

ANALYTICAL EVALUATION OF LEGAL GAPS IN GOVERNING OUTER SPACE FOR MITIGATING THREAT OF SPACE WEAPONIZATION

Ahmed Saeed Minhas, Farhat Konain Shujahi & Shanzay Saeed*

Abstract

The behavior of self-interested governments frequently ignores the adverse effects of an existing but weak legal framework on space laws. Instead, it aims to maximise gains by posing obstacles for global space administration. The potential for mutually accepted governance frameworks is demonstrated by the current international cooperation in space-based technologies, including satellite manufacturing, the International Space Station and cooperative launch of satellites. However, interstate competition is fueled by the security implications of space-based technologies, with significant powers utilising space to their strategic military advantage. The impulse to misread other people's behavior and react appropriately is made worse by the hazy line separating the peaceful from the military use of space-based technologies. Even though the Outer Space Treaty (OST) stipulates obligations to uphold international law, to refrain from using nuclear weapons and other WMDs in Earth's orbit or on other celestial bodies, and establish liability for damages, it is still necessary to investigate the legal gaps in the treaty that allow more developed space-faring nations to take advantage of them. If unchecked, conflict with unfathomable costs might replace the global deterrence-based peace. This paper is an effort to blow the whistle to identify the gaps in the outer space related legal framework and recommend options for policy makers, that may viably address the impending threat of space weaponisation.

Key Words: Outer Space Legal Framework, Outer Space Treaty, Transparency and Confidence Building Measures (TCBMs), Deterrence, Conference on Disarmament (CD), International Code of Conduct (ICoC)

Introduction

As space is a common heritage of humanity, everyone is free to explore it according to the equality criteria. To effectively manage and regulate the actions of a particular entity inside a specific context, it is essential to establish laws and regulations. Space law is the collection of open policies and strategies a state maintains regarding its military and commercial use of space and managing civilian space programs. It is an international law comprised of established global and state norms and regulations governing actions in space.

*Dr Ahmed Saeed Minhas is a Faculty Member and Vice Chancellor DHA Suffa University, Karachi. Dr Farhat Konain Shujahi is a Faculty Member in IR Department, National University of Modern Languages (NUML), Islamabad and Ms Shanzay Saeed is final year student in IR Department of DHA Suffa University, Karachi. The authors' email address is ahmedsaeedminhas81@dsu.edu.pk

Space law serve various purposes, such as safeguarding people from economic, cultural, or strategic risks maintaining peace and order controlling Earth orbits allocating frequencies and, verifying states' space-related projects.

As expected under the realist paradigm, the more powerful spacefaring nations have been attempting to manipulate international space law to gain the greatest possible advantage. This principle also applies to the governance of outer space, where the global space law serves as the fundamental prerequisite for a responsible behavior under a legal framework.

The security ramifications of space-based technology incite interstate rivalry, as major nations leverage space for military superiority. The ambiguous boundary between peaceful and military use of space-based capabilities exacerbates the tendency to misread the activities of others and react accordingly. Space law ensures stability in the outer space by making state behavior predictable. Following a critical evaluation of the development of space law and its alignment with international law, an attempt is made in this research article to pinpoint strengths and legal voids shall touch upon the weaknesses of the International Space Law especially the OST and figure out the effectiveness of the enacted space related treaties about keeping the outer space free of getting weaponised. It will assist in determining what is expected of the spacefaring countries.

Theoretical Framework

To build an argument on the subject, defensive realism seems to be the most relevant International Relations theory that explains the motivation behind keeping international law on outer space weak and interpretative to meet great powers' strategic objectives. During the latter half of the 20th century, academics such as Kenneth Waltz contributed to the advancement of defensive realism. This theory posits that the configuration of the international system influences state behaviour. In light of the anarchic global system, defensive realists, drawing from Waltz's theories, contend that nations prioritise security and survival. Similarly, the issue of outer space militarisation, which ultimately leads to space weaponisation, is kept open-ended.

Defensive realism employs the security dilemma to illustrate how a state's military could inadvertently jeopardise others. This may result in an arms race and a deterioration of security as these regimes consolidate power. Consequently, defensive realists contend that several states appear excessively aggressive in their security endeavors.

Defensive realists assert that states eschew unwarranted conflict for security purposes; hence, establishing a self-regulating international order. For instance, the technologically advanced states, including the space-faring nations, tend to keep the initiative in their own hands without legal restrictions. They have the monopoly and thus want to maintain it for security leverage. The same argument is also substantiated by the fact that the defensive realism posits that revisionist nations vary from status quo governments. The prevailing powers seek to preserve the existing international order. Revisionist powers are states seeking to alter the power equilibrium to their benefit. Defensive realists assert that nations must safeguard their status and inhibit others from acquiring power. The likelihood of outer space weaponisation also pivots around the notion of status quo that is obviously in favor of space-faring nations, especially the super powers, to keep their dominance. The succeeding paragraphs would devolve upon the same theoretical background which keeps the sword of debacle hanging over global peace and strategic stability.

Commonalities in Evolution of International and Space Law

Terms like the common heritage of humanity, right to self-defense, the amenity to non-combatants (such as commercial satellites in case of outer space), preservation of the environment, attribution, and most importantly, sovereignty are shared by modern international law and prevalent space law. In succeeding paragraphs, the logic shall be used to develop the argument of commonality between the two kinds of laws, i.e., International and Space Laws.

Since Grotius' 1625 treatise, "On the Law of War and Peace," regarded as the foundational work of contemporary international law, a great deal has changed in the field of international law¹ The legal dictionary defines contemporary international law as under:-²

“The body of law governs the legal relations between or among States or nations. To qualify as a subject under the traditional definition of international law, a state has to be sovereign, have a territory, a population, a government, and the ability to engage in diplomatic or foreign relations. The international law also expands its jurisdiction on intergovernmental international organisations and individuals.”

Grotius's views can be deduced from many fundamentals of contemporary international law, including the idea that the right to self-defense is only appropriate in two situations—the immediate threat of assault and the certainty of such an attack. The United Nations (UN) charter's Article 51 and Daniel Webster's position on "imminent threat criteria" for the right to self-defense reflect the same idea.³

Grotius thought that conflicts and the deaths of non-combatants may be prevented by common or natural law derived from human impulses and shared moral understandings. Grotius observed in his writings that warring parties should uphold humanitarian principles by safeguarding non-combatants, captive combatants, property, and, most importantly, the environment.⁴ For this reason, it is also seen as a model for contemporary humanitarian law.⁵ Our daily-use commercial satellites may be attached to non-combatants, thus damaging them would be considered killing them. Military satellites and other military goal platforms can be directly attacked, while commercial satellites are not. The problem is protecting them from debris left behind.

Nation-states, globalisation, global banking systems, international travel, multi-tiered trade, substantial cross-continental travel, and global communication infrastructures have all contributed to the evolution of international law. International law appears mature, yet it is still relatively young regarding viability. This is based on the presumptions of nation-state sovereignty and the equality of sovereign states.⁶ International law, however, is comprehensive. In addition to a wide range of complex concerns, such as "war to peace and from terrestrial to outer space domains," it regulates several interstate operations.⁷

Significance of Space Law and the Commonly Perceived Sources of International Law: An Insight

The first step in finding a source of international law is checking a specific precedent for resolving a problem or issue. Legislation passed by legislatures and the constitution serve as the primary sources of domestic law at the national level. Instead of being a highway, law is a maze. The international and national laws of advanced spacefaring states are one of the many sources of information on outer space, a relatively recent area of strategic importance. International and national laws are well-combined to form space law.⁸

International law primarily derives from international conventions (treaties), international customs (a general practice accepted as law over time), previous judicial decisions, general law principles recognised by civilised nations, and highly qualified publicists from various countries. This is according to Article 38 (1) of the International Court of Justice (ICJ) Statute.⁹ Understanding the sources of international law and how they relate to space-related issues would be beneficial in considering the fundamental guidelines and standards. Various terms, *inter alia*, treaties, agreements, covenants, protocols refer to international conventions of outer space.

Negotiating over several interactive sessions to reach a mutually agreeable stance that would establish a standard of conduct for "formal restraints" results in legally enforceable treaties.¹⁰ There are various levels of treaties, including multilateral, bilateral, regional, and international; however, international law does not apply to Memorandum of Understandings (MoUs). The Vienna Convention of 1969 on the Law of Treaties outlines procedures governing any treaty. The Law of Treaties states that, once in effect, a treaty binds only the state parties and not any third parties without their consent; yet, it shall serve as a morally binding obligation for the third parties as "rules" of customary international law. It suggests that any convention or treaty about space put into effect will be loose or morally binding under customary law. Weighing the implications of a legally binding treaty, states are more interested in having unofficial codes of conduct than opting for lawfully binding treaties. Outer space unfortunately, falls in the same domain wherein technologically advanced states are visibly against entering into formal arrangements and instead are found to be hedging behind informal arrangements, with all trumpeting to have face-saving as a state with super or great power status.

Secondly, custom is graded as a significant source of international law, as it is acknowledged as such due to its long history and frequency of consistent application. International customary law establishes regulations that are binding on all states. The outlook on customary law is convoluted. The burden of demonstrating the existence of a customary rule rests with the asserting State, which must provide proof of its consistent application over an extended period and widespread acceptance as a norm or law.¹¹

Thirdly, the "general principles of law" is acknowledged as another essential source or basis of international law. This is cited only in the absence of international customary law or treaties. These ideas are simple to understand and put into practice, being commonly referred to. One such principle is compensation, which states that any loss or harm to an individual must be remedied by paying damages or resolving grievances.¹²

Lastly, "subsidiary means for the determination of rules of law" describes the fourth source of international law. In this case, Article 38 (1) of the ICJ counts on two primary sources: the teachings (writings) of highly competent international law academics and prior judicial decisions at the global level and national courts, provided their rulings relate to international law.¹³

It is important to note that international treaties, particularly the OST of 1967, primarily regulate space activities rather than legal experts' theories or customary law.

It does not imply that teachings or customary law have no bearing on the regulation of space operations. As previously noted, space law encompasses both state and international law. Conversely, domestic law pertains solely to those states that are advanced in spacefaring and space activities. Three main requirements have to be qualified for domestic law to be implemented in support of space issues; first, new structures and procedures must be established; second, a methodology for applying domestic laws to space issues must be developed; and third, international treaties, agreements, and conventions, including those endorsed by the UN, must be incorporated into and subsequently implemented within a particular State legal system. It suggests that the defined rights, obligations, and remedies under domestic law are reexamined for updated interpretation.¹⁴ Moreover, regarding the application of domestic law, it is imperative to understand that different states have different procedures for incorporating international treaties into their domestic laws. However, using its constitution as a shield, a state cannot disregard its international obligation.¹⁵

After having established the linkages and processes for established international and domestic laws regarding outer space issues, the stage is set for a detailed analysis of global outer space governance concerns vis-à-vis the cover provided by international law.

International Law and Outer Space Governance Issues

Under international law, a sovereign state can exercise its jurisdiction within its recognised and claimed territory. However, under the nationality principle, states may also assert their authority over citizens outside their territory. Conversely, official representatives and flag carriers, including warships and aircraft, are exempt from prosecution under the doctrine of the sovereign equality of States. This suggests that space assets, such as satellites and space stations flying national flags, enjoy sovereign immunity and are hence immune to intervention in the outer space domain.

Since international law expressly states that a country's territorial sovereignty does not extend to its orbit, earth orbits are free from sovereign claims. The OST also stresses the same: "All nations are free to use and explore outer space; no nation may appropriate any part of outer space...."¹⁶ Therefore, under the sovereignty principle, outer space assets have their jurisdiction. By the notion of humanity's shared heritage, outer space is similarly regulated to prevent its weaponisation or misuse against this fundamental tenet. It is noteworthy that outer space is controlled by principles analogous to those of the high seas.

Outer space is not subject to sovereignty claims by any State and is designated solely for peaceful uses that benefit humanity. Nonetheless, States may assert sovereignty over spacecraft that bear their flag and registration. Over time, space-based assets have become essential tools for our daily lives. Any threat or application of force against these assets can compromise domestic, commercial, and military requirements; thus, it invokes the principle of the right to self-defense. Outer space is likewise regulated on the same common heritage concept. Notably, the laws governing the high seas and outer space are remarkably similar. Thus, it can be concluded that the right to self-defense can be invoked whenever there is a threat or use of force against outer space based assets because it can compromise commercial, domestic, and military necessities.

John C. Cooper was one of the pioneering US Law Professors who advocated for the right of self-defense, asserting its necessity in space. He referenced the justification articulated by US Secretary of State Daniel Webster in a correspondence to Lord Ashburton, the British representative to Washington in 1837, regarding the destruction of the *Caroline* Ship (the "Caroline Case"), wherein he elucidated the imperative for self-defense.¹⁷ In his statement, the Secretary asserted that:-

“The right of self-defence becomes more justified and necessary outside national territory when the threat is instant, overwhelming, and leaving no choice of means and no moment of deliberation.”

Similarly, US historian Anthony Clark Arend distinguished two standards for exerting self-defense—necessity and proportionality—while elucidating the actions of UK forces in sinking the US-owned ship *Caroline* in the Niagara River on the US side.¹⁸

The Outer Space Treaty (OST) explicitly articulates the right of self-defence, which indirectly ties the concept of self-defense with international operations in outer space. The OST mandates that all outer space activities comply with international law, including the UN Charter. Section 51 of the UN Charter explicitly delineates the inalienable right to self-defense. The OST states that every operation in outer space must comply with international law, including the UN Charter, which gives an unalienable right to self-defense as per its Section 51.

Normative Deficiency for Long Term Sustainability (LTS) of Outer Space

Space regulations and standards are needed to control national and international space activity to avoid chaos and rivalry.

Fundamental space law principles make Long-Term Sustainability (LTS) requirements insufficient. Weapons of mass destruction were banned initially only in space and celestial bodies. The limited space visitation at the time prevented it from addressing 21st-century concerns. Space debris/ trash, interference, and traffic management lack protocols.¹⁹

Norms play a critical role in setting the course of a state's actions and identifying deviations when implementing policies. The standards could be legally binding formal treaties and conventions and voluntary, non-binding, less formal instruments like mutually agreed-upon codes of conduct.²⁰ It has also been observed that codes of conduct, for instance, European Union (EU) Code of Conduct for outer space are preferred over legally binding arrangements; however, it is seen as something better than nothing as the same could be used to develop moral pressure after it is included into international law as customary law.²¹

Currently, political and diplomatic approaches are primarily divided into two categories. Under the CD agenda item of Prevention of an Arms Race in Outer Space (PAROS), the Chinese and Russians offered the draft Treaty on Prevention of Placement of Weapons in Outer Space (PPWT). Secondly, the EU spearheaded the push to establish an International Code of Conduct (ICoC) in outer space. Most developed spacefaring nations think the PPWT is a narrowly focused agreement that will likely take years to negotiate. At the same time, they believe that norms must be established immediately through the platform provided by the EU-led ICoC because space is becoming more crowded and requires them to be adhered to.²² At the Conference on Disarmament (CD), Moscow and Beijing are frequently held accountable for the ICoC's delay. As the front-runners in space management, the two outliers are significant players following the US. Their reclusive behavior is detrimental for space LTS. It's believed that both States want to achieve the highest level of proficiency in ABM under the guise of their highly developed, staged ASAT programs. However, the Chinese and Russian sides prioritise security over other aesthetics, including informal arrangements to regulate outer space in ICoC.

The failure to negotiate new outer space-related treaties is primarily due to lengthy negotiation processes involving States' interests and scientific uncertainty. Space-oriented norms are severely constrained due to the dynamic space domain and the likely behavior of the states.²³ For example, the Moon Treaty of 1979 took about 15 years to come into effect, yet it lacked an influential impact. Conclusively, the outer space norms are essential for behavior prediction and can only be developed through international collaboration, mutual trust, and shared interests.²⁴

The stage is now set to carry out a candid analysis of international space law, which shall facilitate a more profound comprehension of states' behavior and ultimately contribute to maintaining stability within the realm of outer space. However, it is felt appropriate first to understand the sequential development of contemporary International Law, of which space law is an offshoot.

Sequential Evolution of Contemporary International Space Law

The following table encompasses the sequential evolution of outer space law that falls under the domain of international law. The table highlights the objectives expected to be achieved from every particular initiative as well as the current status to ascertain a clear picture about LTS of the outer space amid threats posed to it due to natural and artificial debris due to deliberate destruction of abandoned satellites in the orbits for demonstrating space control capabilities.

Ser	Year / Forum/ Treaty or UNGA Resolution	Intended Objective(s)	Contemporary Status of the Space International Laws
1.	14 Nov 1957/ UNGA/ UNGA Resolution 1148 (XII) ²⁵	<ul style="list-style-type: none"> To hold a 'joint study' by the US and Soviet experts to suggest a verifiable inspection system for ensuring that the outer space assets are exclusively used for peaceful and scientific purposes. 	<ul style="list-style-type: none"> The first initial initiative by the UN was to keep outer space for the benefit of humans, i.e., keeping the peaceful purposes as a rider clause. The UNGA Resolution on the subject was passed following the collapse of US-Soviet bilateral negotiations on preserving outer space for peaceful uses only.²⁶ It was in reaction to the Soviet Union's October 4, 1957, Sputnik satellite launch.
2.	13 Dec 1958/ UNGA/ UNGA Resolution 1348 (XIII) ²⁷	<ul style="list-style-type: none"> Proposed establishing an Ad Hoc Committee on the Peaceful Uses of Outer Space. 	<ul style="list-style-type: none"> The Ad Hoc Committee was expected to formalise collaboration and cooperation for non-violent and peaceful purposes.
3.	12 Dec 1959/ UNGA/ UNGA Resolution 1472 (XIV) ²⁸	<ul style="list-style-type: none"> A great success as the resolution resolved to establish UNCOPUOS. To regulate the space activities and avoid the extension of rivalries into outer space that could 	<ul style="list-style-type: none"> The UNCOPUOS is identified to be one of the most influential UN bodies in addressing the issues of outer space law. ²⁹ The Committee transformed the outer space international law and negotiated five outer space-related treaties

		appropriately be undertaken under UN auspices.	and five outer space 'principles'. The UNCOPUOS is still regarded as the most substantial UN body for discussing outer space law and is responsible for putting suggestions and agenda items for negotiations at the CD.
4.	20 Dec 1961/ UNGA/ UNGA Resolution 1721 (XVI) ³⁰	<ul style="list-style-type: none"> Mainly had the objective or purpose of two main principles in outer space's LTS. First, it is recognised that international law, including the Chapter of the UN, applies to outer space and celestial bodies, and second, outer space and celestial bodies have no sovereign rights by any state. Thus, all States can explore and use them in conformity with international law. 	<ul style="list-style-type: none"> Under the auspices of the UNGA, Resolution 1721 can be considered one of the most significant legal deterrent initiative³¹ against space weaponisation (though the Resolution does not mention space weaponisation specifically). It recognises that the UN Charter and International Law apply to States' activities in outer space, including using force for self-defense.
5.	13 Dec 1963/ UNGA/ UNGA Resolution 1962 (XVIII) "Declaration of Legal Principles Governing the Activities of States in the Exploration and Use of Outer Space". ³²	<p>Identification and declaration of legal principles for governing outer space activities. The legal principles included the following (9) aspects:</p> <ul style="list-style-type: none"> Space exploration is for the benefit and interest of all humanity. Outer space and celestial bodies are free for exploration on an equal basis as per the international law. Outer space and celestial bodies are not subject to national appropriation by 	<ul style="list-style-type: none"> The subject Resolution was a sequel to UNGA Resolution 1721 (XVI). The UNCOPUOS principles are recognised as the most significant legal foundation for the space treaties already in force and for the future treaties that will be negotiated regarding the rules governing space activities. The preamble of the UNGA Resolution 1962 also acknowledged and emphasised the necessity of space exploration for peaceful objectives that align with humanity's shared interests.

		<p>claim of sovereignty.</p> <ul style="list-style-type: none"> • States' outer space activities should be undertaken per international law, including the UN Statute. • Promotion of international cooperation and mutual assistance. • States are liable for any activity carried out in outer space, including by the private organisations. • States shall have jurisdiction over their space launched objects. • Liability clause for compensation against the damage caused by an outer space object. • Astronauts' personal safety and security assurance. 	
6.	17 Oct 1963/ UNGA/ UNGA Resolution 1884 (XVIII) "Question of general and complete disarmament"	The Resolution particularly cautioned and stopped States from deploying nuclear weapons or WMDs in Earth orbits, or on celestial bodies, and neither encouraged others to undertake the abovementioned acts.	<ul style="list-style-type: none"> • The resolution is regarded as an icebreaker for initiating negotiations about the OST.
7.	1963/ Eighteen Nation Disarmament Committee (UN Body)/ The Limited Test Ban Treaty (LTBT) ³³	To ban the nuclear weapon testing or explosion in the outer space environment for the apparent environmental damage.	<ul style="list-style-type: none"> • It entered into force on October 10, 1963 • The first multilateral treaty ever drafted that referred to outer space. It is still in effect, although since 1991, US resistance has prevented it from incorporating "underground" testing.
8.	1967/ UNGA/ Treaty on Principles Governing the Activities of States in	<ul style="list-style-type: none"> • Cooperation in terms of Outer Space exploration. 	<ul style="list-style-type: none"> • The Outer Space Treaty, also known as the Mother Outer Space Treaty, is the

	the Exploration and Use of Outer Space including the Moon and Other Celestial Bodies (OST)	<ul style="list-style-type: none"> It specifically banned the nuclear and WMD testing in the Outer Space. 	cornerstone for all upcoming international space laws, treaties, and conventions. ³⁴ The OST followed the principles outlined in UNGA Resolutions 1884, 1721, and 1962. The OST made possible the three other Outer Space Law Treaties, i.e. the Registration Convention, the Liability Convention, and the Astronaut Rescue and Moon Agreements. It was essentially an expansion of the LTBT's purview to forbid the emplacement of any WMDs in space other than nuclear weapons.
9.	1968/ UNGA/ Agreement on the Rescue of Astronauts, the Return of Astronauts and the Return of Objects Launched into Outer Space	<ul style="list-style-type: none"> To guarantee the safe evacuation of astronauts and spacecraft in an emergency, mishap, or disaster.³⁵ 	<ul style="list-style-type: none"> It entered into force on 3 December 1968. The Agreement aims to provide astronauts with immunity in the event of an emergency unintentional landing anywhere, including oceans and other states' territorial authorities.
10.	<ul style="list-style-type: none"> 1972/ UNGA/Convention on International Liability for Damage Caused by Space Objects (Liability Convention) 	<ul style="list-style-type: none"> Political commitment to accept culpability for damages to an aircraft and assets in space caused by a space launch that occurs on Earth. It is an explanation of compensation policies in a range of technological and political contexts. 	<ul style="list-style-type: none"> It entered into force on 1 September 1972. The UNCOPUOS Legal Subcommittee oversaw the ten-year (1963–1972) topic convention negotiations. It continues the OST's Article VII, which addressed the subject of culpability.³⁶ This Convention established a tacit warning or deterrent against a purposeful attempt to harm an outer space object.
11.	1974/ UNGA/ Convention on Registration of Objects Launched into Outer Space	To locate space assets, such as satellites, to enable liability compensation through guaranteed attribution.	<ul style="list-style-type: none"> It deters and discourages states from commencing hostile acts from a registered space object for fear of attribution;

	(Registration Convention)		<p>thereby, the Convention helps promote peace in space.</p> <ul style="list-style-type: none"> • Furthermore, the registration convention prohibits spacefaring nations from launching space assets that may be used offensively or that could contain weapons or mines.
12.	1979/ UNGA/ Agreement Governing the Activities of States on the Moon and Other Celestial Bodies (Moon Agreement)	Prohibition of using or threatening to use force on the moon or from the moon; besides prohibiting placing nuclear or WMD on the moon's surface or in its orbit.	<ul style="list-style-type: none"> • It entered into force in July 1984. • It is seen through the lens of international law as a failed space pact. The primary reasons for its unacceptance or rejection are, first, invasion of privacy resulting from the disclosure of exploration details, etc. (Article VI & V), two, refusing to grant control of any extraterrestrial property to private entities until such entities are owned by governments or other international organisations (Article XI), three, the proposition of a global legal framework to govern lunar exploration (Article II), four, transferring technology to underdeveloped nations, including the sharing of titanium and other resources found on the moon, as well as intellectual property (article VI). Moreover, only France, out of the P-5 States, has signed it; the US, Russia, the UK, and China have neither signed nor ratified it. India has only signed it; Pakistan ratified it in 1986. • The UNCOPUOS Legal subcommittee oversaw the nine-year (1970-1979) duration of the subject

			<p>convention discussions. As the only planet humans had yet to land on at that time, the Moon is regarded as the focal point of this expansion of the OST. Only peaceful uses of the Moon were acknowledged (Article III of the Agreement). Nonetheless, the US and Russia have been and continue to be outside the purview of what is considered "peaceful."</p>
13.	<p>2014/ CD/ Draft Treaty on the Prevention of the Placement of Weapons in Outer Space, the Threat or Use of Force against Outer Space Objects (PPWT)³⁷</p>	<ul style="list-style-type: none"> • Negotiating a legally binding treaty to preempt placement of all weapons in outer space to ensure global strategic stability, i.e., security.³⁸ 	<ul style="list-style-type: none"> • On December 2, 2014, the UN General Assembly passed Resolution 69/32, titled "No first placement of weapons in space." Nonetheless, the US rejected PPWT in CD. • The US had multiple reservations, for instance, first, laser weapons, co-orbital weaponry, and terrestrially based ASATs are not covered under the draft pact, two, the dangers from debris has not been catered for caused by the ASAT tests, three, dual-use technologies are not discussed, four, meaning of "outer space objects" is not in line with the concept that has already been accepted by the Rescue Agreement and the Liability Convention and lastly, it is difficult to verify the States' actions in Space.

Legal Gaps in International Laws/ Treaties about Preventing Space Weapons

The outer space has an unimaginable vastness that maximises its advantages. The space access technology is in the hands of a few who want to maintain the edge and monopoly. It is felt that the space-faring nations avoid Track-1 arrangements but

through lip service soft laws only. Seeing the performance of the CD, it is evident that the International Space Law, comprising of treaties, is kept vague and open-ended to keep the initiative in one's own hands to maintain technology monopoly.³⁹ To support the argument, let's conduct a reality-based analysis of the Outer Space Mother Treaty, i.e., the OST, which has many legal gaps.

a. The Gaps in Outer Space Treaty

- **Undefined Meaning of Peaceful Purposes in OST Text.** The OST of 1967 has been criticised for its open-ended interpretation of 'peaceful purposes'. Critics argue that advanced nations like the US and the Soviets, using their expertise, political influence, diplomatic mileage, and the halfhearted interest displayed by the developing states during negotiations, who thought outer space to be a costly affair to explore and develop, have made outer space susceptible to weaponisation.⁴⁰
- **The OST uses the term 'peaceful purpose' eight times but is unclear or explained.**⁴¹ Legal experts interpret it as allowing space weaponisation to deter hostile acts against outer space assets. They assimilate it into two connotations: non-military and non-aggressive purposes.⁴² Major western powers, including the US, feel no appetite for non-military purposes but believe in non-aggressive purposes to keep the initiative in their own hands. Space worriers argue that the OST's non-military purpose, as implied in the Antarctica Treaty and IAEA Statute, is not categorical. They say that major world powers exploit the language gap used in the OST, which is left to interpreters to interpret, allowing them to develop space weapons. ⁴³
- **No mention of placement of weapons on satellites or conventional weapons in orbit.** While the OST is generally regarded as a mechanism for preventing the deployment of nuclear weapons and Weapons of Mass Destruction (WMDs) in outer space, it notably fails to address the potential placement of weapons on Earth-orbiting satellites.
- **Silent on deploying conventional weapons in outer space.** The draft of OST overlooks the possibility of conventional explosive-based weapon systems being deployed in outer space.
- **Silent on use of non-kinetic means against the space assets.** The treaty doesn't cover the non-kinetic offensive means to turn off the space objects, inter alia, spoofing, jamming, interference, etc.

- **Nonexistent space weapons definition in OST text.** Moreover, omitting any mention of Anti-Satellite (ASAT) weaponry and Ballistic Missile Defence (BMD) systems suggests they are not subject to any restrictions or laws.⁴⁴ This could be due to two factors. One explanation for this could be that these weapon systems do not fall within the category of systems that cause a lot of human casualties. Nevertheless, because they produce debris when they destroy their opponents' space assets, they play a significant role in the severe deterioration of space as a habitat. Secondly, the OST does not provide a clear description of space weapons. President Reagan's Strategic Defense Initiative (SDI) classified only space-based weapons as such, although the argument now favors terrestrial ASATs.⁴⁵
- **Issue of the right of self-defence in outer space left to the imagination.** The OST subtly connects the concept of self-defence to international space operations. It requires every operation conducted in outer space to comply with international law, including the UN Charter Section 51.

b. **No Legal Binding against Creation of Debris by ASAT Weapons' Test**

- No initiative or legal treaty exists in International Law about Outer Space to resolve the debris issues brought about by using ASATs, such as debris created from the 2019 Indian ASAT test and the 2007 Chinese ASAT test followed by a 2008 US counter test. The three experiments produced hundreds of pieces of debris that are a constant hazard to space assets, including the space station and astronauts on board.⁴⁶
- Since Article I of the Liability Convention stipulates that a "space object includes parts of a space object as well as its launch vehicle and parts thereof," so it does not explicitly address the global debris' concerns."⁴⁷

c. **No Check on Testing of Space Weapons**

The US opposes legal treaties banning ASATs or arms control in outer space. China tested its ASAT in 2007, but the US responded to the test lukewarmly as it never wanted to take a hard stance, thus blocking its capacity building about weaponising the space. However, in 2022, the US Vice President Kamala Harris committed "not to conduct destructive, direct-ascent anti-satellite (ASAT) missile testing."⁴⁸ Albeit, Washington's self-moratorium or

voluntary choice to forgo damaging, direct-ascent ASAT testing creates fresh opportunities for advancing space norms of responsible conduct, however, it cannot be a substitute for a formal arrangement to prevent or completely ban the ASAT testing. It speaks of the fact that the arms control is slow paced due to varying approaches adopted by the great powers including the US.⁴⁹

- d. **Non Existent Rules about Long Term Sustainability of the Outer Space**
When one looks at the essential elements of legislation governing outer space, one finds that regulations concerning the Long Term Sustainability (LTS) of space are conspicuously lacking. The 1967 OST primarily forbade the use of weapons of mass destruction in space. Still, because space traffic was so little fifty years ago, it could not foresee issues like debris accumulation, interference, and space traffic management, which remain unresolved today because regulations have not been implemented. Since ASAT testing is the primary cause of the debris, informal TCBMs with 21 voluntary criteria are used in place of Track-1 negotiations.⁵⁰

Informal Outer Space Governance Efforts

- a. **Technical Confidence Building Measures (TCBMs).** For instance, China and Russia proposed PPWT at the CD, but the US rejected it due to challenges in execution and verification. Instead, they proposed Space Technical Confidence Building Measures (TCBMs). The UN First Committee proposed a study in 2010, and a Group of Governmental Experts (GGE) suggested TCBMs in 2013, which has tangibly contributed to trust, transparency, and peace in outer space activities, but they are all non-binding.⁵¹
- b. **The International Code of Conduct (ICoC).** The EU proposed it as a draft in 2008, aiming to enhance safety, security, and sustainability in outer space. The ICoC did work cosmetically; however, the US and other space-faring states took it as an Arms Control initiative. The US opted out of the ICoC in 2012 and committed to bringing in another informal initiative soon. With the US's exit, the ICoC lost its steam.⁵²
- c. **UNGA resolution on responsible behavior in outer space.** The UK-led UNGA Resolution 75/36 entitled "Reducing Space Threats through Norms, Rules and Principles of Responsible Behaviors," has been brought in with the ICoC as its foundation. It has banned the testing of ASAT; however, its development and stockpiling have not been touched.⁵³ As mentioned earlier,

the US announced a self-moratorium for monopolising in 2022. Pakistan initially voted in favor of the Resolution; however, from 2021 onwards, it has abstained from the treaty as it wants a legally binding one. The US, Russia and India have voted against it.⁵⁴

Conclusion

To conclude, it can be very clearly ascertained that the outer space domain has much more to be explored, which the superpowers do not want to lose by entering into any legal restrictive arrangements. Instead, the major powers, including space-faring nations, desire to enter into informal arrangements, not legal obligatory treaties. Although PAROS is ripe to be negotiated and implemented at CD, Geneva, nothing has been done yet. It does not only set a big question mark on the credibility of the CD but also poses a serious threat to the long-term sustainability of the outer space besides keeping the value of the nuclear weapons deterrence.

Endnotes

- ¹ Miller, Jon. 2014. "Hugo Grotius." In *The Stanford Encyclopedia of Philosophy (Spring 2014 Edition)*, edited by Edward N. Zalta. Stanford University.
- ² International Law," *West's Encyclopedia of American Law*, 2nd ed., s.v. "international law,"
- ³ Anthony Clark Arend, "International Law and the Preemptive Use of Military Force," *The Washington Quarterly* (Spring 2003): 91.
- ⁴ Grotius, Hugo. 2001. *On the Law of War and Peace*. Translated by A. C. Campbell. Kitchener, Ontario: Kitchener.
- ⁵ Zammit Borda, Aldo. 2008. "Introduction to International Humanitarian Law." *Commonwealth Law Bulletin* 34, no. 4: 744.
- ⁶ Damton, Geoffrey. 2006. "Information Warfare and the Laws of War." In *Cyberwar, Netwar and the Revolution in Military Affairs*, edited by Edward Halpin et al., 139. New York: Palgrave.
- ⁷ Koroma, A.G. 2011. "The Development of International Law and the Peaceful Uses for Outer Space." 3rd Nandasiri Jasentuliyana Keynote Lecture on Space Law.
- ⁸ Lyall, Francis, and Paul B. Larsen. *Space Law*. 32.
- ⁹ "Article 38 of the Statute of the International Court of Justice." n.d.
- ¹⁰ Martindale, Michael. 2015. "Evaluating State Willingness to Pursue Space Weapons." *Defence & Security Analysis* 31, no. 2: 114.
- ¹¹ Lyall, Francis, and Paul B. Larsen. *Space Law*. 43.
- ¹² Lyall and Larsen, *Space Law*, 43-51.
- ¹³ Beckman, Robert, and Dagmar Butte. n.d. "Introduction to International Law." *Lecture Notes by International Law Students Association*. ..
- ¹⁴ Lyall and Larsen, *Space Law*, 32-33.
- ¹⁵ Lyall and Larsen, *Space Law*, 35-36.
- ¹⁶ See text of Article II of the OST.
- ¹⁷ Bourbonniere, Michel. 2005. "National-Security Law in Outer Space: The Interface of Exploration and Security." *Journal of Air Law and Commerce* 70: 8. ..
- ¹⁸ Arend, Anthony Clark. 2003. "International Law and the Preemptive Use of Military Force." *The Washington Quarterly* (Spring 2003): 91-92.
- ¹⁹ Krepon, Michael. 2014. "Norm-Setting for Outer Space." *Arms Control Work*, September 9, 2014. 40 mini
- ²⁰ Viikari, Lotta. 2005. "Time is of the Essence: Making Space Law More Effective." *Space Policy* 21: 1.
- ²¹ Viikari, Lotta. 2005. "Time is of the Essence: Making Space Law More Effective." *Space Policy* 21: 3.
- ²² Krepon, Michael. 2017. Interview by author. Co-Founder of the Stimson Center, Washington, D.C. Via electronic mail, June 12, 2017.
- ²³ Viikari, Lotta. 2005. "Time is of the Essence: Making Space Law More Effective." *Space Policy* 21: 2.
- ²⁴ Viikari, Lotta. 2005. "Time is of the Essence: Making Space Law More Effective." *Space Policy* 21: 4.
- ²⁵ "Text of the UNGA Resolution 1148 (XII)." n.d.
- ²⁶ Menon, P.K. 1989. "Arms Limitation in Outer Space for Human Survival." In *Military Technology, Armaments Dynamics and Disarmament*, edited by H.G. Brauch, 452-453. London: Palgrave Macmillan.
- ²⁷ "Text of UNGA Resolution 1348 (XIII)." n.d.
- ²⁸ "Text of UNGA Resolution 1472 (XIV)." n.d. .
- ²⁹ Menon, P.K. 1989. "Arms Limitation in Outer Space for Human Survival." In *Military Technology, Armaments Dynamics and Disarmament*, edited by H.G. Brauch, 453. London: Palgrave Macmillan.
- ³⁰ Text of UNGA Resolution 1721 (XVI)." n.d. .
- ³¹ Menon, P.K. 1989. "Arms Limitation in Outer Space for Human Survival." In *Military Technology, Armaments Dynamics and Disarmament*, edited by H.G. Brauch, 453. London: Palgrave Macmillan.
- ³² "Text of UNGA Resolution 1962 (XVIII)." n.d.
- ³³ "See LTBT Text." n.d.
- ³⁴ Menon, P.K. 1989. "Arms Limitation in Outer Space for Human Survival." In *Military Technology, Armaments Dynamics and Disarmament*, edited by H.G. Brauch, 455. London: Palgrave Macmillan.
- ³⁵ See Text of Rescue Agreement." n.d.
- ³⁶ "Article VI - Exoneration from Absolute Liability (Convention on International Liability for Damage Caused by Space Objects, UN)." n.d.
- ³⁷ "See Text of CD/1925." n.d.
- ³⁸ Listner, Michael, and Rajeswari Pillai Rajagopalan. 2014. "The 2014 PPWT: A New Draft but with the Same and Different Problems." *The Space Review*, August 11, 2014.

-
- ³⁹ Dunay, Pizl. 1989. "The Military Use of Outer Space: Implications for International Law." In *Military Technology, Armaments Dynamics and Disarmament: ABC Weapons, Military Use of Nuclear Energy and of Outer Space and Implications for International Law*, edited by Hans Günter Brauch, 478.
- ⁴⁰ Su, Jinyuan. 2009. "Peaceful Use of Outer Space: Non-Militarization, Non-Aggression and Prevention of Weaponization." *Journal of Space Law* 36, no. 1 (October 2009): 253-254.
- ⁴¹ Dunay, Pizl. 1989. "The Military Use of Outer Space: Implications for International Law." In *Military Technology, Armaments Dynamics and Disarmament: ABC Weapons, Military Use of Nuclear Energy and of Outer Space and Implications for International Law*, edited by Hans Günter Brauch, 472.
- ⁴² Menon, P.K. 1989. "Arms Limitation in Outer Space for Human Survival." In *Military Technology, Armaments Dynamics and Disarmament*, edited by Hans Günter Brauch, 450-451. London: Palgrave Macmillan.
- ⁴³ Dunay, Pizl. 1989. "The Military Use of Outer Space: Implications for International Law." In *Military Technology, Armaments Dynamics and Disarmament: ABC Weapons, Military Use of Nuclear Energy and of Outer Space and Implications for International Law*, edited by Hans Günter Brauch, 473-474. New York: Library of Congress.
- ⁴⁴ Burton, Andrew D. 1988. "Daggers in the Air: Anti-Satellite Weapons and International Law." *The Fletcher Forum* 12, no. 1 (Winter 1988): 144-145.
- ⁴⁵ Bateman, Aaron. 2024. *Weapons in Space: Technology, Politics, and the Rise and Fall of the Strategic Defense Initiative*. Cambridge, Massachusetts: The MIT Press.
- ⁴⁶ Sample, Ian. 2023. "Legally Binding Global Treaty Needed to Tackle Space Debris, Say Experts." *The Guardian*, March 9, 2023.
- ⁴⁷ See Article I of the Liability Convention.
- ⁴⁸ Panda, Ankit, and Benjamin Silverstein. 2022. "The U.S. Moratorium on Anti-Satellite Missile Tests Is a Welcome Shift in Space Policy." *Carnegie Endowment Publication*, April 20, 2022.
- ⁴⁹ Maurer, John D. 2018. "The Purposes of Arms Control." *The National Security Review* 2 (November 2018): 8.
- ⁵⁰ Johnson, Christopher. 2014. "The UN Group of Governmental Experts on Space TCBMs." *A Secure World Foundation Fact Sheet*, April 2014.
- ⁵¹ "Transparency and Confidence-Building Measures in Outer Space Activities." 2010. UNGA Res. 65/68, U.N. GAOR, 65th Session. U.N. Doc A/RES/65/68 (Dec. 8, 2010).
- ⁵² Irsten, Gabriella. n.d. "The Consultation Process for the International Code of Conduct for Outer Space Activities Ends." *Reaching Critical Will*.
- ⁵³ "Report of the Secretary-General on Reducing Space Threats Through Norms, Rules and Principles of Responsible Behaviors (2021)." 2021.
- ⁵⁴ "Outer Space Should Never Be an Arena for Militarization," Delegate Tells General Assembly Debate on Moscow's Veto of Resolution Aimed at Curbing Arms Race." 2024. May 6, 2024.