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# Outer Space & Use of Force

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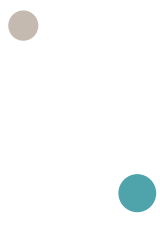
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# ABBREVIATIONS AND ACRONYMS



<b>ASAT</b>	Anti-satellite capability
<b>EMP</b>	Electromagnetic pulse
<b>ENMOD</b>	Environmental Modification Convention
<b>GGE</b>	Group of Governmental Experts
<b>HPM</b>	High-powered microwaves
<b>ICJ</b>	International Court of Justice
<b>ISR</b>	Intelligence, surveillance and reconnaissance
<b>ITU</b>	International Telecommunication Union
<b>LTBT</b>	Limited Test Ban Treaty
<b>NTM</b>	National technical means
<b>OEWG</b>	Open-ended Working Group
<b>OST</b>	Outer Space Treaty
<b>PAROS</b>	Preventing an arms race in outer space
<b>PPWT</b>	Draft treaty on the Prevention of the Placement of Weapons in Outer Space, the Threat or Use of Force against Outer Space Objects
<b>RPO</b>	Rendezvous and proximity operations
<b>TCBM</b>	Transparency and confidence-building measures
<b>UNCOPUOS</b>	United Nations Committee on the Peaceful Uses of Outer Space
<b>UNIDIR</b>	United Nations Institute for Disarmament Research

# KEY TAKEAWAYS

- ▶ The 1967 Outer Space Treaty establishes that States shall carry out their activities in outer space in accordance with international law, including the Charter of the United Nations (art. III). This includes the prohibition of the use of force between States in their international relations enshrined in Article 2(4) of the Charter of the United Nations<sup>1</sup> and also established under customary international law.
- ▶ States have recognized and reaffirmed the prohibition on the threat or use of force in outer space. Acts in outer space below the threshold of a use of force remain regulated by international law, including regulations on harmful interference and the principle of non-intervention.
- ▶ A prohibited “use of force” has a legal definition consisting of contextual requirements and elements that make the act a “use of force”.

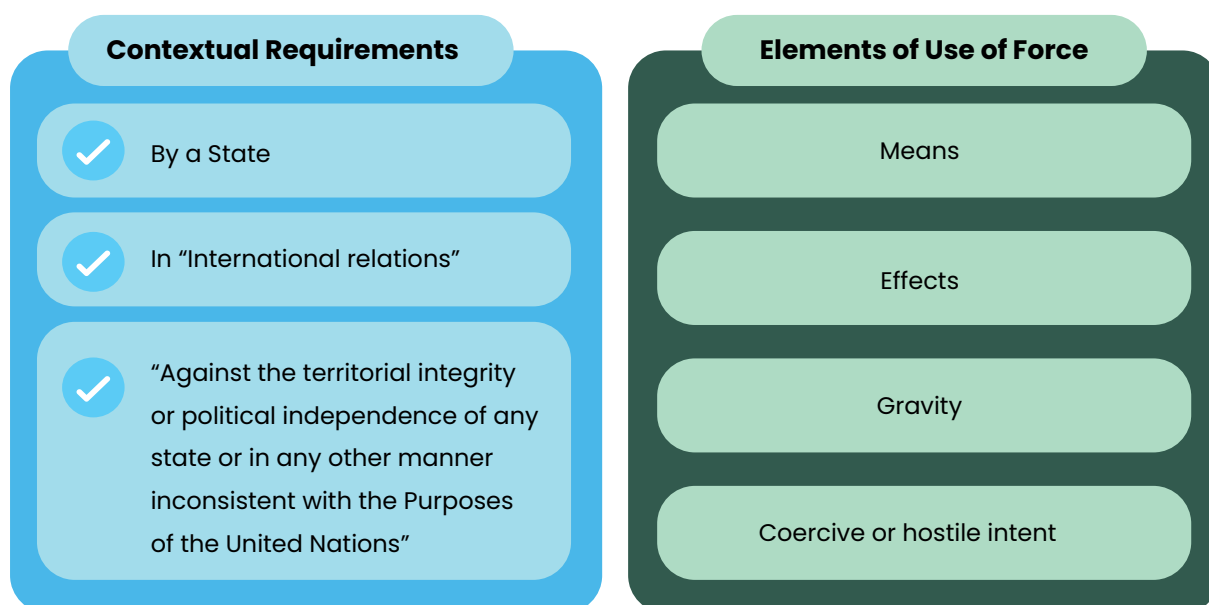


Figure 1: Elements of prohibited use of force under Article 2(4) UN Charter

- ▶ The contextual requirements must all be present for a “use of force” to fall within the scope of the prohibition. But not all the elements of “use of force” must be present for an act to meet the definition; instead, the elements should be assessed to determine whether the threshold is met.<sup>2</sup>

1 “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.” Art. 2(4) of the Charter of the United Nations and Statute of the International Court of Justice, 26 June 1945, 59 Stat. 1031; T.S. No. 993; 3 Bevans 1153 [hereinafter ‘UN Charter’].

2 See generally ERIN POBJIE, PROHIBITED FORCE: THE MEANING OF ‘USE OF FORCE’ IN INTERNATIONAL LAW (2024), <https://doi.org/10.1017/9781009022897>.

- ▶ A prohibited “use of force” is not necessarily the same as the use of a “space weapon” or a counterspace capability. “Use of force” does not depend on the definition of a “weapon”.
- ▶ The prohibition of the use of force does not explicitly ban specific space capabilities or space behaviours. However, these can be legally relevant to an assessment of whether an act is a prohibited “use of force”.
- ▶ Key areas lacking clarity regarding the meaning of a prohibited “use of force” include:
  - ▶ Contextual requirements: Whether article VI of the Outer Space Treaty could implicate the State of registration in violations of *ius contra bellum*<sup>3</sup> with respect to national activities of their non-governmental entities (such as commercial actors) in outer space.
  - ▶ Effects: whether “use of force” includes acts with indirect effects, temporary and reversible effects, and potential but unrealized harm.
  - ▶ Gravity: whether a prohibited “use of force” has a gravity (i.e., severity) threshold.
  - ▶ Intention: what type of intent is relevant for an act to constitute a “use of force”, e.g. a deliberate, hostile or coercive intent or recklessness.
- ▶ States should promote compliance with the prohibition of the use of force in the UN Charter and customary international law and consider how to strengthen the prohibition of the use of force in its application to outer space.
- ▶ States should consider the interpretation of a prohibited “use of force” in its application to outer space security and take steps to build common understandings by addressing the areas of uncertainty identified in this report.
- ▶ States can increase clarity over the interpretation of a prohibited “use of force” in its application to outer space through non-legally binding measures and legally binding instruments, which can be complementary, as well as through plurilateral or unilateral statements.
- ▶ As the definition of prohibited force can help clarify regulation of space capabilities and space behaviours and already applies to all States, the prohibition of the use of force can serve as a useful basis for advancing common understandings for Preventing an Arms Race in Outer Space, and for achieving and maintaining space security.

3 *ius contra bellum* refers to the international law rules prohibiting the recourse to force between States in their international relations, and the exceptions to the prohibition. *ius contra bellum* is a separate body of law from *ius in bello* (also known as international humanitarian law), which regulates the conduct of hostilities during armed conflict, and will not be a topic addressed in this report.

# INTRODUCTION

Outer space is not a legal “wild west”. As the international community works towards establishing mechanisms to ensure and maintain peace and security in outer space, it is necessary to consider the legal framework already applicable to this environment. Ascertaining existing obligations, limitations and prohibitions is key to determining which parts of the legal framework need to be strengthened and which gaps need to be filled.

While space security is not the main focus of international space regulations, particularly the Outer Space Treaty (OST),<sup>4</sup> it is nonetheless an area covered by international law. In this sense, international law applicable to outer space and activities conducted therein establishes restraints through the prohibition of recourse to the use of force between States in their international relations.

The international community has engaged in multiple debates and proposed numerous initiatives throughout the years with the aim of keeping outer space secure and preventing an arms race in outer space. Over the course of these debates, the prohibition of the use of force has been raised, and States have underscored that this restraint —enshrined in the Charter of the United Nations— applies to outer space.<sup>5</sup> However, in their multilateral discussions States have not delved into the details of what such a prohibition signifies for outer space activities.

What exactly is the prohibition of recourse to force (*ius contra bellum*),<sup>6</sup> and how does it apply to outer space? This report explores these questions, analysing the implications of this legal restraint with respect to hostile actions in outer space and against space objects. Part I contextualizes the relationship between space activities and the prohibition of use of force, situating such proscription as determined by the *ius contra bellum* within the framework of the Prevention of an Arms Race in Outer Space (PAROS). Part II then underscores the applicability of the prohibition of the use of force in outer space, highlights areas of ambiguity around this issue, and illustrates these through examples, with a view to contributing to building common understandings between States and other stakeholders on the meaning of prohibited force in outer space.

4 Despite this, it is worth noting that the OST served as a form of arms control agreement to ensure stability in space and included a key provision —its article IV— to this effect. See Jessica West & Almudena Azcárate Ortega, *Norms for Outer Space: A Small Step or a Giant Leap for Policymaking?*, Space Dossier 7, UNIDIR 7 (Mar. 2022), <https://doi.org/10.37559/WMD/22/Space/01>. See also FRANCIS LYALL & PAUL B. LARSEN, *SPACE LAW: A TREATISE* 453–454 (2nd ed. 2018). U.S. President Lyndon Johnson termed the OST as “the most important arms control development since the Limited Test Ban Treaty of 1963”, see Lyndon Johnson, Statement by the President Announcing the Reaching of Agreement on an Outer Space Treaty, 8 December 1966, in Lyndon B. Johnson: Containing the Public Messages, Speeches, and Statements of the President: 1966 (in two books), [Book II] 1441 (1967), available online at <https://babel.hathitrust.org/cgi/pt?id=mia.4731549.1966.002&seq=815>.

5 Chairperson of the Open-ended Working Group on reducing space threats through norms, rules and principles of responsible behaviours, *Chairperson’s Summary*, ¶20, U.N. Doc. A/AC.294/2023/WP.22 (1 Sept. 2023) [hereinafter ‘Chairperson’s Summary’], available on the OEWG webpage here: <https://meetings.unoda.org/meeting/57866/documents>.

6 See *supra* note 3.





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# PART I:

# CONTEXT AND LEGAL FRAMEWORK





# PART I: CONTEXT AND LEGAL FRAMEWORK

## MILITARY USES OF OUTER SPACE

Outer space is a militarized environment, and has been for much of the history of space exploration, which has had a decidedly military intent: both the United States and the Soviet Union sought to use space for military purposes, namely intelligence, surveillance and reconnaissance (ISR). Over time, military reliance on space systems has only increased, despite initiatives designed to regulate outer space, including the 1967 Outer Space Treaty.<sup>7</sup>

### PEACEFUL PURPOSES

The OST establishes that States shall be guided by the principle of exploring and using outer space for “peaceful purposes”.<sup>8</sup> This principle, which has become customary international law,<sup>9</sup> has been understood to mean non-aggressive or non-hostile use, rather than non-military.<sup>10</sup> In practice, many space systems are used for applications that support military operations —such as intelligence gathering, reconnaissance, navigation, early warning of missile and air attacks or military communications— but which are not directly harmful themselves.<sup>11</sup>

7 Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies, 27 January 1967, 18 U.S.T. 2410; 610 U.N.T.S. 205; 6 I.L.M. 386 [hereinafter ‘OST’]. The OST is the treaty relating to space matters that has gained the most acceptance among the international community. The OST has, as of 1 January 2023, 112 State parties and has been signed by 23 other States according to the list on the status of international agreements relating to activities in outer space compiled and distributed by the United Nations Office for Outer Space Affairs, <https://www.unoosa.org/oosa/en/ourwork/spacelaw/treaties/status/index.html>.

8 This oft-quoted term only appears twice in the OST: firstly, in the non-binding, or hortatory, preambulatory text, which states that there is a “common interest of all [hu]mankind in the progress of the exploration and use of outer space for peaceful purposes,” and secondly, in article IV, which establishes that “[t]he Moon and other celestial bodies shall be used by all State Parties to the Treaty exclusively for peaceful purposes.” Moreover, it should be noted that art. IV OST does not explicitly establish the limitation of exclusive use for peaceful purposes for the void of outer space as it does for the Moon and other celestial bodies. However, this obligation can be inferred from the applicability of general international law to the space domain, established in art. III OST. Under general international law, particularly under Art. 2(4) of the UN Charter, the use of force is prohibited. See Almudena Azcárate Ortega & Hellmut Lagos Koller, *The Open-Ended Working Group on Reducing Space Threats through Norms, Rules and Principles of Responsible Behaviours: The Journey so Far, and the Road Ahead*, 48 Air and Space Law 19 (2023), <https://kluwerlawonline.com/journalarticle/Air+and+Space+Law/48.SI/AILA2023029>.

9 The term’s consistent appearance in domestic laws and policies relating to outer space is indicative of its prevalent recognition as a legal obligation. See P. J. Blount, *Space Security Law*, in OXFORD RESEARCH ENCYCLOPEDIA OF PLANETARY SCIENCES (2018).

10 Shannon Orr, *Peace And Conflict In Outer Space*, 30 Peace Research 52, 58 (1998); Bhupendra Jasani & Maria A. Lunderius, *Peaceful Uses of Outer Space—Legal Fiction and Military Reality*, 11 Security Dialogue 57, 58 (1980).

11 Michael N. Schmitt, *International Law and Military Operations in Space*, 10 Max Planck Y.B. U.N. L. 89, 102 (2006).

## SPACE WEAPONIZATION

In light of the military relevance of outer space, States have sought to protect their national security interests in this environment, sometimes through the development and use of counterspace capabilities. Space weaponization alludes to the proliferation, testing, deployment and use of weapons or counterspace capabilities located in or directed towards space or space systems.<sup>12</sup> The weaponization of space is not strictly prohibited by the OST and other space treaties, beyond article IV of the OST, which prohibits the “place[ment] in orbit around the Earth [of] any objects carrying nuclear weapons or any other kinds of weapons of mass destruction, install[ation of] such weapons on celestial bodies, or station[ing of] such weapons in outer space in any other manner” as well as the “establishment of military bases, installations and fortifications, the testing of any type of weapons and the conduct of military manoeuvres on celestial bodies”.<sup>13</sup>

While the OST as well as general international law prohibit the use of force or the threat of use of force in space or against space systems,<sup>14</sup> international law applicable to space is silent on the development and placement in orbit of any weapons that are not nuclear weapons or other weapons of mass destruction. In the absence of an explicit prohibition,<sup>15</sup> States have developed numerous forms of counterspace capabilities, ranging from debris-creating kinetic capabilities to non-kinetic counterspace assets which can deny, disrupt, degrade, damage, destroy or otherwise harm a system through electronic or cyber means.<sup>16</sup>

12 “Militarization of outer space refers to any military activity in outer space (whether hostile or not, or whether weapons-related or not) or any activity that supports military operations. Many argue that outer space has been militarized since the early days of space exploration, thus highlighting that military uses of space are not necessarily aggressive or hostile in nature, and therefore can be considered to be acceptable under the umbrella of peaceful purposes. It is generally understood that the concept of militarization of outer space must be distinguished from the concept of weaponization of outer space. This distinction, however, is not universally accepted, as a number of States argue that, due to the nature of space objects and the space environment, it is not possible to develop a meaningful definition of a space weapon. Moreover, it is important to note that there are languages which do not have a word for weaponization. In those instances, the word ‘militarization’ is often used to refer to both of these ideas, which can create further confusion”. See Almudena Azcárate Ortega & Victoria Samson (eds.), *A Lexicon for Outer Space Security*, UNIDIR 3.3.3 (2023) [hereinafter ‘Space Security Lexicon’], <https://doi.org/10.37559/WMD/23/Space/05>.

13 OST, *supra* note 7, art. IV.

14 *Ibid.*, art. III, establishes 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, in the interest of maintaining international peace and security and promoting international cooperation and understanding.” Art. 2(4) of the UN Charter, in turn, establishes 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.”

15 Under the Lotus principle, named after the 1927 case between France and Turkey before the Permanent Court of International Justice (S.S. ‘Lotus’ (Fr. v. Turk.), Judgment, 1927 P.C.I.J. (ser. A) No. 10 (7 Sept.), a consensual approach to international law was established, suggesting that in the absence of a prohibition, a State is free to act as it sees fit without the need for a specific basis that permits its action.

16 See generally Brian Weeden & Victoria Samson, *Global Counterspace Capabilities*, Secure World Foundation (2024), [https://swfound.org/media/207826/swf\\_global\\_counterspace\\_capabilities\\_2024.pdf](https://swfound.org/media/207826/swf_global_counterspace_capabilities_2024.pdf).

# PAROS & THE MULTILATERAL SPACE SECURITY DEBATE

As a result of the international community's efforts to ensure space security, the notion of the "Prevention of an Arms Race in Outer Space" (PAROS) emerged in 1978.<sup>17</sup> In 1982, PAROS was added as an item to the Conference on Disarmament's agenda, and since then, PAROS has been present on the agenda in multilateral discussions, becoming the umbrella term under which States discuss the maintenance and improvement of space security at the United Nations.<sup>18</sup> The desire of the international community to keep space peaceful and secure has manifested in the form of multiple initiatives over the years; however, these have had limited success. This is due mainly to the international community's inability to agree on which issues to tackle as well as how best to address them.<sup>19</sup>

## WHICH CONCERNS TO PRIORITIZE (CAPABILITIES AND BEHAVIOURS)

At the core of PAROS is the desire to prevent arms racing. Paradoxically, States remain unable to agree on a definition for a space "arms" or "weapon", or even on whether this is a term that should be defined at all. Generally, this term is used to refer to a capability or system used to deny, disrupt, degrade, damage, destroy or otherwise harm a system, infrastructure, person or group of people. For some, a weapon would only fit the definition of "space weapon" if it is located in space, whereas others understand that any object that can target any component of a space system, even those not located in space, could constitute a space weapon.<sup>20</sup>

Certain States have sought to define the term more clearly. For example, in the draft treaty on the Prevention of the Placement of Weapons in Outer Space and of the Threat or Use of Force against Outer Space Objects (PPWT), introduced by the Russian Federation and China to the Conference on Disarmament in 2008 and then again in 2014 after revisions, proposed a definition of a "weapon in outer space".<sup>21</sup> This definition provides some clarity on what could be considered a "space weapon", though it does not account for dual-purpose space systems, which are "designed to fulfil a benign objective (such as debris removal or on- orbit servicing), but [which] could potentially be repurposed to harm other

17 G.A. Res. S-10/2, 10th Special Sess., Final Document of the Tenth Special Session of the General Assembly, U.N. Doc. A/RES/S-10/2, ¶180 (30 Jun. 1978), <https://digitallibrary.un.org/record/218448?v=pdf>.

18 Azcárate Ortega & Lagos Koller, *supra* note 8, at 23.

19 West & Azcárate Ortega, *supra* note 4, at 9.

20 Space Security Lexicon, *supra* note 12, at 3.3.10.

21 Art. I(b) draft treaty on the Prevention of the Placement of Weapons in Outer Space, the Threat or Use of Force against Outer Space Objects, (16 June 2014) [hereinafter 'PPWT'], defines "weapon in outer space" as "any outer space object or its component produced or converted to eliminate, damage or disrupt normal functioning of objects in outer space, on the Earth's surface or in the air, as well as to eliminate population, components of biosphere important to human existence, or to inflict damage to them by using any principles of physics." Available online at [https://docs-library.unoda.org/Conference\\_on\\_Disarmament\\_\(2014\)/1319%2BRussian%2BFederation%2BDraft%2BUpdated%2BPPWT%2B.pdf](https://docs-library.unoda.org/Conference_on_Disarmament_(2014)/1319%2BRussian%2BFederation%2BDraft%2BUpdated%2BPPWT%2B.pdf).



space objects” without requiring any adaptation.<sup>22</sup> The potential for certain space objects to be used in this way is a significant cause for concern for the international community,<sup>23</sup> however they cannot be considered a “weapon” on the basis of their capabilities alone.

Awareness of this has prompted States to seek to regulate not only capabilities but also how space systems are used. In recent years, an approach to reduce threats to space systems through mechanisms that focus on behaviours has emerged, introduced by the United Kingdom in 2020 in what would eventually become General Assembly resolution 75/36 on reducing space threats through norms, rules and principles of responsible behaviours.<sup>24</sup> A focus on behaviours does not necessarily mean ignoring issues related to capabilities. However, capabilities of space systems can often be neutral, and thus threats to space security can result from how an actor behaves when using certain capabilities rather than only from the capabilities themselves.<sup>25</sup>

## HOW TO ADDRESS CONCERNS (LEGALLY BINDING INSTRUMENTS AND NON-LEGALLY BINDING MECHANISMS)

States have also been unable to agree on how best to address space security challenges. Some States have traditionally preferred to seek to establish new legally binding instruments, due to the understanding that existing legal instruments, such as the OST and the Charter of the United Nations, leave important security-relevant gaps that need to be addressed.<sup>26</sup> This, as well as the perception that legally binding mechanisms provide a stronger foundation for security measures, led to the introduction

22 ‘Dual-purpose’ refers to “those space objects that are designed to fulfil a benign objective (such as debris removal or on-orbit servicing), but [which] could potentially be repurposed to harm other space objects.” See Space Security Lexicon, *supra* note 12, at 3.3.2.

23 OEWG on Reducing Space Threats through Norms, Rules and Principles of Responsible Behaviours, *Threats to the Security of Space Activities and Systems*, UNIDIR ¶¶23–27, U.N. Doc. A/AC.294/2022/WP.16 (12 Sep. 2022), [https://documents.unoda.org/wp-content/uploads/2022/08/20220817\\_A\\_AC294\\_2022\\_WP16\\_E\\_UNIDIR.pdf](https://documents.unoda.org/wp-content/uploads/2022/08/20220817_A_AC294_2022_WP16_E_UNIDIR.pdf).

24 Resolution 76/231 on reducing space threats through norms, rules and principles of responsible behaviours was the successor of resolution 75/36, and it convened an open-ended working group to “take stock of the existing international legal and other normative frameworks concerning threats arising from State behaviours with respect to outer space” and “consider current and future threats by States to space systems and actions, activities and omissions that could be considered irresponsible” in order to make recommendations on possible norms, rules and principles of responsible behaviours to mitigate those threats and address any gaps that may exist in currently applicable regulations, also taking into consideration “as appropriate, how they would contribute to the negotiation of legally binding instruments, including on the prevention of an arms race in outer space.” See G.A. Res. 76/231, 76th Sess., on reducing space threats through norms, rules and principles of responsible behaviours (30 Dec. 2021), <https://undocs.org/A/RES/76/231>.

25 OEWG on Reducing Space Threats through Norms, Rules and Principles of Responsible Behaviours, *The Role of Norms, Rules and Principles of Responsible Behaviour for Space Security*, UNIDIR, ¶10, U.N. Doc A/AC.294/2023/WP.3 (24 Jan. 2023), [https://docs-library.unoda.org/Open-Ended\\_Working\\_Group\\_on\\_Reducing\\_Space\\_Threats\\_-\\_\\_\(2022\)/A\\_AC294\\_2023\\_WP3\\_UNIDIR.pdf](https://docs-library.unoda.org/Open-Ended_Working_Group_on_Reducing_Space_Threats_-__(2022)/A_AC294_2023_WP3_UNIDIR.pdf).

26 Azcárate Ortega & Lagos Koller, *supra* note 8, at 23.

in the Conference on Disarmament of the Sino-Russian PPWT mentioned earlier, which sought to obligate States to not “place in orbit around the Earth any objects carrying any kinds of weapon” nor “resort to the threat or use of force against outer space objects”.<sup>27</sup>

Other States have argued that non-legally binding mechanisms, such as voluntary transparency and confidence-building measures (TCBMs) could be easier to agree at the multilateral level due to their perceived greater flexibility, and their potential to complement and augment legal measures.<sup>28</sup> Examples of such non-legally binding mechanisms include the TCBMs proposed in the 2013 report adopted by the Group of Governmental Experts (GGE) on Transparency and Confidence-Building Measures in Outer Space Activities.<sup>29</sup> The 2023 Open-ended Working Group (OEWG) on Reducing Space Threats through Norms, Rules and Principles of Responsible Behaviours was also mandated with making recommendations on possible non-legally binding measures that would aid in achieving this goal; however, the OEWG was unable to agree on a consensus report.<sup>30</sup>

Although legally binding and non-legally binding mechanisms were previously perceived by some as incompatible and mutually exclusive, their complementarity has been increasingly recognized in multilateral debates, with States highlighting that although non-legally binding measures are not substitutes for legally binding instruments, they can nevertheless contribute to the development of concepts and proposals for the establishment of such legally binding instruments. In some cases, non-legally binding mechanisms can eventually become binding laws through crystallization into customary international law<sup>31</sup> or through

27 PPWT, *supra* note 21, art. II. See also Letter dated 12 February 2008 from the Permanent Representative of the Russian Federation and the Permanent Representative of China to the Conference on Disarmament addressed to the Secretary-General of the conference transmitting the Russian and Chinese texts of the draft “Treaty on Prevention of the Placement of Weapons in Outer Space and of the Threat or Use of Force Against Outer Space Objects (PPWT)” introduced by the Russian Federation and China, U.N. Doc. CD/1839 (29 Feb. 2008), [https://digitallibrary.un.org/record/633470/files/CD\\_1839-EN.pdf](https://digitallibrary.un.org/record/633470/files/CD_1839-EN.pdf).

28 Initially, these States advocated for voluntary measures as an alternative to a new treaty, (Benjamin Silverstein, Daniel Porras & John Borrie, *Alternative Approaches and Indicators for the Prevention of an Arms Race in Outer Space*, Space Dossier 5, UNIDIR 11 (2020)), though eventually these non-legally binding mechanisms were viewed as instruments that could complement legally binding measures, and could form the basis for them: Report of the Group of Governmental Experts on Transparency and Confidence-Building Measures in Outer Space Activities, U.N. GAOR, 68th Sess., ¶¶33, 69 U.N. Doc. A/68/189\* (29 July 2013), [https://www.unoosa.org/oosa/oosadoc/data/documents/2013/a/a68189\\_0.html](https://www.unoosa.org/oosa/oosadoc/data/documents/2013/a/a68189_0.html). This GGE was formed as mandated by resolution 65/68, on the proposal of the Russian Federation and China. See G.A. Res. 65/68, 65th Sess., on transparency and confidence-building measures in outer space activities (13 Jan. 2011), <https://undocs.org/A/RES/65/68>.

29 *Ibid.* U.N. Doc. A/68/189\*.

30 Almudena Azcárate Ortega & Sarah Erickson, *OEWG on Reducing Space Threats: Recap Report*, UNIDIR 30 (15 Mar. 2024), <https://doi.org/10.37559/WMD/24/Space/01>. This OEWG was formed as mandated by resolution 76/231, on the proposal of the United Kingdom. See G.A. Res. 76/231, 76th Sess., on reducing space threats through norms, rules and principles of responsible behaviours (24 Dec. 2021), <https://undocs.org/A/RES/76/231>.

31 Two elements of customary international law are required to determine whether a customary rule has formed: (1) the general practice / widespread repetition of international acts by States over time (State practice); and (2) the requirement that the acts must occur out of a sense of legal obligation (*opinio juris*). See *Report of the International Law Commission*, 73 U.N. GAOR Supp. No. 10, U.N. Doc. A/73/10 (2018), reprinted in [2018] 2 Y.B. Int'l L. Comm'n 152, U.N. Doc. A/CN.4/SER.A/2018/Add.1 (Part 2), [https://legal.un.org/ilc/texts/instruments/english/commentaries/1\\_13\\_2018.pdf](https://legal.un.org/ilc/texts/instruments/english/commentaries/1_13_2018.pdf).

codification in legal agreements<sup>32</sup> —a prime example being the OST, which was based on two United Nations resolutions.<sup>33</sup> Additionally, work on legally binding and non-legally binding mechanisms can be pursued in a complementary manner, without undermining existing legal obligations.<sup>34</sup>

## INTERNATIONAL LEGAL FRAMEWORK

The discussions on PAROS outlined above do not occur in a legal vacuum. Although no space security-specific international treaty yet exists, the legal framework applicable to space activities establishes rights, obligations, limitations and prohibitions regarding outer space activities,<sup>35</sup> prime among them the prohibition of the threat or use of force between States.

### INTERNATIONAL OUTER SPACE LAW

The 1967 Outer Space Treaty serves as the foundation for all space law —both international and domestic. Only article IV explicitly addresses space security concerns by establishing that States shall not place in orbit around the Earth any weapons of mass destruction, or install them on celestial bodies, as well as not test any type of weapons or conduct of military manoeuvres on celestial bodies.<sup>36</sup> However, neither the OST nor the subsequent international space treaties negotiated under the auspices of the United Nations<sup>37</sup> provide further clarification regarding the placement of other types of weapons in space.<sup>38</sup> This issue has caused significant concern in the international community and eventually led to the creation of PAROS, as seen above. However, this does not mean that international law establishes no other limitations beyond those provisions.

32 U.N. Doc. A/AC.294/2023/WP.3, *supra* note 25, 16.

33 The OST was based on G.A. Res. 1884 (XVIII), 18th Sess., on Question of General and Complete Disarmament (17 Oct. 1963), <https://digitallibrary.un.org/record/203960>, which called on States to not station weapons of mass destruction in outer space, and G.A. Res. 1962 (XVIII), 18th Sess., on Declaration of Legal Principles Governing the Activities of States in the Exploration and Use of Outer Space (13 Dec. 1963), [https://www.unoosa.org/pdf/gares/ARES\\_18\\_1962E.pdf](https://www.unoosa.org/pdf/gares/ARES_18_1962E.pdf), which adopted that Declaration.

34 Chairperson's Summary, *supra* note 5, ¶¶4, 5.

35 See generally OEWG on Reducing Space Threats through Norms, Rules and Principles of Responsible Behaviours, *Existing Legal and Regulatory Frameworks Concerning Threats Arising from State Behaviours with Respect to Outer Space*, UNIDIR, U.N. Doc. A/AC.294/2022/WP.1 (3 Feb. 2022), <https://documents.un.org/doc/undoc/gen/g22/248/57/pdf/g2224857.pdf>.

36 OST, *supra* note 7, art. IV.

37 Agreement on the Rescue of Astronauts, the Return of Astronauts and the Return of Objects Launched into Outer Space, 22 Apr. 1968, 19 U.S.T. 7570; T.I.A.S. 6599; 672 U.N.T.S. 11 ['Rescue Agreement']; Convention on the International Liability for Damage Caused by Space Objects, 3 Mar. 1972, 24 U.S.T. 2389; T.I.A.S. 7762; 961 U.N.T.S. 187 ['Liability Convention']; Convention on Registration of Objects Launched Into Outer Space, 12 Nov. 1974, 28 U.S.T. 695; T.I.A.S. 8480; 1023 U.N.T.S. 15 ['Registration Convention']; Agreement Governing the Activities of States on the Moon and Other Celestial Bodies, 5 Dec. 1979, 18 I.L.M. 1434; 1363 U.N.T.S. 3 ['Moon Agreement'].

38 Cassandra Steer & Dale Stephens, *International Humanitarian Law and Its Application in Outer Space*, in *WAR AND PEACE IN OUTER SPACE* 23, 26 (Cassandra Steer & Matthew Hersch eds., 2021), <https://doi.org/10.1093/oso/9780197548684.003.0002>.

Article III of the OST stipulates 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, in the interest of maintaining international peace and security and promoting international co-operation and understanding”.<sup>39</sup> The applicability of international law to the space environment is also highlighted in article I of the OST, which indicates that the use and exploration of outer space shall be carried out “in accordance with international law”.<sup>40</sup>

## GENERAL INTERNATIONAL LAW

These references to international law in the OST confirm that the full corpus of international law applies to outer space when relevant.<sup>41</sup> Arms control treaties and international law applicable to military operations or security-related matters are of particular relevance for the regulation of space security activities and for the pursuit of PAROS, even when they may not solely concern space. Examples of this are the 1963 Limited Nuclear Test Ban Treaty (LTBT)<sup>42</sup> and the 1978 Convention on The Prohibition of Military or Any Hostile Use of Environmental Modification Techniques (ENMOD).<sup>43</sup> Even when rules do not explicitly refer to outer space, international law remains applicable. This includes customary international law: long-established rules such as the concept of good faith and the principle of *pacta sunt servanda*<sup>44</sup> apply to space.<sup>45</sup> Some of these applicable principles were codified in the UN Charter, as explicitly highlighted by article III of the OST. Among such tenets are the sovereign equality of States, the principles of non-intervention and non-aggression, and the focus of this report: the prohibition of the use of force.<sup>46</sup>

## PROHIBITION OF THE USE OF FORCE

The applicability of the UN Charter to space means that States “shall refrain in their international relations from the threat or use of force”<sup>47</sup> in this environment. This is a fundamental limitation to take into account when carrying out space activities. The

39 OST, *supra* note 7, art. III.

40 *Ibid.*, art. I.

41 Olivier Ribbelink, *Article III*, in 1 COLOGNE COMMENTARY ON SPACE LAW 67 (Stephan Hobe, Bernhard Schmidt-Tedd & Kai-Uwe Schrogl eds., 2009).

42 Treaty Banning Nuclear Weapon Tests in the Atmosphere, in Outer Space and Under Water, 5 Aug. 1963, 14 U.S.T. 1313; 480 U.N.T.S. 6964 [hereinafter ‘LTBT’]. The LTBT explicitly mentions outer space in article I.1(a) which prohibits the testing of nuclear weapons “in the atmosphere; beyond its limits, including outer space; or under water, including territorial waters or high seas.”

43 Convention on the Prohibition of Military or Any Hostile Use of Environmental Modification Techniques, 18 May 1977, 31 U.S.T. 333; 1108 U.N.T.S. 151. The ENMOD prohibits States parties to “engage in military or any other hostile use of environmental modification techniques having widespread, long-lasting or severe effects as the means of destruction, damage or injury to any other State Party” in article I, similarly extending this prohibition to outer space in article II.

44 A Latin expression meaning ‘pacts must be respected’. This is an international law principle by which treaties are to be observed and agreements are to be kept; <https://www.oxfordreference.com/display/10.1093/oi/authority.20110803100300496>.

45 The principle of good faith is “[o]ne of the basic principles governing the creation and performance of legal obligations, whatever their source”. See *Nuclear Tests (Austl. v. Fr.)*, Judgment, 1974 I.C.J. Rep. 253, ¶146 (20 Dec.).

46 Ribbelink, *supra* note 41, at 67.

47 See UN Charter, *supra* note 1, Art. 2(4).



prohibition of the use of force is set out in Article 2(4) of the UN Charter and also binds all States under customary international law. The prohibition of the use of force and its application to hostile acts in space and against space objects is discussed in detail in Part II.

### THRESHOLDS BELOW USE OF FORCE

Space activities that do not reach the threshold of a “use of force” remain regulated by international law. For example, activities below the threshold of a “use of force” may constitute *harmful interference* under article IX of the OST,<sup>48</sup> *unlawful intervention*<sup>49</sup> under customary international law,<sup>50</sup> or a prohibited “*threat of force*” between States under Article 2(4) of the UN Charter.



Figure 2: Spectrum of harmful and hostile acts below “use of force”

### LAWFUL MEASURES IN RESPONSE TO HARMFUL AND HOSTILE ACTS BELOW “USE OF FORCE”

In relation to the space activities highlighted above that do not reach the threshold of a use of force, States are entitled to carry out different types of measures depending on the threshold reached by the space activity in question. For example, States can engage in *consultations*, such as under article IX of the OST in response to “potentially harmful interference with activities in the peaceful exploration and use of outer space”;<sup>51</sup> *retorsion* as a political means to urge another State to modify its conduct<sup>52</sup> through lawful but

48 The OST does not define harmful interference, though the concept is defined (with respect to disruption of radiofrequency signals) in both No. 1.169 of the Radio Regulations and in No. 1003 of the International Telecommunication Union (ITU) Constitution, which prohibit “interference which endangers the functioning of a *radionavigation service or of other safety services* or seriously degrades, obstructs, or repeatedly interrupts a *radiocommunication service* operating in accordance with Radio Regulations”. See Constitution of the International Telecommunication Union, Dec. 22, 1992, T.I.A.S. No. 97-1026; 1825 U.N.T.S. 330; International Telecommunication Union, *Radio Regulations of the International Telecommunication Union, complementing the Constitution and the Convention of the International Telecommunication Union* (2020), <https://www.itu.int/pub/R-REG-RR/en>.

49 Unlawful intervention is the use of coercion by a State to interfere “directly or indirectly in internal or external affairs of other States”, for example, regarding its free “choice of a political, economic, social and cultural system, and the formulation of foreign policy”. See *Military and Paramilitary Activities in and against Nicaragua* (Nicar. V. U.S.), Merits, Judgment, 1986 I.C.J. Rep. 14, ¶1205 (27 June).

50 *Ibid.*, ¶1202.

51 See Space Security Lexicon, *supra* note 12, at 3.2.5. This consultations process is also recognized as a prerequisite for the effective environmental protection of outer space, as well as potentially harmful interference more generally. However, it has never been used and there is no guidance on what constitutes a consultation.

52 Jana Robinson et al., *Europe’s Preparedness To Respond To Space Hybrid Operations*, The Prague Security Studies Institute 18 (July 2018), [https://www.pssi.cz/download/docs/8252\\_597-europe-s-preparedness-to-respond-to-space-hybrid-operations.pdf](https://www.pssi.cz/download/docs/8252_597-europe-s-preparedness-to-respond-to-space-hybrid-operations.pdf).

discourteous or unfriendly acts vis-à-vis that State,<sup>53</sup> or non-forcible *countermeasures*.<sup>54</sup> Countermeasures must comply with strict international legal requirements.<sup>55</sup> Examples of countermeasures relating to space may include denying certain space services that had been agreed upon in a treaty provided that these acts meet the conditions stated earlier.

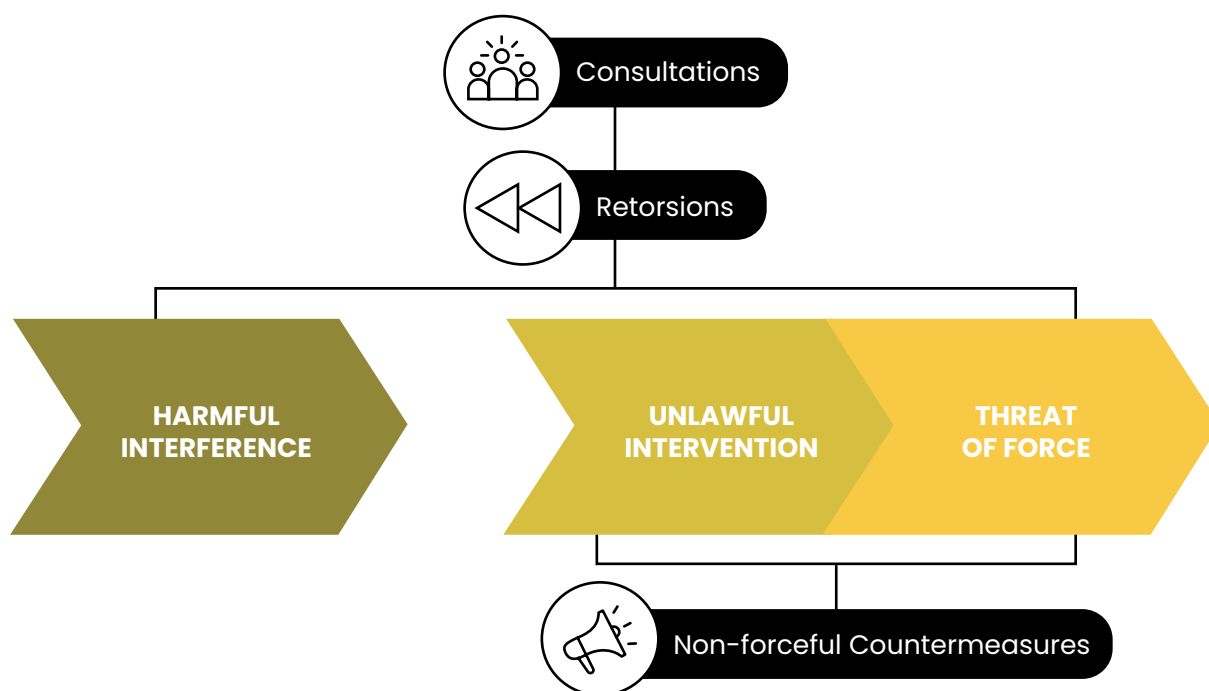


Figure 3: Lawful measures in response to harmful and hostile acts by another State below “use of force”



53 Forms of retorsion include diplomatic protests or bans (such as not granting visas to diplomats of specific States), withdrawal of aid, or reduced military and intelligence cooperation.

54 Countermeasures are non-forcible acts by a State that would otherwise be unlawful but are exceptionally permitted in response to the breach of international law by another State of an obligation owed to the first State, and which have the objective to induce the wrongdoing State to comply with the obligation in question. See Responsibility of States for Internationally Wrongful Acts, art. 22 & arts. 49–53, annexed to U.N. Doc. A/RES/56/83 (12 Dec. 2001) and corrected by U.N. Doc. A/56/49(Vol. I)/Corr. 4 (6 June 2007), [https://legal.un.org/ilc/texts/instruments/english/draft\\_articles/9\\_6\\_2001.pdf](https://legal.un.org/ilc/texts/instruments/english/draft_articles/9_6_2001.pdf).

55 *Ibid.*, Part three, chapter II.





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# **PART II: THE PROHIBITION OF THE USE OF FORCE IN OUTER SPACE**





# PART II: THE PROHIBITION OF THE USE OF FORCE IN OUTER SPACE

## THE PROHIBITION OF THE USE OF FORCE

### THE PROHIBITION OF THE USE OF FORCE UNDER INTERNATIONAL LAW

As noted in Part I, the UN Charter—including its cornerstone provision prohibiting the use of force—applies in space. The prohibition of the use of force is set out in Article 2(4) of the UN Charter and binds all States under customary international law. Article 2(4) provides:

“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.”

### STATUS OF THE PROHIBITION UNDER INTERNATIONAL LAW

The International Court of Justice (ICJ) has recognized that the prohibition of the use of force is a rule of customary international law<sup>56</sup> and a “cornerstone” of the UN Charter.<sup>57</sup> The obligation to refrain from the threat or use of force in Article 2(4) of the UN Charter prevails over other obligations of Member States under any other international agreement in the event of a conflict between the obligations.<sup>58</sup> The prohibition of the use of force is widely considered to be a peremptory norm of international law (*ius cogens*),<sup>59</sup> that is, “a norm accepted and recognized by the international community of States as a whole as a norm from which no derogation is permitted and which can be modified only by a subsequent norm of general international law having the same character”.<sup>60</sup>

56 Military and Paramilitary Activities in and against Nicaragua (Nicar. V. U.S.), Jurisdiction of the Court and Admissibility of the Application, Judgment, 1984 I.C.J. Rep. 392, ¶173 (26 Nov.).

57 Armed Activities on the Territory of the Congo (Dem. Rep. Congo v. Uganda), Merits, Judgment, 2005 I.C.J. Rep. 168 ¶1148 (19 Dec.).

58 UN Charter, *supra* note 1, art. 103.

59 The UN International Law Commission stated in its commentary on the Draft Articles on the Law of Treaties that “the law of the Charter concerning the prohibition of the use of force” is “a conspicuous example” of a peremptory norm: Draft Conclusions on Subsequent Agreements and Subsequent Practice in Relation to the Interpretation of Treaties, conclusion 7(3), annexed to U.N. Doc. A/RES/73/202 (3 Jan. 2019). The ICJ referred to this statement in the Case concerning Military and Paramilitary activities in and against Nicaragua, *supra* note 49, 94, 190.

60 Vienna Convention on the Law of Treaties art. 53, *opened for signature* 23 May 1969, 1155 U.N.T.S. 331 (entered into force 27 Jan. 1980).



## EXCEPTIONS

There are two recognized exceptions to the prohibition of the use of force. The first is a use of force in self-defence under Article 51 of the UN Charter and customary international law. The second exception is a use of force authorized by the UN Security Council (UNSC) acting under Chapter VII of the UN Charter.<sup>61</sup>

With respect to self-defence, Article 51 provides:

“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.”

The exercise of the right to self-defence is subject to the customary international law requirements of necessity and proportionality.<sup>62</sup>

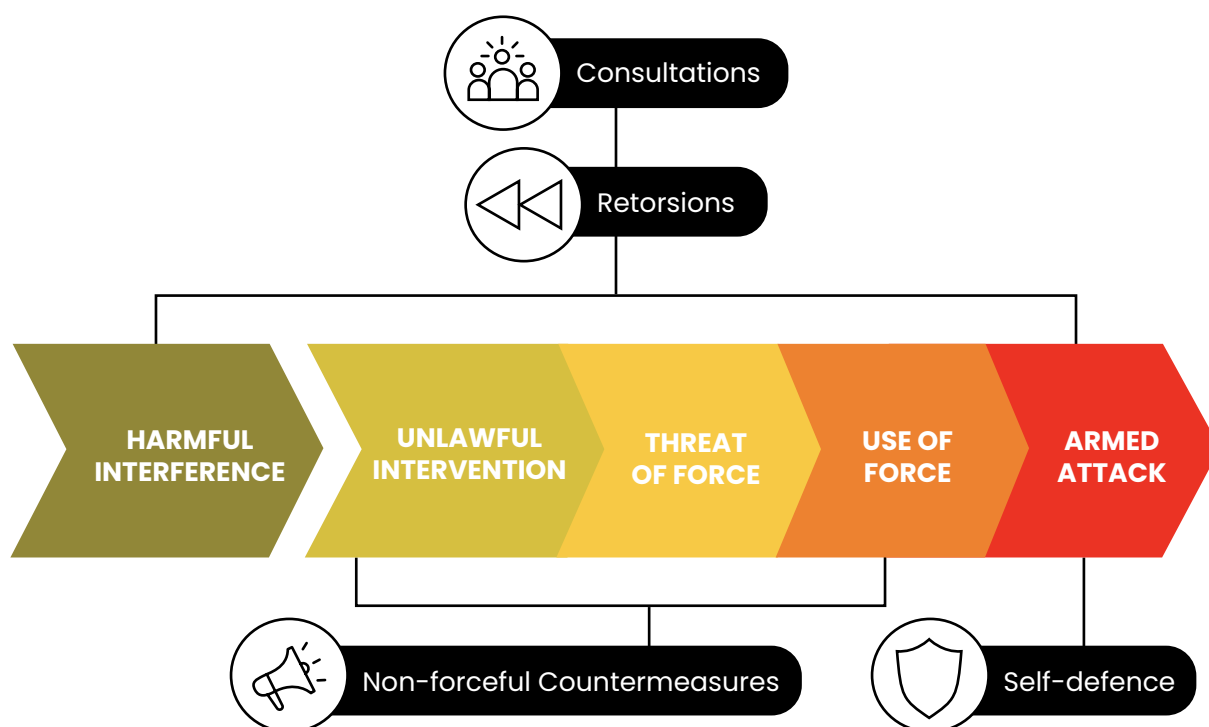


Figure 4: Spectrum of harmful or hostile acts by another State and lawful responsive measures

<sup>61</sup> UN Charter, *supra* note 1, arts. 39 and 42.

<sup>62</sup> Military and Paramilitary Activities in and against Nicaragua, *supra* note 49, ¶176; Legality of the Threat or Use of Nuclear Weapons, Advisory Opinion, 1996 I.C.J. Rep. 94, ¶141 (8 July); Oil Platforms (Iran v. U.S.), Merits, Judgment, 2003 I.C.J. Rep. 161, ¶151 (6 Nov.).

## CONSEQUENCES OF CHARACTERIZING AN ACT AS A PROHIBITED “USE OF FORCE”

A prohibited use of force cannot be legally excused by circumstances precluding wrongfulness, for example, necessity, *force majeure*, distress or countermeasures. Use of force as a countermeasure<sup>63</sup> and armed reprisals in peacetime<sup>64</sup> are prohibited under international law. In the *Nicaragua* case, the ICJ distinguished “the most grave forms of the use of force (those constituting an armed attack) from other less grave forms”.<sup>65</sup> This means that if an act is a prohibited use of force but not an “armed attack”, it may not be used in response to a similar act because the right to self-defence arises only in response to an “armed attack”. Furthermore, “[a] treaty is void if its conclusion has been procured by the threat or use of force in violation of the principles of international law embodied in the Charter of the United Nations”.<sup>66</sup>

### LEGAL CONSEQUENCES OF VIOLATION

A prohibited use of force gives rise to **international State responsibility** and the obligation to cease the unlawful act,<sup>67</sup> make full reparation<sup>68</sup> and the right of the victim State to take non-forcible countermeasures.<sup>69</sup> There are additional consequences if the violation is a serious breach of a peremptory norm, namely, that other States shall cooperate using lawful means to bring the violation to an end, shall not recognize the situation as lawful and shall not render aid or assistance in maintaining the situation.<sup>70</sup>

A prohibited use of force may trigger the **collective security** provisions under the UN Charter. If a prohibited use of force meets the threshold of an armed attack, it will give rise to a right of individual and collective self-defence under Article 51 of the UN Charter. The Security Council may determine that a prohibited use of force is a “threat to the peace, breach of the peace, or act of aggression”, and make recommendations or decide on measures to maintain or restore international peace and security in accordance with Articles 41 and 42 of the UN Charter.<sup>71</sup>

63 Draft articles on Responsibility of States for Internationally Wrongful Acts, with commentaries, art. 50(1)(a), *Report of the International Law Commission to the General Assembly*, 56 U.N. GAOR Supp. No. 10, U.N. Doc. A/56/10 (2001), [https://legal.un.org/ilc/texts/instruments/english/commentaries/9\\_6\\_2001.pdf](https://legal.un.org/ilc/texts/instruments/english/commentaries/9_6_2001.pdf).

64 Legality of the Threat or Use of Nuclear Weapons, *supra* note 62, ¶146.

65 Military and Paramilitary Activities in and against Nicaragua, *supra* note 49, 101, ¶191.

66 Vienna Convention on the Law of Treaties, *supra* note 60, art. 52. The ICJ held that this reflects customary international law: *Fisheries Jurisdiction (U.K. v. Ice.)*, Jurisdiction, Judgment, 1973 I.C.J. Rep. 3, ¶14 (2 Feb).

67 Responsibility of States for Internationally Wrongful Acts, *supra* note 54, art. 30.

68 *Ibid.*, art. 31.

69 *Ibid.*, art. 22.

70 Draft articles on Responsibility of States for Internationally Wrongful Acts, with commentaries, *supra* note 63, art. 41.

71 See UN Charter, *supra* note 1, art. 39.

Art. 41 provides: “The Security Council may decide what measures not involving the use of armed force are to be employed to give effect to its decisions, and it may call upon the Members of the United Nations to apply such measures. These may include complete or partial interruption of economic relations and of rail, sea, air, postal, telegraphic, radio, and other means of communication, and the severance of diplomatic relations.”

Art. 42 provides: “Should the Security Council consider that measures provided for in Article 41 would be inadequate or have proved to be inadequate, it may take such action by air, sea, or land forces as may be necessary to maintain or restore international peace and security. Such action may include demonstrations, blockade, and other operations by air, sea, or land forces of Members of the United Nations.”

If a prohibited use of force meets the threshold of an act of aggression,<sup>72</sup> it may give rise to **international criminal responsibility** for the crime of aggression. This criminal responsibility may arise for individuals who are “in a position effectively to exercise control over or to direct the political or military action of a State” and who plan, prepare, initiate or execute “an act of aggression which, by its character, gravity and scale, constitutes a manifest violation of the Charter of the United Nations”.<sup>73</sup>

## THE MEANING OF A PROHIBITED “USE OF FORCE”

The prohibition of the use of force binds all States under customary international law, is a “cornerstone” of the UN Charter, is applicable in outer space, and the consequences for its violation are serious. It is therefore important to clarify the meaning of a prohibited use of force and how it applies in outer space. The ICJ has not defined a prohibited “use of force” in its jurisprudence<sup>74</sup> and as yet there is no general agreement on how to define the term, which has received far less scholarly attention than the definition of an “armed attack” under Article 51 of the UN Charter.<sup>75</sup> However, the rules of treaty interpretation<sup>76</sup> can be applied to Article 2(4) of the UN Charter<sup>77</sup> to distil a set of elements of a prohibited use of force, which

72 See Annex of G.A. Res. 3314 (XXIX), 29th Sess., on Definition of Aggression (14 Dec. 1974), [https://undocs.org/A/RES/3314\(XXIX\)](https://undocs.org/A/RES/3314(XXIX)).

73 Rome Statute of the International Criminal Court arts. 5(d) and 8bis, <https://www.icc-cpi.int/sites/default/files/NR/rdonlyres/ADD16852-AEE9-4757-ABE7-9CDC7CF02886/283503/RomeStatutEngl.pdf>.

74 The ICJ has considered the interpretation and application of Article 2(4) directly and indirectly in a number of its decisions, but has not set out its content. The most relevant decisions are Corfu Channel (U.K. v. Albania), Merits, Judgment, 1949 I.C.J. Rep. 4; Fisheries Jurisdiction (Federal Republic of Germany v. Iceland), Merits, Judgment, 1974 I.C.J. Rep. 175; United States Diplomatic and Consular Staff in Tehran (U.S. v. Iran), Judgment, 1980 I.C.J. Rep. 3, Case concerning Military and Paramilitary Activities in and against Nicaragua, *supra* note 49; Fisheries Jurisdiction (Spain v. Canada), Jurisdiction, Judgment, 1998 I.C.J. Rep. 432; Legality of the Threat or Use of Nuclear Weapons, *supra* note 62, Oil Platforms, *supra* note 62, Legal Consequences of the Construction of a Wall in the Occupied Palestinian Territory, Advisory Opinion, 2004 I.C.J. Rep. 136; Armed Activities on the Territory of the Congo, *supra* note 57.

75 UN Charter, *supra* note 1, Art. 51.

76 These principles are enshrined in the Vienna Convention on the Law of Treaties, *supra* note 60. The general rules of treaty interpretation and the rule on supplementary means of interpretation are set out in articles 31 and 32 of the Vienna Convention on the Law of Treaties, which also apply as rules of customary international law. These rules require:

- Looking at the “ordinary meaning to be given to the terms of the treaty in their context and in the light of its object and purpose” (art 31(1));
- Taking into account “subsequent agreements between the parties regarding the interpretation of the treaty or the application of its provisions” and “subsequent practice in the application of the treaty which establishes the agreement of the parties regarding its interpretation”, together with “any relevant rules of international law applicable in the relations between the parties” (art. 32); and
- Where appropriate, considering preparatory work of the UN Charter (*travaux préparatoires*) and “other subsequent practice” as a supplementary means of interpretation (art. 32).

77 Vienna Convention on the Law of Treaties, *supra* note 60, art. 5 states that “[t]he present Convention applies to any treaty which is the constituent instrument of an international organization ... without prejudice to any relevant rules of the organization”; see also Legality of the Threat or Use of Nuclear Weapons, *supra* note 62, ¶19 and Certain Expenses of the United Nations (Article 17, paragraph 2, of the Charter), Advisory Opinion, 1962 I.C.J. 151 Rep., ¶157.

can serve to identify such uses of force in practice. This provides guidance to policymakers, legal advisors and practitioners on how to determine if an act is a prohibited use of force in violation of the UN Charter and customary international law.<sup>78</sup>

## ELEMENTS

Article 2(4) requires two types of criteria to be met for a prohibited use of force: first, contextual requirements which must all be fulfilled for a “use of force” to fall within the scope of the prohibition; and second, that the act is an actual “use of force”.<sup>79</sup>

### Contextual requirements

The contextual requirements of a prohibited use of force are set out in the text of Article 2(4). The “use of force” must be:

- ▶ By a State.
- ▶ In “international relations”.
- ▶ “Against the territorial integrity or political independence of any state or in any other
- ▶ manner inconsistent with the Purposes of the United Nations”.

### Elements of “use of force”

As the elements of a “use of force” are not set out in the text of Article 2(4), they must be derived through the process of treaty interpretation set out above. The following elements of “use of force” have been identified by scholars:<sup>80</sup>

- ▶ Means
- ▶ Effects
- ▶ Gravity
- ▶ Coercive or hostile intent

78 Since the rule in Article 2(4) is the origin of the customary rule and the meaning is the same under both sources of law, it is logical to focus on interpreting Article 2(4) to derive the meaning of a prohibited use of force between States: See POBJIE, *supra* note 2, chapters 1–3.

79 For a detailed analysis including the content of each element, see *ibid.*, chapters 4–6 and 8.

80 See *Ibid.*, Part II.

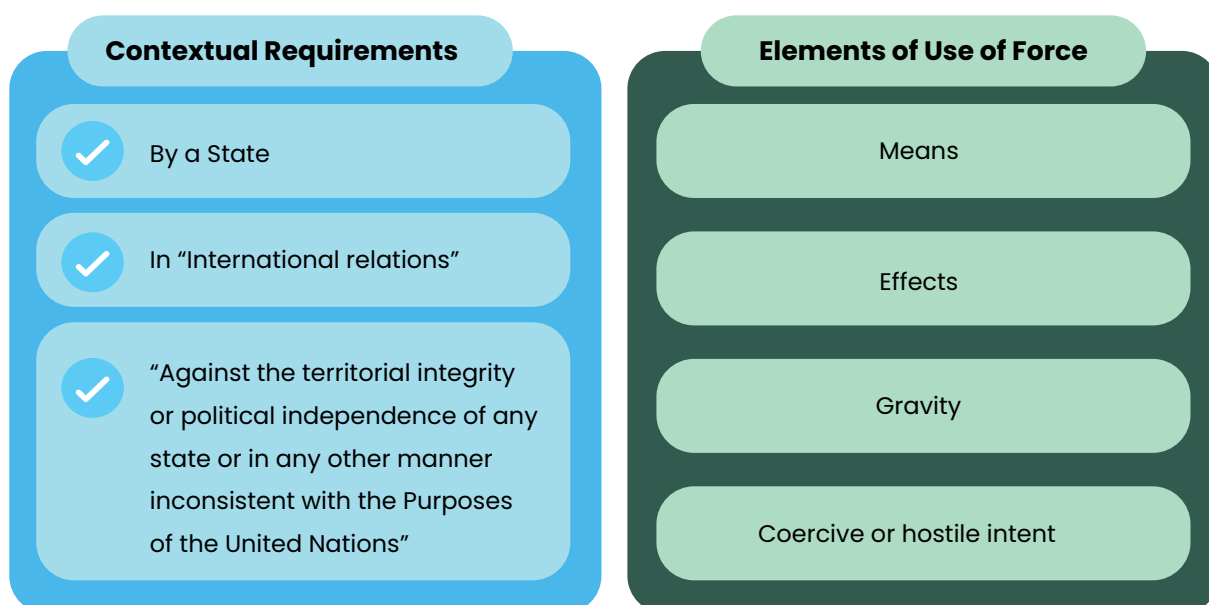


Figure 5: Elements of prohibited use of force under Article 2(4) UN Charter

## DEFINITIONAL FRAMEWORK

The elements of a "use of force" set out above should be weighed and balanced to determine whether the threshold of the definition is met.<sup>81</sup> Not all elements must be present for an act to constitute prohibited force if they are compensated by other elements. For example, a hostile or coercive intent may turn a forcible act into a use of force even if other elements are relatively weak, such as if the effects are temporary and reversible or if the gravity of effects is less severe.

## APPLYING THE PROHIBITION OF THE USE OF FORCE IN OUTER SPACE

This section applies the elements of a prohibited "use of force" to outer space, identifies areas of legal uncertainty and sets out possible legal interpretations of Article 2(4) of the UN Charter.

### CONTEXTUAL REQUIREMENTS

#### By a State

Attribution of a "use of force" in outer space to a State raises factual and legal issues. Factually, it can be challenging to attribute acts to a State in the space environment (discussed later as well with respect to intent). The legal issue is whether a special regime of attribution applies generally in outer space due to article VI of the OST, which provides:

<sup>81</sup> See *Ibid.*, chapter 8.

"States Parties to the Treaty shall bear international responsibility for national activities in outer space, including the Moon and other celestial bodies, whether such activities are carried on by governmental agencies or by non-governmental entities, and for assuring that national activities are carried out in conformity with the provisions set forth in the present Treaty."

#### Article VI of the OST – State responsibility for national activities in outer space

Article VI of the OST expresses that any act carried out by a non-governmental entity in outer space is imputable to the State as if it were its own, making the State directly responsible for such act. Article VI's stipulation that a State is responsible for its national activities in outer space marks a unique development in public international law, that differentiates itself from the regime of State responsibility applicable to activities on Earth. In the context of space law, a State cannot avoid responsibility by disclaiming responsibility for the acts of its private persons. The way many States implement their article VI responsibilities is through the enactment of national laws and regulations.<sup>82</sup>

The extent to which article VI of the OST displaces the customary international law rules for attribution of conduct to a State under the law of State responsibility<sup>83</sup> applicable to other domains, and in particular *ius contra bellum*, is unsettled.<sup>84</sup> Experts have debated whether article VI could implicate States in violations of *ius contra bellum* with respect to activities of non-governmental entities in outer space.<sup>85</sup> This could potentially result in a "use of force" by a non-State actor (such as a commercial actor) being construed as a violation of the prohibition of the use of force by the State responsible. The increasing presence of dual-purpose objects in space (many of which are operated by commercial actors), coupled with the concern they pose to States, makes the determination of responsibility a matter of great relevance. An interpretation aligned with article VI of the OST in relation to the use of force would have clear legal and policy implications and may also result in State responsibility for national activities of non-State actors in outer space under other applicable legal frameworks.

<sup>82</sup> See Space Security Lexicon, *supra* note 12, 3.2.10.

<sup>83</sup> Responsibility of States for Internationally Wrongful Acts, *supra* note 54, chapter II.

<sup>84</sup> Different positions in the debate are canvassed in Frans G. von der Dunk, *The Origins Of Authorisation: Article VI Of The Outer Space Treaty And International Space Law*, in NATIONAL SPACE LEGISLATION IN EUROPE 3–28 (2011).

<sup>85</sup> Erin Pobjie, *Military Uses of Outer Space*, in MAX PLANCK ENCYCLOPEDIA OF PUBLIC INTERNATIONAL LAW ¶16 (2024); Tara Brown, *Ukraine Symposium – The Risk of Commercial Actors in Outer Space Drawing States into Armed Conflict*, LIEBER INSTITUTE WEST POINT (8 July 2022), <https://lieber.westpoint.edu/commercial-actors-outer-space-armed-conflict/>; Dale Stephens, cited in Charlie Dunlap, *Are Commercial Satellites Used for Intelligence-Gathering in Attack Planning Targetable?*, Lawfire (5 Mar. 2021), <https://sites.duke.edu/lawfire/2021/03/05/are-commercial-satellites-used-for-intelligence-gathering-in-attack-planning-targetable/>; "in the Woomera Manual process we note this has the great potential to implicate States in *ad bellum* or in *bello* issues in situations that would not otherwise be the case under general international law rules on attribution". For a different view, see Hitoshi Nasu, *Targeting a Satellite: Contrasting Considerations between the Jus Ad Bellum and the Jus in Bello*, 99 International Law Studies 142, 151–152 (2022).



### In “international relations”

To fall within the scope of the prohibition of the use of force, a use of force must be in “international relations”. This is clearly fulfilled when the use of force is against another State or against persons or objects with a sufficient legal nexus to another State (discussed below in relation to the “victim State”). Article 2(4) of the UN Charter may also cover uses of force against non-State objects, such as malicious damage to the space environment including the Moon and other celestial bodies, if it occurs in “international relations” and is “inconsistent with the Purposes of the United Nations”,<sup>86</sup> although as yet there is no State practice to confirm this interpretation.

#### Malicious damage to the space environment

Although States have not categorized it as such, intentional debris creation through the use of kinetic counterspace capabilities (even in the context of testing) could be considered a form of malicious damage to the space environment. The evolution of State practice and *opinio iuris* regarding the intentional creation of debris shows an increasingly negative perception of these activities, which have led over the years to the launch of multiple initiatives to address the problem debris causes. In the Committee on the Peaceful Uses of Outer Space (UNCOPUOS), measures such as the Debris Mitigation Guidelines<sup>87</sup> are an example of this.

Space sustainability has become an increasing priority in the context of space security discussions,<sup>88</sup> and the intentional creation of debris—one of the threats to space security that raises the most concern among States—has become a worrisome matter. This is not only because of the damage that uncontrollable debris could cause to other space objects, but also because of the negative impact to the space environment, which would hamper space activities both in the present and future. Resolution 77/41 on destructive direct-ascent anti-satellite missile testing<sup>89</sup> which “calls upon all States to commit not to conduct destructive direct-ascent anti-satellite missile tests” emphasizes the importance of space sustainability for peace and security. The commitment undertaken so far by 39 States highlights that intentional debris creation is seen as increasingly harmful and unwise. States could therefore perceive intentional debris creation as malicious damage to the space environment.

86 For an analysis, see POBJIE, *supra* note 2, at 220–1.

87 Debris Mitigation Guidelines, *supra* note 40.

88 Sarah Erickson & Almudena Azcárate Ortega, *To Space Security and Beyond: Exploring Space Security, Safety, and Sustainability Governance and Implementation Efforts*, Space Dossier 9, UNIDIR 7, 38–39 (2023), <https://doi.org/10.37559/WMD/23/Space/06>. “Space sustainability is commonly understood to mean stakeholders’ ability to continue to be able to use and benefit from space. Space sustainability requires that space be kept safe and secure, so that stakeholders may be able to use, explore, and benefit from space ‘without discrimination of any kind, on a basis of equality and in accordance with international law’ (article I of the OST). Space sustainability therefore seeks to preserve the usability of space.” See Space Security Lexicon, *supra* note 12, at 3.3.9.

89 G.A. Res. 77/41, 77th Sess., on destructive direct-ascent anti-satellite missile testing, U.N. Doc. A/RES/77/41 (7 Dec. 2022), <https://undocs.org/A/RES/77/41>.

**“Against the territorial integrity or political independence of any state, or in any other manner inconsistent with the Purposes of the United Nations”**

There is no specific rule to determine which, if any, State is the victim of a “use of force” in outer space. If a satellite is targeted, several States may have an affected interest: for example, through legal ownership, registration as a launching State<sup>90</sup> or by suffering harm as a result of the interference or damage to the satellite due to their utilization of the services the satellite provides. The definition of an injured State under the international law of State responsibility can be applied to determine which State or States are the victim.<sup>91</sup> This may result in more than one victim State<sup>92</sup> and also means that a use of force against a commercial satellite could fall within the scope of the prohibition of the use of force.

The reference in Article 2(4) to force “in any other manner inconsistent with the Purposes of the United Nations,” is a catch-all provision that makes it clear that the prohibition in Article 2(4) is all-encompassing and was intended to avoid loopholes.<sup>93</sup> This is supported by the *travaux préparatoires* of the UN Charter and was confirmed by States during the drafting of the 1970 Friendly Relations Declaration.<sup>94</sup>

## **ELEMENTS OF “USE OF FORCE”**

### **Means**

Counterspace technologies or capabilities can be offensive and defensive, and can be further classified into different groups including kinetic physical (hostile actions against ground stations, direct-ascent ASATs, co-orbital ASATs), non-kinetic physical (lasers, high-powered microwaves (HPM), and electromagnetic pulses (EMP)), electronic, and cyber. This is not a closed list, nor are these terms universally used by all States, and there are some lists that include other categories.<sup>95</sup> Another common classification is the division into hard-kill (which generally refers to physical hostile operations –especially those that use kinetic force– that result in the destruction of space objects) and soft-kill counterspace technologies (which refers to non-physical interference that renders space assets impaired, ineffective, or inactive).<sup>96</sup>

90 Registration Convention, *supra* note 37, art. 2.

91 Nasu, *supra* note 85, at 164.

92 *Ibid.*, 166–7: “There are circumstances in which multiple States find themselves specially affected on different grounds, for example when the missile early warning capability of one State is disabled by a laser employed to neutralize its sensors hosted on a commercial communications satellite on the register of another State. The former State can claim an injury for the damage caused to the missile early warning system, whereas the latter State might consider the physical damage caused to the sensors on board the satellite as sufficient evidence of a special impact on it as the State of registry.”

93 See POBJIE, *supra* note 2, 101–103; Tom Ruys, *The Meaning of Force and the Boundaries of the Jus ad Bellum: Are Minimal Uses of Force Excluded from UN Charter Article 2(4)?*, 108 Am. J. Int’l L. 159, 163–164 (2014).

94 POBJIE, *Ibid.*

95 For other terms used to refer to these capabilities, see Report of the Secretary-General, *Reducing space threats through norms, rules and principles of responsible behaviours*, U.N. Doc. A/76/77 (13 July 2021) [hereinafter ‘Report of the Secretary-General A/76/77’], <https://undocs.org/en/A/76/77>.

96 See Space Security Lexicon, *supra* note 12, at 3.1.2.

A prohibited “use of force” is not necessarily the same as the use of a “space weapon” or a counterspace capability.<sup>97</sup> The ICJ has stated that the prohibition of the use of force “does not refer to specific weapons” and applies “to any use of force regardless of the weapons employed”.<sup>98</sup> The ordinary meaning of the term “use of force” refers to “physical strength or power exerted upon an object; *esp.* the use of physical strength to constrain the action of persons; violence or physical coercion” and “violent means”, and does not refer to the use of a weapon.<sup>99</sup> Such physical strength or power can be exerted by a dual-purpose object as well. Legal scholars emphasize the effects of an act rather than its means when assessing if an act is a “use of force” for the purposes of the prohibition.<sup>100</sup>

The release of kinetic energy is not required for an act to constitute a “use of force” under article 2(4) of the UN Charter.<sup>101</sup> This is relevant to outer space since many counterspace capabilities are non-kinetic. Non-kinetic counterspace capabilities include electronic and cyber counterspace technologies. The interruption of services through jamming or dazzling a satellite or a cyberattack against a segment of a space system would be examples of this.

97 The definition of a weapon is relevant to certain rules of international humanitarian law and may be relevant for arms control treaties and verification measures, but does not form part of the international legal prohibition of the use of force between States (*jus contra bellum*).

98 Legality of the Threat or Use of Nuclear Weapons, *supra* note 62, ¶139.

99 “Force, n.1.” Oxford University Press, *OED Online*, [https://www.oed.com/dictionary/force\\_n1?tab=meaning\\_and\\_use#4005322](https://www.oed.com/dictionary/force_n1?tab=meaning_and_use#4005322).

100 EG HENDERSON, THE USE OF FORCE AND INTERNATIONAL LAW 59 (2018): “a consideration of the *effects* of the action takes on a greater importance the further one moves away from what we might consider to be conventional weapons”; POBJIE, *supra* note 2, 125–130. See also the Tallinn Manual’s commentary on the definition of the use of force with respect to cyber operations, which sets out indicative factors for whether a cyber operation is a “use of force” and focuses on effects rather than means: TALLINN MANUAL 2.0 ON THE INTERNATIONAL LAW APPLICABLE TO CYBER OPERATIONS, Commentary to rule 69, 333, ¶19 (Michael N. Schmitt ed., 2017).

101 POBJIE, *supra* note 2, 128–130, noting that “[s]ince the prohibition of the use of force in article 2(4) undoubtedly covers the use of chemical, biological and nuclear weapons, a kinetic release of energy is clearly not always required” (128–129, footnote omitted).

### Electronic Counterspace Capabilities

“Electronic counterspace technologies, sometimes also known as electromagnetic technologies, can target the electromagnetic spectrum used by space systems to transmit and receive data, causing harmful interference. Jammers generate noise on the same radio frequency band as a space system in order to block or interfere with the signal travelling from Earth to a satellite (uplink) or from a satellite to Earth (downlink).”<sup>102</sup>

### Cyber Counterspace Capabilities

“These technologies can target data and the systems that use, transmit, and control the flow of data. Information and communication technologies can be used to target satellites as well as ground stations or even end-user components, such as modems, with the objective of interfering with services (such as Internet coverage), intercepting information, or inserting false or corrupt data into a system. Hostile operations that use cyber means or methods are generally reversible; however, a malicious or hostile operation that targets the command and control system of a satellite could render it inoperable in an irreversible way, as the hostile party could cause a stoppage of the satellite’s functions permanently, and cause it to waste its fuel or damage its sensors. Such a step could have a large impact radius and potentially affect critical infrastructure.<sup>103</sup> The use of information and communication technologies against space systems can be conducted in a relatively cheap manner, compared to other counterspace capabilities. Cyber counterspace capabilities can be difficult to predict, detect, and attribute.”<sup>104</sup>

<sup>102</sup> Space Security Lexicon, *supra* note 12, at 3.1.3.

<sup>103</sup> There is no universally accepted definition of critical infrastructure in the context of space security. In the context of cybersecurity, the General Assembly has highlighted that critical infrastructures include “those used for, inter alia, the generation, transmission and distribution of energy, air and maritime transport, banking and financial services, e-commerce, water supply, food distribution and public health—and the critical information infrastructures that increasingly interconnect and affect their operations”. Critical infrastructure is considered of fundamental importance and “the backbone of a society’s vital functions, services and activities. If these were to be significantly impaired or damaged, the human costs as well as the impact on a State’s economy, development, political and social functioning and national security could be substantial”. See Space Security Lexicon, *supra* note 12, at 3.3.1. See also G.A. Res. 58/199, 58th Sess., on the creation of a global culture of cybersecurity and the protection of critical information infrastructures (30 Jan. 2004), available online at: <https://digitallibrary.un.org/record/509571>; Report of the Group of Governmental Experts on Advancing Responsible State Behaviour in Cyberspace in the Context of International Security, U.N. Doc. A/76/135 (14 July 2021), <https://undocs.org/A/76/135>.

<sup>104</sup> Space Security Lexicon, *supra* note 12, at 3.1.4.

## Effects

- *Directness of effects and object of harm*: the relevant harmful effects are physical effects<sup>105</sup> with sufficient proximity to the application of force (directness).<sup>106</sup> Sufficient proximity refers to the nexus between the act and its result, not how long it takes for the harm to manifest.<sup>107</sup> Indirect or reverberating effects are more likely to lead to characterization of the act as a “use of force” if they are of high gravity<sup>108</sup> or if there is a hostile or coercive intent (discussed under “Coercive intent” below). The extent to which indirect effects are legally relevant to characterizing an act as a prohibited “use of force” depends on the context.

A forcible act that interferes with, damages or destroys a satellite can have indirect or reverberating effects, which may include damage or destruction to other space objects caused by the resulting debris from kinetic ASAT, terrestrial effects including death or injury of persons,<sup>109</sup> as well as the permanent impact on terrestrial biomass and irreversible effects on ecosystems such as oceans, impoverishing the living conditions of large human populations. It can also cause interruption of services that the satellite provides. It would be particularly grave if these services were related to the operability of critical infrastructure.

- *Temporary and reversible effects*: it is legally open whether the prohibition of the use of force under Article 2(4) and customary international law covers temporary and reversible effects.<sup>110</sup> Many counterspace capabilities can produce temporary and reversible effects, for example jamming or dazzling, high-powered microwaves, electronic pulses and the use of cyber for counterspace.<sup>111</sup> Due to military, commercial and civilian reliance on space systems and services, harmful effects that are temporary and reversible may still be significant particularly if they affect critical infrastructure.
- *Potential effects*: it is also textually ambiguous whether the physical effect (i.e. harm) must actually occur for the act to be a “use of force”, or if potential but unrealized physical effects/harm will suffice.<sup>112</sup> The latter —a risk of *potential* harm— can be characterized as a hazard, which may be distinguished from an immediate risk of direct or indirect harm which actually ensues (discussed earlier). For example, studies have demonstrated the likelihood of long-lasting debris generation by the use of kinetic ASATs,<sup>113</sup> which risks

105 POBJIE, *supra* note 2, 133: “non-physical effects alone (such as psychological, economic or more abstract forms of harm) are not likely to be legally relevant to the determination of whether an act is a ‘use of force.’” See also Claus Kreß, *The State Conduct Element*, IN THE CRIME OF AGGRESSION: A COMMENTARY 412, 425 (Claus Kreß and Stefan Barriga eds., 2017).

106 POBJIE, *supra* note 2, 134.

107 The commentary to Rule 69 in the Tallinn Manual 2.0 (which defines a “use of force” with respect to cyber operations) suggests that the criterion of directness relates to States’ perception of the military nature of the act, since “[i]n armed actions ... cause and effect are closely related”: Schmitt, *supra* note 100, at 333, ¶19.

108 See Nasu, *supra* note 85, at 159.

109 The present report confines its analysis to the prohibition of the use of force between States (*ius contra bellum*). Uses of force with harmful effects on individuals may also be regulated by other applicable legal frameworks such as international humanitarian law and international human rights law.

110 POBJIE, *supra* note 2, 135–136.

111 Clayton Swope et al., SPACE THREAT ASSESSMENT 2024, Center for Strategic & International Studies 3–5 (2024), <https://www.csis.org/analysis/space-threat-assessment-2024>.

112 POBJIE, *supra* note 2, 136–137.

113 MICHAEL BYERS & AARON BOLEY, WHO OWNS OUTER SPACE?: INTERNATIONAL LAW, ASTROPHYSICS, AND THE SUSTAINABLE DEVELOPMENT OF SPACE 274 (2023).

potential harm to other space objects. The report of the Secretary-General on reducing space threats through norms, rules and principles of responsible behaviours, notes that:

“Increasing debris poses a collision risk to space objects. Objects as small as 1 cm in diameter can damage the functions of an active satellite; objects between 1 and 10 cm can disable or destroy a satellite. Impacts involving larger objects generate hundreds or thousands of pieces of debris. Thus, increasing debris also poses a risk to future access to space, as the cascading generation of debris could render orbits unusable for generations.”<sup>114</sup>

The 2019 GGE on Further Practical Measures for PAROS placed “some emphasis on prohibiting in particular intentional acts that could result in the generation of long-lasting debris in Earth orbit.”<sup>115</sup>

### **Gravity**

Whether there is a gravity threshold of a prohibited “use of force” is controversial and unsettled in legal scholarship.<sup>116</sup> The question is significant because a *de minimis* (i.e. lower) gravity threshold under Article 2(4) could also affect the size of the gap between a prohibited “use of force” and an “armed attack” giving rise to the right to self-defence under Article 51. Under the framework set out in this report, there is no gravity threshold for a “use of force” under Article 2(4) but the gravity of an act remains relevant to whether that act is a “use of force” (in combination with other elements), and is also important to the contextual requirement of whether the act occurs in “international relations”.<sup>117</sup>

<sup>114</sup> Report of the Secretary-General A/76/77, *supra* note 95, ¶12.

<sup>115</sup> Annex II to the Report of the Group of Governmental Experts on Further Practical Measures for the Prevention of an Arms Race in Outer Space (procedural), ¶41 U.N. Doc. A/74/77 (19 Apr. 2019) [hereinafter ‘Annex II’], <https://undocs.org/Home/Mobile?FinalSymbol=A%2F74%2F77>.

<sup>116</sup> Scholars taking the position that there is a *de minimis* gravity threshold include OLIVIER CORTEN, *THE LAW AGAINST WAR: THE PROHIBITION ON THE USE OF FORCE IN CONTEMPORARY INTERNATIONAL LAW* (2021) and Mary Ellen O’Connell, *The Prohibition of the Use of Force*, in RESEARCH HANDBOOK ON INTERNATIONAL CONFLICT AND SECURITY LAW 89 (Nigel White & Christian Henderson eds., 2013). A proponent of the opposite view is Tom Ruys, *see supra* note 93. Other scholars who have examined this issue frame it differently. For example, Henderson, *supra* note 100, 74 argues that that “the gravity of the use of force against such private actors does not by itself determine the applicability of the prohibition ... Indeed, it is more a qualitative – State or private – as opposed to quantitative – small- or large-scale – distinction, making a clear *de minimis* threshold hard to discern” and that “when the ‘international relations’ between states are engaged there is little state practice supportive of a *de minimis* threshold in the context of incidences involving armed force.” Similarly, POBJIE, *supra* note 2, 143 argues that there is no gravity threshold for a “use of force” but it remains relevant to whether the act is a “use of force” (in combination with other elements), and more importantly, to the contextual element of whether the act occurs in “international relations”.

<sup>117</sup> *See* POBJIE, *supra* note 2, 143.



The gravity of forcible acts is especially relevant in outer space, because of the wide range in intensity of effects. In the discussions of the 2019 GGE on PAROS, “[i]t was considered that threats exist on a continuum from low intensity, characterized by reversible and disruptive impacts, to high intensity, characterized by irreversible and destructive impacts.”<sup>118</sup>

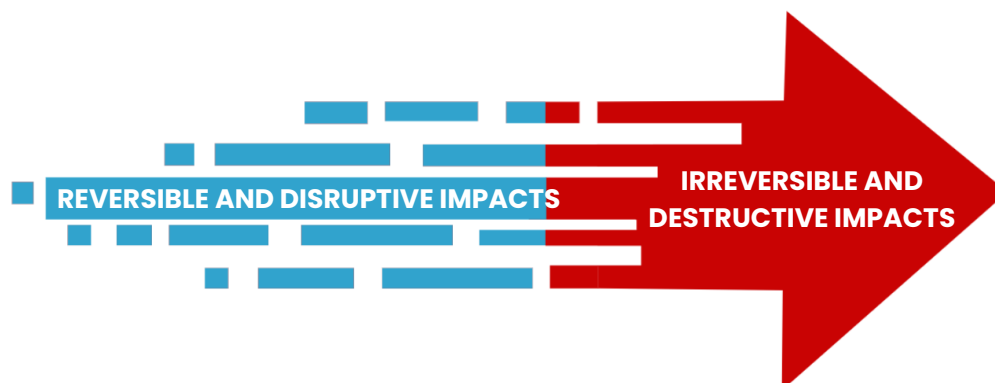


Figure 6: Increasing gravity of a use of force

The gravity of harm caused by a specific act must be assessed on a case-by-case basis and will vary depending on the nature and function of the targeted object, the type and severity of interference or damage and the circumstances of the particular case, as well as any legally relevant indirect effects (as discussed earlier).

### **Coercive or hostile intent**

There are differing views on whether a coercive or hostile intent is required for a prohibited “use of force”. Intention is not a necessary requirement for an act to be internationally wrongful; whether intention is necessary depends on the obligation in question.<sup>119</sup> The majority of scholars argue that an intention to use force is required for a prohibited “use of force”.<sup>120</sup> It is unclear from the text of Article 2(4) if a prohibited “use of force” requires a particular kind of intention. This is relevant to accidents, mistakes as well as situations where an alternative legal framework may apply to the activity (such as law enforcement within a State’s own territory) and situations in which it may be difficult or impossible to discern the sponsoring intent of a forcible act.

<sup>118</sup> Annex II, *supra* note 115, para. ¶135; see also Draft Report of the Group of Governmental Experts on Further Practical Measures for the Prevention of an Arms Race in Outer Space, in Recommendations to promote the practical implementation of transparency and confidence-building measures in outer space activities with the goal of preventing an arms race in outer space, in accordance with the recommendations set out in the report of the Group of Governmental Experts on Transparency and Confidence-Building Measures in Outer Space Activities, ¶138, U.N. Doc. A/CN.10/2019/WP.1 (25 Apr. 2019) [hereinafter ‘Draft GGE Report’], <https://undocs.org/A/CN.10/2019/WP.1>

<sup>119</sup> See Draft articles on Responsibility of States for Internationally Wrongful Acts, with commentaries, *supra* note 63, commentary to article 2, at ¶¶13 and 10. Para 10: “In the absence of any specific requirement of a mental element in terms of the primary obligation, it is only the act of a State that matters, independently of any intention”.

<sup>120</sup> Ian Brownlie argued that no specific intention is required: IAN BROWNIE, INTERNATIONAL LAW AND THE USE OF FORCE BY STATES 377 (1963). Scholars taking the opposite view include Corten, *supra* note 116, 76 and Henderson, *supra* note 100, 75. Tom Ruys argues that a hostile intent can exclude some acts of law enforcement and unintentional or harmless small-scale incursions from the scope of the prohibition: Ruys, *supra* note 93, 172-3, 190-1. Erin Pobjie argues that a hostile intent is a relevant (though not necessary) element to determine whether an act is a prohibited “use of force”: POBJIE, *supra* note 2, 145-157.

Nascent State practice supports the view that only acts which intentionally cause damage to or interfere with space objects are likely to be characterized as a prohibited “use of force”. The 2008 draft PPWT defined the “use of force” as “any *hostile* actions against outer space objects including, inter alia, those aimed at their destruction, damage, temporarily or permanently injuring normal functioning, deliberate alteration of the parameters of their orbit, or the threat of these actions”.<sup>121</sup> One analysis of the definition set out in the 2008 draft PPWT did not object to the requirement that the action be “hostile” but appeared to express reservations regarding the interpretation of this term.<sup>122</sup> The revised definition of “use of force” in the 2014 draft PPWT replaced the term “hostile actions” with “*intended* action to inflict damage”.<sup>123</sup> Some experts in the 2019 GGE on PAROS emphasized the desirability of “prohibiting various types of *intentionally* harmful or destructive acts”.<sup>124</sup> State submissions to the OEWG which distinguish between irresponsible behaviours and security threats also place emphasis on “*deliberately* causing non-consensual interference” to space systems for the latter.<sup>125</sup> Given the well-known dangers posed by space debris,<sup>126</sup> deliberately creating long-lasting space debris through kinetic ASATs is likely to be considered reckless; however it may be questioned whether such recklessness would suffice for a “use of force” in this context.

A specific intent may be difficult to discern in outer space. This is particularly the case for dual-purpose space objects, which are not designed for military application but whose capabilities may be repurposed to interfere with or damage other space objects, such as on-orbit servicers that carry out rendezvous and proximity operations (RPOs), and capabilities designed for active debris removal.<sup>127</sup>

<sup>121</sup> U.N. Doc. CD/1839, *supra* note 27, art. 1(e), emphasis added.

<sup>122</sup> Letter Dated 19 August 2008 from the Permanent Representative of the United States of America Addressed to the Secretary-General of the Conference Transmitting Comments on the Draft Treaty on Prevention of the Placement of Weapons in Outer Space and of the Treaty or Use of Force Against Outer Space Objects (PPWT) as Contained in Document CD/1839 of 29 February 2008, ¶¶4,, 5, U.N. Doc. CD/1847 (26 Aug. 2008). The analysis notes that the term “hostile” in the definition “appears to be intended to capture only actions which are taken against another country’s satellite(s), which are not part of a mutually-agreed cooperation program.”

<sup>123</sup> PPWT, *supra* note 21 (emphasis added). Art. 1(d): “the terms ‘use of force’ or ‘threat of force’ mean, respectively, any intended action to inflict damage to outer space object under the jurisdiction and/or control of other States, or clearly expressed in written, oral or any other form intention of such action. Actions subject to special agreements with those States providing for actions, upon request, to discontinue uncontrolled flight of outer space objects under the jurisdiction and/or control of the requesting States shall not be regarded as use of force or threat of force”.

<sup>124</sup> Annex II, *supra* note 115, ¶41 (emphasis added); *see also* Draft GGE Report, *supra* note 118, ¶68: “The Group reaffirmed concerns ... over the deliberate and intentional use of force in space”.

<sup>125</sup> Canada’s Views on Reducing Space Threats through norms, rules and principles of Responsible Behaviour, submission in response to note verbale, 2–3, U.N. Doc. A/AC.294/2022/WP.7 (6 May 2022), emphasis added.

<sup>126</sup> Report of the Secretary-General A/76/77, *supra* note 95, ¶112: “Many States express concern about space debris as the most significant threat to the space environment.”

<sup>127</sup> Annex II, *supra* note 115, ¶139.

## MOVING FORWARD: INTEGRATING THE PROHIBITION OF THE USE OF FORCE INTO SPACE SECURITY DEBATES

As States continue their efforts to address space security concerns and establish measures and mechanisms to mitigate potential threats to space security and to achieve the goals of PAROS, the analysis of the prohibition of the use of force laid out in this report can aid in shedding light on the interpretation of the prohibition of the use of force, and how it applies to outer space and the activities carried out therein. Key takeaways from the report to enable States to effectively integrate the prohibition of the use of force into space security debates are set out below.



States should promote compliance with the prohibition of the use of force in the UN Charter and customary international law and consider how to strengthen the prohibition of the use of force in its application to outer space.



The prohibition of the use of force is a key legal mandate that States should take into account as they work to develop mechanisms and instruments for PAROS.



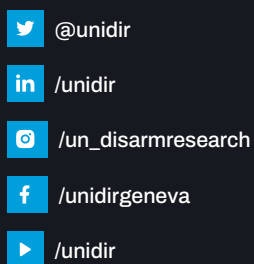
States should consider the interpretation of a prohibited “use of force” in its application to outer space security and take steps to build common understandings by addressing the areas of uncertainty identified in this report.



States can increase clarity over the interpretation of a prohibited “use of force” in its application to outer space through non-legally binding measures and legally binding instruments, which can be complementary, as well as through plurilateral or unilateral statements.

The prohibition of the use of force is a universally applicable rule that applies in outer space and is a key element for the pursuit and achievement of space security.

In the context of multilateral debates, States have the opportunity to increase clarity on the interpretation of Article 2(4) of the UN Charter in its application to outer space. As the definition of prohibited force can help to clarify regulation of space capabilities and space behaviours and already applies to all States, the prohibition of the use of force can serve as a useful basis for advancing common understandings for Preventing an Arms Race in Outer Space.



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