

## THE INTENSIFYING PURSUIT OF ANTI-SATELLITE CAPABILITIES: ASSESSING THE GAPS IN INTERNATIONAL REGULATORY FRAMEWORKS

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September 11, 2024

*(Views expressed in the brief are those of the author, and do  
not represent those of ISSI)*



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Exerting greater influence and establishing dominance is the inherited self-centered nature of the state which often indulges states in maximizing their capabilities. This lust for power and dominance ultimately lit the fire to maximize their capabilities more specifically in the realm of space dominance with significant space weapon development. Hence, this trend of enhancing capabilities lays the ground for the concept known as “Space Weaponization.” This rapid race toward space weaponization has the potential to exploit valuable assets such as satellites and navigation and disrupt communication. A major player in this debate is Anti-satellite (ASAT) weapons, which can be defined as “weapons that are designed to destroy the satellite for strategic or tactical purposes.” These weapons are categorized into two categories, kinetic and non-kinetic ASATs, which can jam the frequency and disabling satellite. Before the development of ASAT weapons, the satellite was used for specific commercial, civilian, and military applications such as exploration and communication.

There are currently two distinct approaches related to space:

1. Weaponization in space deals with the establishment of weapons in space.

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<sup>1</sup> Samuel Oyewole and Ezenwa E. Olumba, “Space Arm Race can be Underway- it comes with the Enormous Risk,” <https://theconversation.com/space-arms-race-may-be-underway-it-comes-with-enormous-risks-231545>.

2. Militarization of space deals with technologies like communication, monitoring of physical characteristics of emitted radiation, and supporting military operations.<sup>2</sup>

During the period of rapid technological development to establish dominance in space. The Soviet Union created history by launching the world's first artificial satellite known as Sputnik, during the period of the technological race for space dominance. In response to this ground-breaking achievement, the United States also entered the space race by launching its first artificial satellite weapon, an air-launched ballistic missile known as Bold Orion. During the Cold War era, this event was marked as a major event by superpowers. The United States, Soviet Union, China, and India working on enhancing and developing the ASAT capabilities.<sup>3</sup> This maximization of space capabilities can change the focus of the states on the commercial use of space for exploration due to the intersection of aggressive state ambitions. Moreover, the ongoing space arms race is also considered a threat possessed by major powers, hindering efforts aimed at stabilizing the increasingly volatile space environment. The instability created by these threats causes insecurity in space, which triggers other nations to reinforce their space capabilities, which ultimately leads to the proliferation of space weapons. The self-centric behavior of states and lust for dominance in space highlighted the escalating instability and insecurity in space. This insecure and unstable environment creates a significant threat to the security of the outer space environment, potentially jeopardizing peaceful activities. Despite concerted efforts to maintain outer space as a peaceful domain, these endeavors have been perceived as inadequate, failing to ensure the preservation of a calm space environment.<sup>4</sup> The concise overview of some agreements is as follows:

#### COPUOS:

The United Nations General Assembly established the Committee on the Peaceful Uses of Outer Space (COPUOS) in 1959. Its primary purpose is the promotion of peace, security, and development of the space environment. Moreover, it also focuses on the exploration and utilization of space in a manner that benefits all of humanity. This committee promotes international cooperation for peaceful space activities, investigating potential space-related initiatives under the United Nations, fostering space research initiatives, and addressing legal issues that emerge from outer space

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<sup>2</sup> Zeev Shapira and Gil Baram, "The Space Arms Race: Global Trends and State Interests," *Cyber, Intelligence and Security*, (October 2019), <https://www.inss.org.il/wp-content/uploads/2019/11/Shapira-and-Baram.pdf>.

<sup>3</sup> Ibid.

<sup>4</sup> Dr. Patricia Lewis and David Livingstone "What to Know About Space Security | Chatham House – International Affairs Think Tank," September 27, 2016. <https://www.chathamhouse.org/2016/09/what-know-about-space-security>.

exploration.<sup>5</sup> COPUOS has 24 founding members and it is recognized as a long-standing organization. It served as a central committee for international collaboration in the orderly use of space and exploration.<sup>6</sup> Moreover, this committee developed international standards and policies for sustainable space utilization with a primary focus on managing space debris and satellite arrangements.<sup>7</sup> Despite these uncountable mitigation efforts, the population of satellites is growing and poses a challenge to maintaining sustainable space operations due to escalating space debris issues. Furthermore, the COPOUS also faced difficulties in the implementation of its mandates due to the complex nature of determining the boundaries between airspace and outer space. This complexity hindered the establishment of a clear and effective framework for outer space activities.<sup>8</sup> To safeguard outer space from potential threats, various treaties and agreements have been established. The following analysis examines the most impactful treaties for maintaining peaceful activities in space.

### *The Outer Space Treaty (1967)*

The Outer Space Treaty, formally titled the “Treaty on Principle Governing the Activities of States in the Exploration and Use of Outer Space,” is an important international agreement that ensures countries use outer space for safe, and responsible objectives. However, the treaty has a clampdown that prevents it from effectively addressing modern space-related issues. The Outer Space Treaty has some ambiguities that have been effectively used in some areas but are lacking in others, especially with the increasing commercialization of space. The abundance of debris in outer space is a growing concern because it poses a threat to future space travel. The treaty places responsibility on nations for space debris, but there are challenges in definite liability, demarcating international airspace, and circumventing provisions, as seen with the development of nuclear weapons delivery systems through ostensibly peaceful spaceflight. The fast-paced growth in space technology and the expanding commercialization of space address the deficiencies in the outer space treaty. These

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<sup>5</sup> “COPUOS History,” accessed August 6, 2024,  
<https://www.unoosa.org/oosa/en/ourwork/copuos/history.html>.  
<https://www.unoosa.org/oosa/en/ourwork/copuos/history.html>.

<sup>6</sup> Ibid.

<sup>7</sup> “Takeaways from the 61st UN COPUOS Scientific and Technical Subcommittee” accessed date August 6, 2024, <https://accesspartnership.com/takeaways-61st-session-un-copuos-stfc/>.

<sup>8</sup> “COPUOS: Committee and Subcommittees,” accessed August 1, 2024,  
<https://www.unoosa.org/oosa/en/ourwork/copuos/comm-subcomms.html>.

deficiencies emphasize the critical requirement for updated regulation and stronger international agreements to preserve outer space as a domain for cooperative and peaceful exploration.<sup>9</sup>

### *The Prevention of An Arms Race in Outer Space Treaty (PAROS)*

In the 1950s, the UN initiated discussions to prohibit the use of space for military activities and the deployment of weapons of mass destruction, to prevent an arms race in outer space. The Outer Space Treaty, which was enacted in 1967, limits the deployment of nuclear arsenals in space and also on celestial bodies.<sup>10</sup> Inhibiting an arms race in outer space is constrained by geopolitical and institutional challenges. The United States has maintained its opposition to PAROS, favoring bilateral agreements for its missile defense system and potential space weaponry rather than multilateral negotiations. The U.S. declared in 1990 that it had not identified any practical outer space arms control measures suitable for multilateral discussions. Moreover, the PAROS treaty has received significant international support; however, the United States and certain Western states have shown limited participation in formal discussions and have made minimal contributions to the treaty's development. This lack of engagement has hampered the formation of consensus and the advancement of negotiations aimed at preventing an arms race in outer space.<sup>11</sup>

### *The Anti-Ballistic Missile Treaty (ABM) 1972*

The Anti-Ballistic Missile (ABM) Treaty was a bilateral agreement between the United States and the Soviet Union aimed at ceasing the development of state Anti-ballistic missile systems and limiting the advancements and installation of shielding missiles.<sup>12</sup> Moreover, this treaty prohibited the evolution, deployment, and testing of anti-ballistic missiles and their components in space.<sup>13</sup> The limitation of advanced defensive missiles during the Cold War aimed to enhance strategic stability. The treaty aimed to understand the principles of success but ultimately fell short in achieving its objective. The treaty's failure was obvious when the United States withdrew from it, highlighting the

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<sup>9</sup> Declan Tevyam, "Failure and Successes of Outer Space Treaties," The Alliance for Citizen Engagement, date accessed 4 August 2024, <https://ace-usa.org/blog/foreign-policy-region/space-oceans-and-polar-regions/failures-and-successes-of-the-outer-space-treaty/>.

<sup>10</sup> Abijit Kumar, "What is PAROS?," *Business Standards*, June 11, 2024, [https://www.business-standard.com/external-affairs-defence-security/news/explained-what-is-paros-which-has-got-support-from-brics-leaders-124061100659\\_1.html](https://www.business-standard.com/external-affairs-defence-security/news/explained-what-is-paros-which-has-got-support-from-brics-leaders-124061100659_1.html).

<sup>11</sup> "Critical Issues," accessed August 4, 2024, <https://www.reachingcriticalwill.org/resources/fact-sheets/critical-issues/5448-outer-space>.

<sup>12</sup> "ABM Treaty," accessed August 5, 2024, <https://www.nti.org/education-center/treaties-and-regimes/treaty-limitation-anti-ballistic-missile-systems-abm-treaty/>. date accessed August 5, 2024, <https://www.nti.org/education-center/treaties-and-regimes/treaty-limitation-anti-ballistic-missile-systems-abm-treaty/>.

<sup>13</sup> "ABM Treaty," *The Nuclear Threat Initiative* (blog), accessed August 5, 2024, <https://www.nti.org/education-center/treaties-and-regimes/treaty-limitation-anti-ballistic-missile-systems-abm-treaty/>.

need to develop a missile defense system against emerging threats, mainly from rogue states and terrorist organizations. Each ABM site was restricted to a maximum of 100 interceptor missiles and 100 launchers to prevent the development of comprehensive national defense systems.<sup>14</sup> Moreover, the treaty reinforced the concept of MAD by limiting each side's ability to defend against a nuclear attack, deterring the likelihood of a first strike from either side due to the risk of retaliation.<sup>15</sup>

### *The Moon Agreement (1984)*

The consensus reinforces and inflates upon the multiple aspects of the outer space treaty as they pertain to the moon and other celestial bodies. It emphasizes the entire use of these bodies for peaceful purposes, as well as the prevention of disruption to their environment. Furthermore, it establishes that the moon and its natural resources of space are the collective right of mankind, and it advocates for the creation of an international framework to oversee the utilization of these resources when such activities become viable. Even though the Moon Treaty emphasizes the peaceful use of the moon and other celestial bodies it was not widely regarded as successful because the agreement had not received any endorsement from any of the major space-faring nations, such as the United States, Russia, and China. This lack of participation weakens the authority and effectiveness in establishing the global framework for lunar activities.<sup>16</sup> Moreover, the agreement also lacks an enforcement mechanism. Although this treaty encourages engaging in consultations and resolving disputes, the absence of a binding framework creates a scenario where violations may potentially remain unaddressed, which leads to the failure of the treaty.<sup>17</sup>

The space dominancy is rapidly escalating and poses a threat to the space environment. To address these threats, many safety measures have been taken in the form of treaties and agreements. To create an enforceable mechanism and norms aimed at preventing space weaponization, treaties, and agreements have established a strong foundation for international collaboration. This method will help to preserve the space environment for peaceful purposes. However, the limitations have become more prominent due to technological advancements, which ultimately lead to an evolving geopolitical landscape, and the increasing privatization of space activities. Moreover, Pakistan is strongly against putting weapons in space and supports the peaceful use of space with effective rules and regulations. It also participated in global dialogues and co-partners to propagate the "No

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<sup>14</sup> Anti-Ballistic Missile (ABM) Treaty | Arms Control Association." Date accessed August 29, 2024, <https://www.armscontrol.org/treaties/anti-ballistic-missile-treaty>.

<sup>15</sup> Ibid.

<sup>16</sup> Ibid.

<sup>17</sup> "Moon Agreement," Nuclear Threat Initiative, date accessed August 30, 2024, "<https://www.nti.org/education-center/treaties-and-regimes/agreement-governing-activities-states-moon-and-other-celestial-bodies-moon-agreement/>."

First Placement In Outer Space.” Pakistan is also concerned about enhancing the anti-satellite systems and other military weapons that could affect regional and global stability.