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# Ambiguities in Space Law as Path towards Weaponization of Space: the Case of the Outer Space Treaty. Remarks on Regulation of Weaponization of Outer Space by Space Law

Ambiguities in Space Law as Path towards Weaponization of Space: the Case of the Outer Space Treaty. Remarks on Regulation of Weaponization of Outer Space by Space Law

**Abstract:** Nowadays, space management is widely recognized as an important area of global governance. The management of outer space is very complex, therefore activities of states in outer space realm are regulated by Outer Space Treaty. However, due to a number of ambiguities in the provisions of the Outer Space Treaty regarding the military use of space, loopholes for an increase in militarization and weaponization of space have emerged, thus causing serious problems with space security and affecting the sustainable use of space. Such shortcomings in the regulation of the military use of outer space by the Outer Space Treaty, including the lack of definition of certain terms and the establishment

of appropriate procedures, allow the parties to freely interpret the relevant terms, and also conduct experiments in space, which contribute to the militarization and weaponization of space. Naturally this issue poses global security threat, because once the militarization or weaponization of outer space has started, it is almost impossible to reverse this process. In addition, the development of anti-satellite weapons and the dual purpose of satellites orbiting the Earth undoubtedly adds to the political and legal challenge of managing outer space. Therefore, this article claims, that the legal regulation of outer space requires thorough revision in order to effectively address the issue of legal mechanisms in outer space.

**Keywords:** Outer Space Treaty, space law, weaponization of space, anti-satellite weapons

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## Introduction

Nowadays, the international community pays great attention to the management of the global assets. As part of the global commons, the space realm and its management are naturally also of great concern to the international community. Space management, climate management, network management, etc. are the main areas of global governance, which are related to the future of global economic development, international security and environmental sustainability. In comparison to other areas of management, such as climate management, space management has significantly different characteristics. If climate change has become a major concern for the international community, it is due to widespread acknowledgment of global warming and concern about its impact on mankind. In this context, the management of outer space should encompass the support of all the actors on geopolitical arena.

Numerous debates among scholars and lawyers emerged on the topic of necessity and urgency to regulate or amend existing space law, especially the Outer Space Treaty, which represents the basic legal framework of international space law. For example, De Man (2017) addresses such changes as shift in space law-making from international to national level; Meyer (2021), Mehdi and Su (2020) draw attention to legal mechanisms capable of preventing weaponization of outer space, Johnson-Freese and Burbach (2019) tackle dual use of space technology for both the civil and military purposes, while Race (2011) and Kerrest (2011) attempt to draw parallels between the Outer Space Treaty and Antarctic Treaty as an example of regulation of a new realm.

The ongoing militarization of outer space has led to the complexity of space management, and the ambiguity of the relevant regulations has further complicated the management of space, added threats to space security, affected human use and exploration of space, and benefited all of humanity. Therefore, scholars such as Grimal and Sundaram (2018), Gonçalves and Silva (2019) and Henry et al. (2008), are pushing for a further law regulation of the use of space for military purposes, which, in its turn, will dramatically increase the complexity of managing space activities.

It should be pointed out, that since the beginning of the exploration of outer space, certain rules and

customs have been developed, in order to guide countries in settling various disputes and arguments, that arise during space exploration. These rules are well-established practices in the process of space exploration and are used by default by all participants in this process. But with the development of technology, more opportunities open up in the exploration of outer space and more and more actors join the process of space exploration and exploitation. Furthermore, private companies are already taking part in launching space objects, developing satellite communication technologies or actively promoting space tourism. A growing number of countries is also interested in utilizing outer space in order to pursue both military and security goals. Such a sharp increase in the number of actors involved in space exploration as well as a wide range of activities, performed in outer space, requires thorough regulation and control by the international community in order to resolve international disputes and to prevent attempts to use outer space for weaponization of space.

Based on the aforementioned, this article is devoted to the analysis of issues in the mechanism of international space law, related to the military use of space. The military use of space includes two aspects: the militarization of space and the weaponization of space. However, the paper acknowledges, that the military use of space is not limited to treatment of outer space as a battlefield or a polygon for weapon testing. Therefore, the article uses concept of “militarization” of outer space instead of “weaponization” of outer space. According to Henry, The expression “weaponization of space” defines the process which results in the deployment of weapons in space which may then become a theatre of conflict, a battlefield, through the use of weapons aimed at destroying targets either in orbit or on the Earth’s surface (Henry et al, 2008). Also it is necessary to clarify, which international multilateral treaties and agreements form legal mechanism of the outer space law. Grimal and Sundaram (2018) define key legal instruments, that regulate the use of outer space: the 1967 Outer Space Treaty, the 1968 Rescue and Return Treaty, the 1972 Liability Convention, the 1976 Registration Convention, and the 1979 Moon Agreement. The main objective of these legal instruments was to provide legal framework for achieving compromise between all geopolitical actors in order to achieve equality and transparency regarding space

exploration and military use as well as to prevent military dominance of any geopolitical actor in outer space realm. However, the scope of the article is mainly limited to the ambiguities and inconsistencies of the provisions of Outer Space Treaty as the one that sets fundamental principles of space law worldwide. The article provides an overview of the Outer Space Treaty, pinpoints issues and different interpretation of terms, used in the Treaty, which are actively discussed in academic circles. The paper also shows, how major space-faring nations exploit controversies of the Outer Space Treaty in order to achieve deployment of conventional weapons and weapons of mass destruction in outer space and conduct military tests in outer space, thus contributing to further weaponization of space.

## 1. Remarks regarding regulation of the outer space treaty

The Outer Space Treaty is widely regarded as one of the cornerstones of the space law. A treaty on principles governing the activities of states in the exploration and use of outer space, including the Moon and other celestial bodies, came into force in 1967 (referred to as the Outer Space Treaty) in response to the proliferation of intercontinental ballistic missiles, which could reach targets through outer space. The Treaty was developed during the Cold War, which took place in the bipolar world, where only major superpowers, capable of carrying out activities in space were the US and the USSR. With an increase in number of space-faring nations, ambiguities in the Treaty became more noticeable, especially in provisions, regarding peaceful use of outer space and kind of weapons, that can be placed in outer space.

One of the major ambiguities is represented by definition of the term “peaceful” in article IV of the Treaty, which is understood by Cervino, Corradini and Davolio (2003) as well as Henry et al. (2008) as “non-aggressive”, and not as “non-military”, which opens the door for use of outer space for military purposes. Article 4(2) states: “The Moon and other celestial bodies shall be used by all States Parties to the Treaty exclusively for peaceful purposes”. However, the international community does not have a unanimous opinion on the definitive interpretation

of the term “peaceful purposes”. On the one hand, Christol (1984), Markoff (1976) and Vlastic (1981) define term “peaceful” strictly, stating that “peaceful” means “non-military”. Since the Soviet Union has successfully launched the first artificial satellite, the international community was acutely aware that space could become a new battlefield. Therefore, the United Nations started to develop new legislative framework, in order to avoid the use of outer space for military purposes. In 1958, United Nations General Assembly (UNGA) Resolution 1472 established the Committee on the Peaceful Uses of Outer Space and requested it to report on space-related activities regarding peaceful uses of outer space as well as on the nature of legal problems, which may arise during the exploration of outer space. This is the first resolution of the international community on the peaceful use of outer space. In 1961, the General Assembly of the United Nations adopted Resolution 1721, which clearly stated, that principles of international law, including the Chapter of the United Nations are applied to outer space and celestial bodies. Therefore, according to the resolution of the UN General Assembly, outer space should ensure international peace and security, because the main principle of the system, established by the UN Charter, is to maintain international peace and security. Furthermore, article 2(4) of the Charter prohibits the threat or use of force against the territorial integrity or political independence of any state. Resolution No. 1962, adopted in 1963 and named “Declaration of the Legal Principles for the Exploration and Use of Outer Space Activities by States”, reiterates the peaceful use of outer space and states, that outer space and celestial bodies are free for exploration and use by all states but they are not subjected to national appropriation by claim of sovereignty, by means of use or occupation or by any other means. Moreover, Article 4 of the Outer Space Treaty undertakes States Parties not to place any nuclear weapons or other kinds of weapons of mass destruction in orbit around the Earth or on celestial bodies, which further strengthens the “peaceful” use of outer space, even though this article does not restrict all types of weaponry.

If the relevant resolutions and treaties of the United Nations General Assembly impose strict limitations on the definition of term “peaceful”, as they are interpreted mainly from the standpoint of “non-military affairs”, then scholars, such as Vermeer (2010) and

Gleeson (2005), appeal to the 1969 Vienna Convention on the Law of Treaties. In particular, they refer to Article 31 of the Convention to illustrate, that “peaceful” means “non-military”. Article 31(1) of the Convention states 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 paragraph clearly states, that “peaceful” should be interpreted in terms of “good faith”, which means “non-military”. Although the majority of international treaties do not define “peaceful” in accordance with their goals and objectives, the term “peaceful” referred to in many treaties as “non-military”. Moreover, Vermeer (2010) notes, that none of the participating States has proposed an additional agreement under Article 31 (4) of the Vienna Convention, in order to illustrate the “specific meaning” of the word “peaceful”. Therefore, “peaceful” means “non-military affairs”, which applies to the Outer Space Treaty and in particular to Article 4 of the Treaty.

On the other hand, Dembling and Arons (1967), Meyer (1969) and Halpern (1985) assume, that term “peaceful” means “non-aggressive” rather than “non-military”. According to this definition, as long as the relevant provisions of the United Nations Charter, which prohibit the threat or use of force against the territorial integrity or political independence of a country are not violated, military activity in space is legal, therefore, term “peaceful” is equal to “non-military”. For example, Halpern (1985) believes, that defensive systems can create deterrence, thus ultimately contributing to promotion of peace and only the aggressive use of defensive systems violates the “peaceful” purpose of the treaty. Following this logic, all types of weapons, including nuclear weapons and weapons of mass destruction, are “peaceful”, provided they are not used for aggressive purposes.

Therefore, the use of outer space for “peaceful purposes” does not depend on the capabilities of launched space objects or technology, but on the intentions of the states, that exploit them, however, this is a purely subjective judgment. Although defensive military operations are legal under the UN Charter, this does not mean that defensive military operations are peaceful. Such case is demonstrated by Tellis (2007) on the example of China’s defense strategy, which emphasizes stealth, deception, indirect approaches to warfare,

and opportunities offered by emerging technologies, which enable effective asymmetric strategies focused on attacking an adversary’s weaknesses.

The unresolved ambiguity of the term “peaceful” would leave a loophole for the use of space for military purposes, and the word “space” in Article 4 of the Outer Space Treaty would also open up the possibility of using outer space for military purposes, except for the Moon and other celestial bodies. The Article 4(2) of the Treaty states, that “The Moon and other celestial bodies shall be used by all State Parties to the Treaty exclusively for peaceful purposes”, while other articles of the Treaty, namely Articles 3, 9 and 13, refer to space as “outer space”, that is the space between the celestial bodies. Therefore, Article 4(2) only refers to “The Moon and other celestial bodies”, thus leaving room for military use of “outer space”, with the exception of the Moon and other celestial bodies. According to Bhat and Mohan (2009), this interpretation is undesirable as it goes contrary to the goals envisaged by the drafters which are well evident in the Preamble to the Treaty and considered as a classic case of drafting error.

However, some scholars also believe that the absence of the term “outer space” is not accidental. According to St. James (1980), the drafters of the Treaty did not intend to enact a broad prohibition of military activity, and thus carefully constructed Article 4 (2) accordingly and Bourbonniere and Lee (2007) also mention, that the normative nature of the second paragraph of Article IV is that of a *jus ad bellum* norm. Therefore, it is considered, that the Outer Space Treaty permits, and de facto sanctions an arms race in space, including the militarization of space.

According to Shao (2021), this conclusion derives from the general principle of international law “what is not explicitly prohibited by international law consented to by States is permitted”. Since it is not mentioned that the outer space between celestial bodies is used only for peaceful purposes, then the outer space can be used for non-peaceful purposes as well. Some scholars, such as Maogoto and Freeland (2007) argue, that “Any use of space which does not itself constitute an attack upon, or stress against, the territorial integrity and independence of another State, would be “permissible”. Therefore, military maneuvers in peacetime, the use of reconnaissance satellites, etc. are allowed. These activities belong to the so-called

“peaceful military activities”. An example of such activities is represented by the Chinese experiment of shooting down its own satellite, known as 2007 ASAT test. The justification of the test was outlined in official statement of Chinese Foreign Ministry as the one, that “was not directed at any country and does not constitute a threat to any country”. But Suzuki (2013) points out, that the spokesman emphasized that this was an act of peaceful use of space, since the action was not infringing any international commitment. Such a response indicates the absence of law regulations for such cases.

If the term “peaceful” in the Outer Space Treaty is vague and the term “outer space” is used by default, thus providing a convenient loophole for the military use of space, then Article III of the Treaty establishes legal basis for the use of force in space. Article III states: “State Parties to the Treaty shall carry on activities in the exploration and use of outer space, including the Moon and other celestial bodies, in accordance with international law, including the Charter of the United Nations, and in the interest of maintaining international peace and security and promoting international cooperation and understanding”. In other words, when using the Outer Space Treaty, the Charter of the United Nations must be taken into account. The provisions of the Charter regarding the use of force are predominantly included in Articles 2, 42 and 51. For example, Article 2(4) of the Charter states, that “All Members shall refrain in their international relations 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”, although Article 2(3) of the Charter of the United Nations requires the settlement of international disputes between all Members by peaceful means, the Charter of the United Nations does not prevent the use of force, authorized by the intervention of United Nations in case of individual or collective self-defence. This case is regulated by the provisions of Articles 42 and 51 respectively, of which Article 51 reads as follows: “Nothing in the present Charter shall impair the inherent right of individual or collective self-defence if an armed attack occurs against a Member of the United Nations, until the Security Council has taken measures necessary to maintain international peace and security. Measures taken by Members in the exercise of this right of self-defence shall be immediately

reported to the Security Council and shall not in any way affect the authority and responsibility of the Security Council under the present Charter to take at any time such action as it deems necessary in order to maintain or restore international peace and security”. In accordance with the provisions of the UN Charter, outer space may be used to conduct military operations, authorized by the UN Security Council and exercise the right of individual or collective self-defence.

Naturally, Article 51 of the Charter grants the Member State the right of self-defence, hence there is no way to object the state’s right to exercise self-defence. However, a new debates arise, regarding the question of under what circumstances the exercise of the right to self-defence is deemed controversial: is it limited to “armed attacks” that have already occurred? To those, that did not happen yet, but nevertheless imminent? Or maybe only to threats of armed attacks? Dinstein (1991) argues, that the armed attack requirement in Article 51 might well precede the actual delivery of the unlawful force and that the crucial question regarding whether an armed attack has occurred is whether the aggressor has embarked on an irreversible course of action, thereby crossing the Rubicon. He identifies this case as an “incipient armed attack”, which exercises the right of “interceptive” self-defence under article 51. This type of self-defence is different from anticipatory self-defence, which, according to Dinstein (1991), is described as a self-defence in response to threats of aggression. Green (1985) on the other hand quotes the plea of self-defence propounded by the US Secretary of State, Daniel Webster, who formulated it as “preventive action in foreign territory is only justified in the case of “an instant and overwhelming necessity for self- defence, leaving no choice of means, and no moment of deliberation”. However, Sheehan (2013) interprets this policy as China’s pursuit of military and political security as well as underpinning the determination to regain a central and unique cultural and political status in the world, which is reflected in an increasing willingness among Chinese academics to argue that military space capabilities are legitimate and that their acquisition is a normal behavior for major powers such as the United States and Russia.

Overall, the debatable issues of the definition of term “peaceful” and use of force in case of self-defence represent the ambiguous state of the outer space law, which, if remained unresolved, tend to create legal

loopholes for geopolitical actors. Such loopholes can be exploited in order to gain great advantage in weaponization of space realm while officially declaring peaceful intentions or justifying it as means of protection against unfriendly intentions of other geopolitical actors.

## 2. Provisions of the Space Law Regulating Weaponization of Space

If the aforementioned content is explained by the fact that the space law opens the door to the militarization of space, then the space law also limits the weaponization of space. There are some loopholes that increase the complexity of space regulation. The Outer Space Treaty also contains provisions restricting the deployment of weapons in outer space, which are mainly reflected in Articles III, IV and IX. As mentioned above, Article III states that “states Parties to the Treaty shall carry on activities in the exploration and use of outer space, including the Moon and other celestial bodies, in accordance with international law, including the Charter of the United Nations”. The Charter of the United Nations aims to maintain international peace and security, therefore one of its intended meanings is the prohibition of the arms race, which involves the prohibition of arms race in outer space and the prevention of the placement of weapons in outer space. The specific provisions restricting the placement of weapons in space are mainly embodied in Article IV, while Article IX is only an indirect addition, but these two articles also have some drawbacks and cannot completely ban the placement of weapons in space. Article IV (1) of the Outer Space Treaty states: “States Parties to the Treaty undertake not to 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 weapons in outer space in any other manner.” Article 4(2) states: “The Moon and other celestial bodies shall be used by all States Parties to this 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 maneuvers 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.”

With respect to Article IV(2), as mentioned above, the treaty only stipulates the Moon and other celestial bodies to be used exclusively for “peaceful purposes”, that is, the “outer space” between celestial bodies can be used for purposes, other than peaceful. Furthermore, the article IV (1) of the Treaty focuses exclusively on the prohibition of nuclear weapons and weapons of mass destruction, thus leaving a loophole for other kinds of weapons. That is, theoretically, in addition to the Moon and other celestial bodies, it is allowed to place any weapon in space, except for nuclear weapons and weapons of mass destruction. Therefore Article 4 (1) only prohibits nuclear weapons and weapons of mass destruction without prohibiting other weapons. In this regard, there are also a number of aspects that require further clarification. For example, Schmitt (2006) believes, that the treaty does not prohibit placing conventional weapons or military space stations into orbit or space-based exercises or weapon testing, while Bhat and Mohan (2009) claim, that provision of Article IV of the Treaty, regarding “objects carrying nuclear weapons”, does not limit ground-based ASATs or ASATs which use conventional explosives or other means to destroy a target and neither does it ban nuclear armed “pop-up” ASAT interceptors that ascend directly to their targets without entering into orbit. Therefore, in their opinion, “the language of the Article IV, paragraph 2 is insufficient to suggest a conclusive definition. A clarification in this regard seems pertinent since testing of ASAT weapons is a non aggressive, but nonetheless a military activity” (Bhat and Mohan 2009).

However, the aforementioned statement may be considered as doubtful, because Resolution 1884 of the UN General Assembly on the question of general and complete disarmament, in which the concepts of “objects carrying nuclear weapons or other kinds of weapons of mass destruction” are first mentioned, does not define them. Although nuclear weapons are weapons of mass destruction, the term “weapons of mass destruction” is more difficult to define than nuclear weapons: the difference between conventional weapons and nuclear weapons or weapons of mass destruction is in their destructive capabilities, and contemporary weaponry is more destructive than

conventional weapons. Distinguish from unconventional weapons, Outer Space Treaty directly used these two terms, which, according to St. James (1980), unfortunately, have never been defined.

This uncertainty raises numerous questions, opened for debates, such as what kinds of weapons can be defined as weapons of mass destruction, besides nuclear weapons, biological weapons and chemical weapons? Are non-nuclear ballistic missiles and cruise missiles can be classified as weapons of mass destruction? If the answer is affirmative, then can nuclear ballistic missiles and cruise missiles be excluded from weapons of mass destruction? Providing an answer to these questions is of utmost importance due to possession of a large arsenal of ballistic missiles by major powers, such as China. Its nuclear delivery system includes DF-26 ballistic missiles, which have the capability to be armed with either conventional or nuclear warheads. Moreover, China has developed non-nuclear strategic weapons, which include conventional ballistic missiles, counterspace weapons and cyberattack capabilities. Cunningham and Fravel (2019) note, that conventional counterspace weapons are more preferable than nuclear ones in the era of “informatized” local wars in which information technology is integrated into all aspects of military operations. Counterspace attacks are capable of paralyzing its space support systems, thus achieving a deterrent effect without incurring casualties.

Regarding contemporary weapons, the attacks on objects in outer space from the surface of the Earth or the use of electromagnetic pulses from nuclear explosions to disrupt enemy communications networks also requires further clarification. Under the Outer Space Treaty and the Partial Nuclear Test Ban Treaty, the placement of nuclear weapons in outer space and nuclear weapon testing in space are prohibited. However, the International Court of Justice (ICJ) gives an exception to the provisions above. Although the International Court of Justice has clearly stated that the applicability to nuclear weapons of the principles and rules of humanitarian law and of the principle of neutrality was not disputed, it cannot conclude definitively whether the threat or use of nuclear weapons would be lawful or unlawful in an extreme circumstance of self-defence, in which the very survival of a State would be at stake. In this case, both international law and treaty law can be concluded

as controversial. According to the case, in extreme circumstances, the state can use nuclear weapons in outer space in self-defense without clear violation of both Outer Space Treaty and Partial Nuclear Test Ban Treaty. In general, the placement of nuclear weapons in outer space is not entirely clarified. If the proposed case of the International Court of Justice could lead to an invalidation of nuclear arms control in outer space, then Article IV(1) of the Treaty leaves room for nuclear missiles or weapons of mass destruction to fly through outer space. The Article IV prohibits the placement of nuclear weapons and weapons of mass destruction in orbit around the Earth. In order for a satellite to move normally in orbit, it must cycle around the Earth one turn after another. The orbit is a complete and closed trajectory. However, when an intercontinental ballistic missile carrying nuclear weapons and weapons of mass destruction flies over space, its trajectory is completely different from that of an orbiting satellite. In this case, the Outer Space Treaty does not possess clear definition of a term “orbit”, which leaves a loophole for the weaponization of outer space.

In addition to the aforementioned shortcomings, the Treaty itself also greenlights the weaponization of outer space. Article IV(1) prohibits objects carrying nuclear weapons or weapons of mass destruction in orbit around the Earth, but not weapons themselves. While such an understanding is interpreted in a strict sense, it may contradict the purpose of the Outer Space Treaty and therefore is a misunderstanding of the Treaty. But the Treaty does not literally ban space weapons: a space object itself is a space weapon, including any weapon other than nuclear weapons and weapons of mass destruction.

Furthermore, in accordance with the 1974 Convention on Registration of Objects Launched into Outer Space, each launching State shall furnish to the Secretary-General of the United Nations information the following information concerning each launched space object, including:

- (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:
- (e) nodal period;
- (f) inclination;

- (g) apogee;
- (h) perigee;
- (i) general function of the space object.

While the aforementioned data allows to identify basic parameters such as time and place of the launch of space object and its location on the orbit, it lacks information, necessary to identify the exact purpose and function of the launched space object, whether it is a space weapon, a satellite with specific special functions, a conventional commercial satellite, or a civilian satellite. The general function of the space object can be freely interpreted by any launching state, according to its personal preferences. For example, according to 2021 Annual report to Congress on military and security developments involving the People's Republic of China, China's development of space-based reconnaissance satellites together with anti-satellite weapons will allow to selectively destroy any satellite orbiting the Earth. However, according to Maogoto (2005), China's official statements claim, that space should be used solely for peaceful purposes and its procurement of advanced weapons with no other use than to offset an opponent's space assets and the purpose behind the development of military might in space was to ensure that the PRC will have counterbalance to space policy of other major powers, such as the US.

According to scholars' research, in general, except for space-based nuclear weapons and weapons of mass destruction, general space-based anti-satellite weapons are legal. While the relatively clear prohibition in Article 4 left a loophole for placement of weapons in outer space, the negotiating mechanism for Article 9 left more room for weaponization of space. Article 9 of the Outer Space Treaty states that: "If a State Party to this Treaty 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 activities of other States Parties in the peaceful exploration and use of outer space, including the Moon and other celestial bodies, it shall undertake appropriate international consultations before proceeding with any such activity or experiment.

The main objective of this provision is to introduce the international consultation mechanism. However, it includes a number of issues that need to be clarified.

First of all, the Treaty does not clearly define terms "space", "activities" and "experiment". Therefore, it

is assumed that State Party requires corresponding international consultations. For example, using the computer network on Earth in order to attack satellites in outer space can be considered as a harmful activity or an experiment of linking satellites in orbit, and does this activity or experiment takes place on Earth or is it happening in outer space? Since there are no clear boundaries and definition of outer space, various activities can take place in the space and be considered by state as appropriate or technologically permitted, thus undertaking activity of any kind in outer space, simultaneously evading prohibitions of the Outer Space Treaty. The ultimate goal of the consultation mechanism is to make outer space activities or experiments predictable, therefore controllable and known to other states.

In addition to informing the international community if state plans to conduct space activities or experiments, how will other State Parties will be informed about it? In fact, many military space activities are carried out secretly, in a planned manner, and are not publicly announced to the world at all. Also the consultation mechanism does not include situations, which may cause unpredictable space activities, caused by change of circumstances. For example, a satellite suddenly encounters the danger of collision with space debris and must change its orbit in time to avoid the collision, which is considered as an unplanned space activity. If unplanned activities or experiments occur, they are not included in the consultation. State Parties may exploit this loophole in order to trigger unplanned activities or experiments while avoiding obligations of international consultation mechanism. This leaves room for conducting activities or experiments of any kind without the necessity of preemptive consultation.

Secondly, Article IX states, that State Party must have a "reason to believe" that space activities or experiments will cause "potentially harmful interference". "Reason to believe" should be considered as having significant knowledge base on the basis of which State Party can judge the impact of space activities or experiments. But the question is, whether the "reason" is considered as an objective or subjective criterion? For example, direct destruction of satellites in orbit with conventional weapons will definitely cause harm by not only destroying satellites, but endangering other satellites in orbit. This is an objective reason. But the



Treaty does not specify which entity decides the harmfulness of activity or experiment. Article IX only states, that a State Party to the Treaty has a reason to believe, that activities or experiments are harmful and without legal basis, therefore subjectifying the issue and raising a number of questions: If this is a subjective standard, then how can a state justify its subjective reasoning in front of other states? Can the international community determine the possibility of a “potentially harmful interference” before the activity or experiment begins?

In fact, it is extremely difficult to accurately predict the consequences of certain actions or experiments in outer space. The exploration of space and development of space technologies will inevitably include segments of trial and error, which may lead to unpredictable consequences. If the international community believes, that experimental launch of spaceships or satellites can leave debris in space and prevent satellites from entering space and orbiting the Earth, there should be international consultation mechanism, tasked with further regulation of launching space objects.

The China’s 2007 ASAT test, that resulted in reckless destruction of a satellite emphasizes the growing necessity of further implementation of consultation mechanism. Lieggi and Quam (2007) note, that the debris cloud caused by the ASAT test has placed satellites of numerous countries in harm’s way and in case if satellite’s debris were to damage another state’s space assets, China could be fully liable for all damage caused according to UN Convention on International Liability for Damage Caused by Space Objects. The repercussions of the ASAT test damaged China’s credibility and caused negative reaction from international community, nevertheless, due to the absence of clear legal regulation of launching space objects, the violation of international law did not take place and therefore no punishment for China or cessation of cooperation between China and other space-faring nations followed.

Thirdly, and more interestingly, Article IX provides that international consultations should only take place if space activities or experiments of the State Party “cause potentially harmful interference with activities of other State Parties in the peaceful exploration and use of outer space”. However, according to Vlasic (1981), Article IX while having established the principle of international consultation, however, the treaty neither prescribes the procedure for such consultation

nor designates the agency to which states should turn for the authoritative evaluation of proposed experiment. Moreover, to the all-important question of the legal consequences of disagreement in the assessment of an experiment or activity, the treaty similarly provides no answer. Thus, the procedure and substantive application of Article IX is left to the State Parties of the Treaty, who are completely autonomous in deciding whether they are required to conduct international consultations.

## Conclusion

There is a significant number of loopholes in international space law that have led to the militarization and weaponization of outer space, so after the end of the Cold War, space became widely used in the military sphere, especially in local conflicts. But what complicates the issue even more is the weaponization of outer space, which is also caused by flaws in the mechanisms of international space law. Local conflicts since the end of the Cold War have enriched and refined the theory of space domination and repeatedly confirmed that space and its application of technology causes an increase in military power and therefore requires further development national defense strategy.

Those states that have advanced space technologies entered fierce competition over space domination are still developing space technologies in an attempt to further increase the degree of militarization and weaponization of space. Generally speaking, once the area has been militarized and weaponized, it is difficult to overturn this trend, because both state and non-state actors strive to use the technological advantages for further exploration and exploitation of outer space in order to gain more benefits and power in a new realm, therefore making the maintenance of space management a very complicated task. This state of affairs requires thorough revision of the Outer Space Treaty, improvement of the relevant provisions and significant efforts to close loopholes, that contribute to militarization and weaponization of outer space. However, this task is extremely difficult to accomplish. Theoretically, amending the Outer Space Treaty is feasible, but it depends on collective effort of the international community. However, the amendment process should not be recklessly advanced, for it may lead to

declaration of the international space legal mechanism, including the Outer Space Treaty as null and void and cause withdrawal of major geopolitical actors from the existing legal mechanism. The abolishment of the Treaty may remove the burden of limiting the proliferation of nuclear weapons and weapons of mass destruction in space and lead to free development and deployment of space weapons of any kind.

In order to prevent this course of action, the Outer Space Treaty also established a withdrawal mechanism from the treaty. Article XVI of the Outer Space Treaty states: "Any State Party to the Treaty may give notice of its withdrawal from the Treaty one year after its entry into force by written notification to the Depositary Governments. Such withdrawal shall take effect one year from the date of receipt of this notification". For this reason, the international community has now put forward many initiatives, including legally binding international treaties such as proposed PAROS Treaty and already signed Artemis Accords international agreement, as well as voluntary initiatives that are not legally binding, such the International Code of Conduct in Outer Space, drafted by Marchisio (2010) and proposed by the European Union. These initiatives complement the existing legal mechanisms of international space law, but they all have some shortcomings and do not completely meet the requirements of some actors. Judging by the current situation, there is no way out of the stalemate in management of outer space law. To ensure the sustainable and peaceful use of space for the benefit of all mankind, the major space powers must demonstrate political wisdom and courage to change the shortcomings of the international space legal mechanism.

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