistic missile threats by building the exact architecture and configuration of multi-layered systems composed of boost-intercept, mid-flight-intercept, and point-defense capabilities to intercept ballistic missiles of all ranges in all phases of flight.¹³

Due to the political definition of "peaceful", which is interpreted as "non-aggressive" in the Outer Space Treaty, military space assets have been already deployed and operational in outer space¹⁴ though Article 31 of the Vienna Convention on Treaties¹⁵ stipulates that a treaty should 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. The "non-aggressive" interpretation leaves places for space faring States to use outer space for military purposes.

1.2. Past Legal Attempts

In the Cold War era, bilateral attempts on space arms control had been elaborated between the space powers. The US submitted a proposal before the Political Committee of the UN General Assembly on 14 January 1957 to suggest that the US and the former USSR should agree on the banning of space weapons and accept a system of control as a pilot scheme for more ambitious projects at some future date.¹⁶ The USSR responded negatively that this proposal aimed only for space arms control without disarmament.

While no agreement reached, three UN resolutions were adopted for nuclear arms control: UN Resolution 1176 (XV)

for the prevention of disseminating nuclear weapons, Resolution 1177 (XV) and 1178 (XV) for the suspension of nuclear tests.¹⁷ The goals of those resolutions were undividable from Article I (1) of the Antarctic Treaty of 1959¹⁸ that states Antarctica shall be used for peaceful purposes only, apparently which influenced on Principle of Peaceful Uses of Outer Space. Despite all efforts, the tests of nuclear weapons were conducted by the space powers in the name of national security until legal restrictions were imposed by the ABM Treaty.

The ABM Treaty banned to develop, test or deploy ABM systems and its components which are sea-, air-, space-, and mobile land-based (Article V(1)) with clarification that a ABM system includes interceptor missiles, launchers, and radar sensors (Article II). It had prevented States from extending an arms race in outer space until the invalidation by the US withdrawal in 2002.

2. SPACE WEAPONS UNDER INTERNATIONAL LAW

In the early 1980s, the UN took action on arms control. The issue of prevention of an arms race in outer space was adopted on the CD agenda in 1982¹⁹ before the US basic studies for the MD interceptors started in 1983. And in 1984, the UN General Assembly²⁰ required the CD to establish the *Ad Hoc* Prevention of

an Arms Race in Outer Space (PAROS) Committee²¹ with an almost unanimous vote, though, no substantial agreement was reached.

In this chapter, the legality of using space weapons in outer space would be examined by the existing international law in relevance to military uses of outer space: the Charter of the United Nations of 1945 (2.1), Partial Test Ban Treaty of 1963 (2.2), Environmental Modification Convention of 1977 (2.3).

2.1. The Charter of the United Nations of 1945²²

In the examination on the usage of space weapons, the UN Charter, Article 2 (4) and Article 51 are relevant to the MD project.

In the examination under the UN Charter, the point is whether the usage of space weapons in outer space would destabilize international peace and security which was well considered by the delegates in the CD²³ as it codifies the norms of States conduct and it applies to space activities. The Charter seeks to ensure that armed force shall not be used or saved in the common interest of State Parties.²⁴ Article I (1) clarifies that the purpose of the Charter is to maintain international peace and security by effective collective measures for the prevention and removal of threats to

peace, and to bring about by peaceful means in conformity with the principles of justice and international law. Since there are no effective collective measures to remove space weapons after deploying them in outer space. The only peaceful means in conformity with international law is to prevent States from deploying space weapons in orbit.

Considering the current international reaction expressed in the CD, the MD project threatens the non-US allies since the goal is to protect the US and its allies. The definition of the threat or use of force could be led by the Declaration on Friendly Relations and Co-operation²⁵ which states that State Parties to an international dispute, as well as other parties, shall refrain from any action which may aggravate the situation so as to endanger the maintenance of international peace and security. Therefore, as long as the usage of space weapons are only for the benefit of specific states, it is inevitable to conflict with other states for the matters of "their" national security.

The aim of Article 2 (4) is to prevent States from the threat or use of force against the territorial integrity or political independence of any state, or in any other manner inconsistent with the purposes of the United Nations. Article 51 clarifies that nothing in the present Charter shall

impair the inherent right of individual or collective self-defense if an armed attack occurs against a Member of the UN.

In the PAROS Committee of the CD, questions were raised on the applicability of the UN Charter and its Article 2 (4) and Article 51 to outer space,²⁶ since the UN Charter did not substantially prevent from an arms race on Earth. It concluded that as long as no expression of limiting the scope in the UN Charter, outer space should be considered as an environment where the threat or use of force is legally prohibited.²⁷

As to Article 2 (4) and Article 51, some statements presented that they should be examined together as the case of an armed conflict on Earth: the threat or use of force in outer space is prohibited, except in self-defense.²⁸ The other statements presented that Article 51 is not applicable to the threat or use of force in outer space.²⁹ Considering that the goal of the PAROS Committee given by the CD and the UN is to prevent States from deploying space weapons in outer space, Committee should not admit States the right of self-defense in outer space which accelerate space arms race.

In fact, Article 51 does not necessarily read that every State member has the right to deploy space weapons in

the name of national security, considering that two conditions are required for the self defense in accordance with the International Court of Justice (ICJ) report. It states that “[t]he submission of the exercise of the right of self-defense to the conditions of necessity and proportionality is a rule of customary international law.”³⁰ In terms of proportionality in self-defense, it is not feasible to verify the legality of the usage of space weapons especially since in the present there is no means to remove space weapons after launching or to estimate whole damage caused by space weapons.

Even then if the US would keep progressing the MD by using space weapons under Article 51, the existence of an attack is required and the usage of space weapons should be halted when the necessary measures are taken by the UN Security Council in order for international peace and security.

2.2. Partial Test Ban Treaty of 1963³¹

It is clear that any test of missile interceptors should not use nuclear powers in outer space. The Partial Test Ban Treaty prohibits States from demonstrating the testing of nuclear explosions in outer space with the scope to avoid a nuclear arms race in outer space and to remove the threat to civilian and military satellites which are sensitive

to electromagnetic pulse effects of nuclear explosion in outer space.³²

In accordance with Article I, States Parties should prohibit, prevent and not carry out any nuclear weapons test explosion in the atmosphere, outer space or under water (1.a) and States should not cause nuclear radioactive debris “outside the territorial limits of the State under whose jurisdiction or control such explosion is conducted” (1.b). In addition, Article 1(2) stipulates that States should refrain causing, encouraging, or in any way participating in, the carrying out of any nuclear test of explosion, or any other nuclear explosion.

Thus, in order for the protection of other satellites from any nuclear test explosion, it is not allowed States Parties to carry out any test of missile interceptors using nuclear powers.

2.3. Environmental Modification Convention of 1977³³

Since the usage of space weapons would cause space debris after attacking satellites/missiles in outer space, international environmental law must be applicable to such usage to prevent modification of the space environment.

In the 1970s, the significance of the threat was well recognized that military or any hostile act of new techniques

could modify the earth/space environment. In 1977, Environmental Modification Convention entered into force to establish norms to curb the use of new means of warfare.

Article I (1) stipulates that States Parties should not engage in military or any other hostile use of environmental modification techniques with widespread, long-lasting or severe effects as the means of destruction, damage or injury to any other State Party. In accordance with Article II, the Convention is applicable to outer space since environmental modification is defined as change of dynamics, composition or structure of the earth, including its biota, lithosphere, hydrosphere and atmosphere, or of outer space.

The military or any other hostile use of the environment would be examined by three factors: the area, the duration and the intensity of the phenomenon modifying the environment. The relative terms in Article I are “widespread”, “long-lasting” and “severe” and the definitions of each terms were studied³⁴: “widespread” is encompassing an area of several hundred square kilometers; “long-lasting” is covering a period of months or approximately a season; “severe” is involving serious or significant disruption or harm to human life, including natural and economic

resources as well as other assets.

In the case of using space weapons to attack satellites/missiles, it would cause tremendous number of space debris in the space environment. As there is no feasible means to remove space weapons or space debris after deployment or caused by attacks, the three factors in Article I of “widespread”, “long-lasting” and “severe” would be applicable to the usage of space weapons.

In the understanding of Article II in the CD, it is recognized that the Convention aims for the protection of satellites against interference resulting from disturbance of the environment through which they travel.³⁵ Therefore, the military or any other hostile use of space weapons is not in accordance with the Environmental Modification Convention.

3. SPACE WEAPONS UNDER INTERNATIONAL SPACE LAW

The legality of using space weapons in outer space should be well considered in international space law due to the invalidation of the ABM Treaty. In this section, it would be examined by Article IV of the Outer Space Treaty (3.1) to lead the proposal to hold international consultation in accordance with Article IX based on Principle of Common Interests and Principle of International

Cooperation (3.2).

3.1. Article IV of the Outer Space Treaty

Article IV of the Outer Space Treaty is relevant to space weaponization, consisting of two sections with different scopes and objects to prohibit. The first is an agreement for the partial demilitarization of outer space including all celestial bodies; the second is for complete demilitarization of all celestial bodies.³⁶

Article IV (1) stipulates that States should not place in orbit around the Earth any objects carrying nuclear weapons or any other kinds of weapons of mass destruction, install such weapons on celestial bodies, or station such weapons in outer space in any other manner. The scope is “in orbit around the Earth and in outer space” and “on celestial bodies” and the objects are “nuclear weapons” or “any other kinds of weapons of mass destruction.”

Article IV (2) stipulates that the Moon and other celestial bodies should be used exclusively for peaceful purposes. The scope is “the Moon and other celestial bodies” and the objects are “military bases, installations and fortifications, the testing of any type of weapons and the conduct of military manoeuvres.”

In the case of the MD project, space weapons would be deployed in orbit around the Earth. It seems to infringe on Article IV (1), however, they are neither nuclear weapons nor kinds of weapons of mass destruction but are interceptors and HELs. If interceptors carry nuclear weapons for attacking satellites/missiles, their usage apparently infringes on Article IV (1). As to Article IV (2), due to its limited scope on the Moon and other celestial bodies, it would not be applicable to the usage of space weapons for the MD project. By the same reason, Article III of the Moon Agreement is not applicable.

Thus, the usage of space weapons for the MD project is not infringing on Article IV, however, it does not prove the legality of using space weapons in outer space.

3.2. Space Weapons and International Consultation

Due to the partial prevention of Article IV from space weaponization, the legality of space activities for military purposes should be examined by Principle of Common Interests and Principle of International Co-operation.³⁷

Principle of Common Interest is reflected in Article I (1) of the Outer Space Treaty with the stipulation that the exploration and use of outer space,

including the Moon and other celestial bodies, 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.

The concept of common interest was firstly included in the preface of the UNGA resolutions of 1958,³⁸ 1962,³⁹ and in the Outer Space Declaration of 1963.⁴⁰ The preface of the Declaration recognizes the common interest of all mankind could be found in the progress of the exploration and use of outer space "for peaceful purposes." Furthermore, the preface of Space Benefit Declaration⁴¹ ensures the goal of mutual benefit and the interest of all parties would be reached by strengthening international cooperation.

If the usage of space weapons for the MD project is in accordance with Article I (1) of the Outer Space Treaty, the usage of space weapons should be carried out for the benefit and in the interests of all countries, and be the province of all mankind for peaceful purposes. Otherwise its legality would not be consistent with Principle of Common Interests; in fact, the existing MD project is only for the benefit of the US and its allies.

As to Principle of International Cooperation, it is a customary

international law whose concept bases on the UN Charter and the Declaration on Friendly Relationship and Co-operation of 1970⁴². The latter states that States have the duty to co-operate with one another, irrespective of the differences in their political, economic and social systems, in the various spheres of international relations, in order to maintain international peace and security in accordance with the UN Charter. The Principle is included in Article I (3), IX and X of the Outer Space Treaty.

Article I (3) stipulates that States should facilitate and encourage international cooperation in the freedom of scientific investigation in outer space. The usage of space weapons in outer space would interfere with scientific space activities of other States as long as it is not used for international peace and security.

The MD project has high risk to threat international peace and security by weaponizing outer space since no technical measures are available to remove space weapons after deploying them in orbit. Therefore, in accordance with Article IX, States relevant to the MD project who believe that deploying space weapons in orbit would cause potentially harmful interference with activities of other States Parties in the peaceful exploration and use of outer space, may undertake appropriate international

consultations before the completion of the MD project, deploying and using space weapons. Such an approach is in the same direction of the UN resolution 37/84 of 1982⁴³ which reconfirmed the necessity of appropriate measures for the prevention of an arms race in outer space.

The author believes that States relevant to the MD project should hold an appropriate international consultation with consideration of Article IX of the Outer Space Treaty and the UN resolution 37/84 on the legality of using space weapons in outer space.

CONCLUSION

Due to the invalidation of the ABM Treaty, it is necessary to examine if the usage of space weapons would be in accordance with international law including international space treaties.

As there are no effective collective measures to remove space weapons after deploying them in outer space, the only peaceful means in conformity with Article I (1) of the UN Charter is to prevent States from deploying space weapons in orbit. The reason is that, as long as the usage of space weapons are only for the benefit of specific states, it is inevitable to conflict with other states for their national security and such destabilization of international peace and security is not in accordance with the

goal of the UN Charter.

As to the applicability of Article 51, the right of self-defense is not applicable to the threat of use of force in outer space considering that the goal of PAROS Committee is to prevent States from deploying space weapons, given by the CD and the UN.

Under Partial Test Ban Treaty of 1963, in order for the protection of other satellites from any nuclear test explosion, it is not allowed States Parties to carry out any test of missile interceptors using nuclear powers.

As to the space environment, in the case of using space weapons to attack satellites/missiles, the Environmental Modification Convention of 1977 is applicable to avoid causing tremendous number of space debris in the space environment. Without any feasible technology to remove space weapons or space debris after deployment or caused by attacks, the three factors in Article I of "widespread", "long-lasting" and "severe" would be applicable to the usage of space weapons. Therefore, the military or any other hostile use of space weapons is not in accordance with the Environmental Modification Convention.

In the Outer Space Treaty, Article IV is relevant to space weaponization. The

usage of space weapons for the MD project seems to infringe on Article IV (1), however, they are neither nuclear weapons nor kinds of weapons of mass destruction but are interceptors and HELs. If interceptors carry nuclear weapons for attacking satellites/missiles, their usage apparently infringes on Article IV (1). As to Article IV (2), due to its limited scope on the Moon and other celestial bodies, it would not be applicable to the usage of space weapons for the MD project. By the same reason, Article III of the Moon Agreement is not applicable.

The MD project has high risk to threaten international peace and security by weaponizing outer space. Therefore, in accordance with Article IX, States relevant to the MD project who believe that deploying space weapons in orbit would cause potentially harmful interference with activities of other States Parties in the peaceful exploration and use of outer space, may undertake appropriate international consultations before the completion of the MD project, deploying and using space weapons. Such an approach is in the same direction of the UN resolution 37/84 of 1982⁴⁴ which reconfirmed the necessity of appropriate measures for the prevention of an arms race in outer space.

¹ Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space,

including the Moon and Other Celestial Bodies, 18 UST 2410, 610 UNTS 205.

² The 1972 Treaty between the United States and the Soviet Union on the Limitation of Anti-Ballistic Missile Systems, 11 ILM (1972), at 784.

³ Burns, R., "Pentagon Revives Reagan-Era Proposal," *AP Newswire*, 17 July 2001. (Text is available at <www.commondream.org/headlines01/0717-04.htm>, last accessed on 18 Sept. 2004)

⁴ Preston, B., Johnson, D.J., Edwards, S.J.A., Miller, M., Shipbaugh, C., *Space Weapons Earth Wars*, RAND, California, 2002, ISBN 0-8330-2937-1, at 1.

⁵ It might be noteworthy that there is difference in defining militarization and weaponisation of outer space. In general recognition in the Conference on Disarmament (CD), outer space is already militarized due to the nature of dual-use space technologies. Therefore, the question here in controversy is the legality of the MD in terms of space weaponization.

⁶ Ricks, T.E. and Walter, P., "Pentagon Plans Major Changes in U.S. Strategy," *Washington Post*, 7 May 2001, at 1.

⁷ Alves, P.G., *Prevention of an Arms Race in Outer Space: A Guide to the Discussions in the Conference on Disarmament*, UNIDIR/91/79, New York, 1991, at 29.

⁸ "Ballistic Missile Defense Technologies," *APS Report*, U.S. Congress, Office of Technology Assessment, OTA-ISC-254, at 60, Washington D.C.

⁹ Categorized weapons as KEWs could be rocket propelled by electromagnetic or chemical sources with high explosive, chemical, or nuclear payloads.

¹⁰ Categorized weapons as DEWs includes Chemical Lasers (CLs), Excimer Lasers (ELs), Free Electron Lasers (FELs), X-ray Lasers (XrLs), High-Power Radio Frequency (HPRF), Nuclear-Driven Directed Energy Weapons (NDEWs) and Neutron-Particle Beams (NPBs).

¹¹ "Draft Programmatic Environmental Impact Statement," Missile Defense Agency, Ballistic missiles Defense System (BNDS), 2004, at 12. (Text is available at <www.acq.osd.mil/mda/mdalink/pdf/peisvol1.pdf>, last accessed 26 Sept. 2004).

¹² National Missile Defense Act of 1999, P.L.106-38.

¹³ Mufsun, S. and Pincus W., "Missile Defense Outstrips Technology," *Washington Post*, May 3, 2001, at A16.

¹⁴ For further historical review on the definition of “peaceful”, Tatsuzawa, K., *SPACE LAW SYSTEMS* Maruzen Planet, Tokyo, 2000, at 101 to 107.

¹⁵ Brownlie, I., *Principles of Public International Law*, Clarendon Press Oxford, 1977, at 607.

¹⁶ TNCD/PV 14, Cmnd. 1152 (1960), at 267 and 270.

¹⁷ A/RES/1576, 1677 and 1578 (XV).

¹⁸ Antarctic Treaty, 1 December 1959, 402 UNTS 71.

¹⁹ CD/274.

²⁰ A/RES/39/59, 12 December 1984.

²¹ A/RES/39/59, “Prevention of an Arms Race in Outer Space,” 12 December 1984. The establishment of PAROS was required “with a view to understanding negotiations for the conclusion of an agreement, as appropriate, to prevent an arms race in all its aspects in outer space.”

²² The Charter of the United Nations, 1 UNTS xvi; 39 AJIL Sup 190.

²³ CD/PV508, at 16.

²⁴ “Charter of the United Nations and Statue of the International Court of Justice,” Article 92 of the UN Charter of 1945, see *the Barcelona Traction case, ICJ Reports, 1964*.

²⁵ Declaration on Principles of International Law Concerning Friendly Relations and Co-operation Among states in Accordance with the Charter of the United Nations, A/RES/2625 (XXV), 24 Oct. 1970.

²⁶ CD/PV 508, at 16.

²⁷ Vereshchetin, V.S., *Prevention of the Arms Race in Outer Space: International Law Aspects*, UNIDIR, New York, United Nations Publication, 1986.

²⁸ CD/1034, at 9.

²⁹ CD/954, at 10.

³⁰ ICJ Reports, 1996, para. 41; 35ILM, 1996, pp.809, 822. The ICJ affirmed that this “dual condition” also applied to article 51, whatever the means of force used.

³¹ Treaty Banning Nuclear Weapons Test in the Atmosphere, in Outer Space and Under Water, UNTS 480, No. 6964.

³² Matte, M., “The Treaty Banning Nuclear Weapons Tests in the Atmosphere, in Outer Space and Under Water (10 October 1963) and Peaceful Uses of Outer Space,” *Annals of Air and Space Law*, vol. IX, 1984, at 404.

³³ Convention on the Prohibition of Military or any other Hostile Use of Environmental Modification Techniques, A/RES/3172, 1977, Annex.

³⁴ “Understandings Relating to the Convention on the Prohibition of Military or any other Hostile Use of Environmental Modification Techniques, worked out at the Conference of the Committee on Disarmament”, Conference of the Committee on Disarmament, CCD/520, Annex A, 3 September 1976.

³⁵ *Disarmament: Problems Related to Outer Space*, UNIDIR, New York, United Nations Publication, 1987, at 115.

³⁶ Cheng, B., *STUDIES IN INTERNATIONAL SPACE LAW*, Clarendon Press, Oxford, 1977 at 245.

³⁷ Op.cit. 13.

³⁸ A/RES/1348 (XIII).

³⁹ Resolution 1721 A (XVI), 20 Dec. 1961.

⁴⁰ Declaration of Legal Principles Governing the Activities of States in the Exploration and Use of Outer Space, Resolution 1962 (XVIII), 13 Dec. 1963.

⁴¹ 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, UNGA Resolution 51/122, 13 Dec. 1996.

⁴² Declaration on Principles of International Law Concerning Friendly Relations and Co-operation Among States in Accordance with the Charter of the United Nations, UN Resolution 2625 (XXV), 24 Oct. 1970.

⁴³ “Prevention of An Arms Races in Outer Space,” the Group of 21 to the Committee on Disarmament, CD/329 of 17 April 1982.