I. Threats to Outer Space Peace and Security

Introduction

The Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies (hereafter: "Outer Space Treaty" or "the Treaty") was created in 1967 in order to allow peaceful exploration of outer space and keep the area free of weapons of mass destruction (WMDs).[1] Over the last 50-plus years, the treaty has been the governing document on how Member States utilize outer space to enjoy its benefits.[2] As the world progressed as a society, technological advancements have been made that allow an increasing number of Member States and non-state actors access to space.[3] This fact, along with the increase in military capabilities around the globe have created more tensions and tools available that could threaten the peace and security that were outlined in this Treaty and other United Nations (UN) documents.[4]

The History of Space Agreements within the United Nations

With more than 100 Member States having signed on, the Outer Space Treaty is one of the primary resolutions passed in regards to humanities' activities in outer space.[5] The Treaty outlines that space exploration "shall be carried out for the benefit and in the interests of all countries," and activities conducted in space must be "in the interest of maintaining international peace and security."[6] The Treaty also prohibits WMDs, specifically nuclear weapons, from being stored and used in space.[7] However, that is the only defined weapons limitation mentioned in the Treaty.[8]

A series of resolutions were passed by the United Nations General Assembly (UNGA) in the late 1960s to late 1970s.[9] The first was The Agreement on the Rescue of Astronauts, the Return of Astronauts, and the Return of Objects Launched into Outer Space created by UNGA Resolution 2345 (XXII) in 1967.[10] The agreement requires Member States to attempt to rescue and return astronauts to their home Member State when necessary and aid in the returning of "space objects" that come back to Earth but are outside of the original owner's borders.[11] The Convention on International Liability for Damage Caused by Space Objects entered into force in 1972 by UNGA Resolution 2777(XXVI).[12] It improved the liability clauses of the Outer Space Treaty by detailing the full liability of Member States to "pay compensation for damage caused by its space objects on the surface of the Earth

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[1] Jill Stuart, "The Outer Space Treaty Has Been Remarkably Successful – But Is It Fit for the Modern Age?," The Conversation, May 18, 2019, https://theconversation.com/the-outer-space-treaty-has-been-remarkably-successful-but-is-it-fit-for-themodern-age-71381.

[2] "Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies," The Outer Space Treaty (United Nations Office of Outer Space Affairs), accessed September 10, 2020, https://unoosa.org/oosa/en/ourwork/spacelaw/treaties/introouterspacetreaty.html

[3] Jason Krause, "The Outer Space Treaty Turns 50. Can It Survive a New Space Race?" ABA Journal (American Bar Association, April 1, 2017), https://www.abajournal.com/magazine/article/outer_space_treaty

[4] Michael Le Page, "India Tests Anti-Satellite Missile by Destroying One of Its Satellites," New Scientist, March 27, 2019, https://www.newscientist.com/article/2197903-india-tests-anti-satellite-missile-by-destroying-one-of-its-satellites/

[5] "Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies," The Outer Space Treaty (United Nations Office of Outer Space Affairs), accessed September 10, 2020, https://unoosa.org/oosa/en/ourwork/spacelaw/treaties/introouterspacetreaty.html

[6] The United Nations Office for Outer Space Affairs, International Space Law: United Nations Instruments, (Vienna: United Nations, 2017), https://www.unoosa.org/res/oosadoc/data/documents/2017/stspace/stspace61rev_2_0_html/V1605998ENGLISH.pdf

[7] The United Nations Office for Outer Space Affairs, International Space Law.

[8] The United Nations Office for Outer Space Affairs, International Space Law.

[9] The United Nations Office for Outer Space Affairs, International Space Law.

[10] "Agreement on the Rescue of Astronauts, the Return of Astronauts and the Return of Objects Launched into Outer Space," (United Nations Office of Outer Space Affairs), accessed September 20, 2020, http://www.unoosa.org/oosa/en/ourwork/spacelaw/treaties/introrescueagreement.html

[11] "Agreement on the Rescue of Astronauts, the Return of Astronauts and the Return of Objects Launched into Outer Space," (United Nations Office of Outer Space Affairs), accessed September 20, 2020, http://www.unoosa.org/oosa/en/ourwork/spacelaw/treaties/introrescueagreement.html

[12] United Nations General Assembly, Resolution 2777(XXVI), Convention on International Liability for Damage Caused by Space Object, A/RES/2777(XXVI), https://undocs.org/pdf?symbol=en/A/RES/2777(XXVI

or to aircraft, and liable for damage due to its faults in space procedures for the settlement of claims for damages."[13] This Convention has been implemented only once, in 1978, when a Soviet Union nuclear-powered satellite broke and landed in Canada.[14] This satellite caused radioactive debris to fall over the Member State and required a massive land cleanup.[15] This resulted in Canada filling a claim under the Convention against the USSR, which was settled for CAD 3 Million in 1981, or USD 5.9 Million in 2020 inflation rates.[16] The last of the series of resolutions is the Convention on Registration of Objects Launched into Outer Space ("Registration Convention") of September 1976.[17] The Registration Convention's main goal was to expand "the scope of the United Nations Register of Objects Launched into Outer Space that had been established by Resolution 1721B (XVI) of December 1961" as well as to address "issues relating to States Parties responsibilities concerning their space objects.[18] The United Nations Register of Objects Launched into Outer Space, formed by the Convention, is still utilized today.[19] As reported by the United Nations Office of Outer Space Affairs, the Register has received records of approximately 86 percent of all "satellites, probes, landers, crewed spacecraft and space station flight elements launched into Earth orbit or beyond."[20]

The UNGA has also passed additional resolutions in order to supplement and expand the primary treaties and guidelines on space exploration and activities.[21] These resolutions mainly focus on further detailing the inner workings of the Outer Space Treaty, Liability Convention, and Registration Convention.[22] A/RES/68/74 (2013) calls upon Member States with large private space industries to be proactive in establishing their own legislation dictating the proper collection and recourse for damages that a Member State's government may experience under the Outer Space Treaty and Liability Convention.[23] Specifically, the Resolution recommends the creation of national legislation regarding insurance requirements for space activities, especially since Member States are responsible to provide by international law compensation regardless if the damage was caused by a private entity or the Member State themselves.[24]

In addition to treaties and resolutions, the UN has also established detailed oversight bodies and regulatory structures for more advanced topics and specific areas of space use and exploration.[25] One of the main structures they created which has the most impact on modern day space exploration is the Space Debris Mitigation Guidelines.[26] The Guidelines were adopted by the UNGA in 2007, while being approved by the Committee on the Peaceful Uses of Outer Space that same year.[27] While the Guidelines are not a legally bonding document, they detail a list of best practices and "high-level qualitative guidelines" that Member States should be following when dealing with outer space exploration and use.[28] Indicating that a large portion of space debris will be the result of outer space collisions, the Guidelines list seven key ways to limit Member State's risk for their space programs such as limiting intentional destruction of spacecrafts, suggestions to spacecraft construction that will limit the amount of debris reaped during operation, and avoiding accidental collisions when possible.[29]

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[13] United Nations General Assembly, Resolution 2777(XXVI).
[14] "Settlement of Claim between Canada and the Union of Soviet Socialist Republics for Damage Caused by 'Cosmos 954'" Japan Aerospace Exploration Agency, https://www.jaxa.jp/library/space_law/chapter_3/3-2-2-1_e.html
[15] "Settlement of Claim between Canada and the Union of Soviet Socialist Republics for Damage Caused by 'Cosmos 954'" Japan Aerospace Exploration Agency, https://www.jaxa.jp/library/space_law/chapter_3/3-2-2-1_e.html
[16] "Settlement of Claim between Canada and the Union of Soviet Socialist Republics.
[17] Registration Convention (United Nations Office of Outer Space Affairs), accessed September 10, 2020, https://www.unoosa.org/oosa/en/ourwork/spacelaw/treaties/introregistration-convention.html
[18] Registration Convention (United Nations Office of Outer Space Affairs).
[19] United Nations Register of Objects Launched into Outer Space, UNOOSA, May 27, 2020, https://www.unoosa.org/oosa/en/spaceobjectregister/index.html
[20] United Nations Register of Objects Launched into Outer Space, UNOOSA.
[21] The United Nations Office for Outer Space Affairs, International Space Law: United Nations Instruments, pp. 73-86, (Vienna: United Nations, 2017), https://www.unoosa.org/res/oosadoc/data/documents/2017/stspace/stspace61rev_2_0_html/V1605998ENGLISH.pdf
[22] The United Nations Office for Outer Space Affairs, International Space Law.
[23] The United Nations Office for Outer Space Affairs, International Space Law.
[24] The United Nations Office for Outer Space Affairs, International Space Law.
[25] The United Nations Office for Outer Space Affairs, International Space Law.
[26] The United Nations Office for Outer Space Affairs, International Space Law.
[27] The United Nations Office for Outer Space Affairs, International Space Law.
[28] The United Nations Office for Outer Space Affairs, International Space Law.
[29] The United Nations Office for Outer Space Affairs, International Space Law.

Current Situation

For more than half a century, the Outer Space Treaty has been considered the basis for international law regarding space usage and exploration.[30] However, as technology has grown and evolved, the Treaty's mandate that all things regarding the use and exploration of space "shall be carried out for the benefit and in the interests of all countries…[while] in the interest of maintaining international peace and security."[31] However this mandate put in place by the current Treaty does not reflect the large amount of modern technology, such as anti-satellite missiles and future weapons and weapons platforms that could be used to militarize space and threaten global peace.[32] In addition, it does not reflect the large amount of Member States now active in outer space either via space stations, exploratory missions, satellites, and future planned man missions to the Moon and Mars.[33]

Unfortunately, militarization is not the only modern issue that continues to threaten the Outer Space Treaty.[34] The commercial space industry has grown exponentially.[35] The commercial space sector, which started in 1962 with the launch of Telstar-1, is now worth more than USD 320 Billion and is expected to grow to USD 1.1 Trillion by 2040 with more and more private companies becoming active in outer space.[36] In May 2020, the United States of America (USA) launched its first manned space mission from its own soil in almost a decade with a rocket built by the private company SpaceX.[37] Private businesses are also responsible for sending dozens, and soon to be hundreds, of satellites into Earth's orbit.[38] The growth of new technologies and private sector activity leads to multiple issues that will require preventative action by the international community to address.[39] The first article of the Outer Space Treaty states that space and all celestial bodies "shall be the province of all mankind," while the second Article prohibits taking claim of any portion of outer space by an Member State.[4041] The commercial space sector may threaten Article II's injunction as well as the principles described in Article I. [42]

Technological Threats

Because WMDs are the only weapons specifically prohibited in space by the Treaty, concerns have arisen almost from the treaty's inception regarding the militarization of space.[43] As the decades have passed, those concerns have

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[30] Jill Stuart, "The Outer Space Treaty Has Been Remarkably Successful – But Is It Fit for the Modern Age?" The Conversation, May 18, 2019, https://theconversation.com/the-outer-space-treaty-has-been-remarkably-successful-but-is-it-fit-for-themodern-age-71381

[31] The United Nations Office for Outer Space Affairs, International Space Law: United Nations Instruments, (Vienna: United Nations, 2017), https://www.unoosa.org/res/oosadoc/data/documents/2017/stspace/stspace61rev_2_0_html/V1605998ENGLISH.pdf, p. 4.

[32] Jason Krause, "The Outer Space Treaty Turns 50. Can It Survive a New Space Race?" ABA Journal (American Bar Association, April 1, 2017), https://www.abajournal.com/magazine/article/outer_space_treaty

[33] Malcolm Davis, "Outdated Treaties Won't Stop the Rush to Control Resources in Space," The Strategist, August 31, 2020, https://www.aspistrategist.org.au/outdated-treaties-wont-stop-the-rush-to-control-resources-in-space/

[34] Jill Stuart, "The Outer Space Treaty Has Been Remarkably Successful – But Is It Fit for the Modern Age?" The Conversation, May 18, 2019, https://theconversation.com/the-outer-space-treaty-has-been-remarkably-successful-but-is-it-fit-for-themodern-age-71381

[35] Jason Krause, "The Outer Space Treaty Turns 50. Can It Survive a New Space Race?" ABA Journal (American Bar Association, April 1, 2017), https://www.abajournal.com/magazine/article/outer_space_treaty

[36] Jim Bozen, "Why Big Business is Making a Giant Leap into Space," Wharton School of Business, University of Pennsylvania, June 4, 2019, https://knowledge.wharton.upenn.edu/article/commercial-space-economy/

[37]"UCS Satellite Database," Union of Concerned Scientists (Union of Concerned Scientists, September 30, 2019), https://www.ucsusa.org/resources/satellite-database

[38] United Nations Committee on the Peaceful Uses of Outer Space, Report of the Committee, A/74/20, p. 11.

[39] The United Nations Office for Outer Space Affairs, International Space Law: United Nations Instruments, (Vienna: United Nations, 2017) https://www.unoosa.org/res/oosadoc/data/documents/2017/stspace/stspace61rev_2_0_html/V1605998ENGLISH.pdf

[40] The United Nations Office for Outer Space Affairs, International Space Law.

[41] United Nations Committee on the Peaceful Uses of Outer Space, Report of the Committee, A/74/20, p. 6.

[42] United Nations Committee on the Peaceful Uses of Outer Space, Report of the Committee, A/74/20, p. 6.

[43] "Outer Space Treaty," U.S. Department of State (U.S. Department of State), accessed September 10, 2020, https://20092017.state.gov/t/isn/5181.htm

only become more pressing.[44] The USA Soviet Union both worked on space-based anti-ballistic missile systems in the 1980s.[45] While neither project was successful, the potential presence of these non-WMDs in space and their militaristic abilities were enough to cause significant international issues.[46] Within the last five years many Member States, such as Russian Federation, China, and the USA have gone on to create or reactivate outer space focused military forces.[47]

The development of military forces dedicated to war in space parallels a new arms race that includes multiple permanent UN Security Council (SC) Member States, but is also seeing increasing involvement from other Member States.[48] Anti-satellite weaponry ("ASAT") has been utilized in various forms since the 1950s, when the USA's military started testing nuclear-tipped missiles designed to destroy satellites using electromagnetic pulses.[49] After the Outer Space Treaty passed, programs shifted from WMD related weaponry to laser weaponry and kinetic kill vehicles, which destroy an object by direct impact.[50] At present, the USA, Russia, China, and India have all tested anti-satellite missiles by successfully shooting down their own orbiting satellites.[51] While ASAT missiles have not been used against another Member State, the technological capability is present and continuing to be advanced to include laser and space-based systems.[52]

Conclusion

While the Outer Space Treaty has generally done its job in preventing WMDs being used or stored in space, the threat of other forms of weaponry being used in space it too great to ignore. The Treaty has been the governing document on how Member States utilize outer space to enjoy its benefits for over half a century, but necessary changes need to be made in order to adapt to the technical society we live in. An improved framework must be established to combat the rise of conflict and militarization of space. Maintaining the peace and security of outer space exploration and usage will require a multidimensional approach by the SC. Some questions to consider, then, include: Should the Outer Space Treaty limit the use of weaponry beyond WMDs? If so, what weaponry should it prohibit? Should Member States limit the private sector's access to space? Could the militarization of outer space lead other Member States to attempt their own anti-satellite weapons programs? What threats to these anti-satellite weapons programs pose to international security if any? It is this committee's directive to review and establish recommendations to advance this goal, in hopes of extending the peaceful use and exploration of outer space for all its Member States.

[44]"Outer Space Treaty," U.S. Department of State (U.S. Department of State), accessed September 10, 2020, https://20092017.state.gov/t/isn/5181.htm

[45] Elizabeth Howell, "Sputnik: The Space Race's Opening Shot," Space.com (Future US Inc., August 22, 2018), https://www.space.com/17563-sputnik.html

[46]David E. Hoffman, The Dead Hand: The Untold Story of the Cold War Arms Race and its Dangerous Legacy, (New York, Anchor Books, 2011), p. 162.

[47]United States Space Force, "About U.S. Space Force," https://www.spaceforce.mil/About-Us/About-Space-Force.

[48]Michael Le Page, "India Tests Anti-Satellite Missile by Destroying One of Its Satellites," New Scientist, March 27, 2019, https://www.newscientist.com/article/2197903-india-tests-anti-satellite-missile-by-destroying-one-of-its-satellites

[49] "A History of Anti-Satellite Programs," Union of Concerned Scientists, March 1, 2012, https://www.ucsusa.org/resources/history-anti-satellite-programs

[50] "A History of Anti-Satellite Programs," Union of Concerned Scientists.

[51] "A History of Anti-Satellite Programs," Union of Concerned Scientists.

[52] "A History of Anti-Satellite Programs," Union of Concerned Scientists.