Reducing Space Threats

Submitted to: The United Nations Open-Ended Working Group (OEWG) on Reducing Space Threats

Submitted by: Maat for Peace, Development and Human Rights (consultative status with the UN Economic and Social Council).

Introduction

Space security is not a recent issue developed as part of international defense strategies. The talks on using space for military purposes began to take shape in the seventies of the last century. However, a very important development occurred in this field when Russia tested a mechanism through which satellites could be used as a platform to launch other satellites, and perhaps in the future, this mechanism can be developed to allow the launch of ballistic missiles or anti-satellite projectiles.

Militarization of space is very dangerous, especially since the boundaries between military and civilian uses are still blurry. Civil satellites provide services with a military function, and this would lead to conflict between major countries. Moreover, the increasing commercial use of space creates opportunities for disputes over the areas of operation of satellites, which is more likely to trigger military reactions by governments.

Although there has not been any direct military conflict in space so far, the efforts of major countries to prove their military power in space have escalated significantly in the past years. The scattered space debris produced by these military experiments poses a threat to the economic and scientific achievements that serve all mankind. Satellite technology helped us monitor climate, forecast weather, connect to the Internet, and increase the productivity of agricultural crops. The United Nations resolution in November 2021 to update the 1967 space treaty does not keep pace with the rapid commercial and military race in space.

Based on the importance imposed by this pressing issue and coinciding with the meetings of the Open-ended Working Group on Reducing Space Threats, Maat for Peace, Development and
Human Rights wishes to present its contribution on the impact of the militarization of space on international peace and security, guided by the following axes:

- Legal efforts to regulate the use of outer space.
- Space military competition and its motives.
- Militarization of space and its impact on international peace and security.
- Role of the private sector in space.
- Conclusion & Recommendations.

**First: Legal Efforts to Regulate Outer Space**

The United Nations’ efforts to protect outer space and restrict its use for peaceful purposes began in 1957, months before the first artificial satellite was launched into Earth's orbit. In the late 1950s and early 1960s, the United Nations showed interest in early proposals to ban the militarization of space. In 1967, the 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), entered into force after consideration by the Committee on the Peaceful Uses of Outer Space and the General Assembly. This treaty provides the basic framework for international space law. The treaty specifically prohibits the placement of nuclear weapons or any other kinds of weapons of mass destruction in outer space or on celestial bodies. The treaty also sets out the basic principles relating to the peaceful uses of outer space which include that the exploration and use of outer space shall be for the benefit and interests of all countries, and that national ownership of the moon and other celestial bodies shall not be permissible under the pretext of sovereignty.¹

The Outer Space Treaty stipulates that states should consult with each other before doing anything that could lead to potentially harmful interference in the activities of other states. The treaty specifically prohibits placing nuclear weapons or any other type of weapons of mass destruction in outer space or on any celestial body.²

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² كل ما تحتاج معرفته عن عسكرة الفضاء بين استفزازات روسيا وخيارات بايدن المحدودة، الجزيرة نت، 19 نوفمبر 2021، الرابط، [https://bit.ly/3ENmIo2](https://bit.ly/3ENmIo2)
Thus, the Outer Space Treaty constitutes the legal framework that the world is bound by in its discovery of the vast universe and the basis of international law for space, as:

- The preamble states that the exploration and use of outer space shall be carried out for the benefit and in the interests of all countries and shall be the province of all mankind. The treaty prohibited states and parties from placing nuclear weapons or any other weapons of mass destruction in Earth's orbit, or installing them on the surface of the moon or any celestial body or space station. It also expressly stipulates the peaceful uses of celestial bodies, while prohibiting any tests of any kind of weapons, military maneuvers, or the establishment of military bases. However, the treaty does not prohibit the placement of conventional weapons in Earth orbit.

- The treaty prohibits any government from claiming space natural resources because they are the common heritage of mankind. The second item thereof states that outer space, including the moon and other celestial bodies, is not subject to national appropriation by claim of sovereignty, by means of use or occupation, or by any other means. However, the country launching the spacecraft retains the right to control the areas where it has landed and bears responsibility for the damage caused by these vehicles if they occur. The treaty also stresses the need to protect space from pollution and singles out a special annex on the importance of sterilization procedures that space missions must carry out before and after space flights. However, the Outer Space Treaty provides general principles to guide the activities of states and does not provide detailed rules to operate under them because the Treaty guarantees the freedom to explore and use space for the benefit of all mankind, and includes only two warnings among many flaws.

The first warning states that the Moon and other celestial bodies must be used exclusively for peaceful purposes, but the rest of space is not covered by this blanket ban and there is only a single directive found in the preamble to the treaty that recognizes the common interest in progress in the exploration and use of space for peaceful purposes.

The second warning states that those who conduct activities in space must do so with due regard to the interests of all other states party to the treaty. Hence a major problem arises from the fact that the

https://bit.ly/3yll4b
treaty does not provide clear definitions of expressions such as for peaceful purposes or due consideration.

Although the Outer Space Treaty specifically prohibits placing nuclear weapons or weapons of mass destruction anywhere in space, it does not prohibit the use of conventional weapons in space or the use of terrestrial weapons against objects in space such as satellites and orbital stations. It is unclear whether some weapons, such as China's multi-speed hypersonic orbital missile, capable of delivering nuclear weapons, should fall under the treaty's ban. Therefore, specialists believe that the vague military restrictions included in the treaty give room for various interpretations, which could lead to conflict.\(^4\)

As a result of the loopholes found in the Outer Space Treaty, the United Nations General Assembly has adopted some efforts to reduce space threats, for example: -

- The General Assembly established the Committee on the Peaceful Uses of Outer Space (COPUOS) in 1959 to regulate the exploration and use of space for the benefit of all mankind for peace, security and development. The Committee was mandated to review international cooperation in the peaceful uses of outer space, study space-related activities that could be undertaken by the United Nations, encourage space research programs and study legal problems arising from the exploration of outer space. The Committee played an active role in establishing the Five Outer Space Treaties and Principles. Each year, the Committee discusses international cooperation in space exploration and the use of space technology applications to achieve global development goals. Because of the rapid advances in space technology, the space agenda is constantly evolving. Therefore, the Committee provides a unique platform at the global level to monitor and discuss these developments.\(^5\)

- In recent years, the General Assembly unanimously adopted a resolution drafted by Russia and China on transparency and confidence-building measures in outer space. Transparency and confidence-building measures are a good step towards enhancing trust and international cooperation between countries. They facilitate the management of situations that could
otherwise lead to international tension. Most states recognize that TCBMs do not replace a legally binding ARMS treaty, but may serve as the beginning of a phased approach to prevent the weaponization of outer space.

- In 2006, the General Assembly adopted resolution 61/75, which calls for concrete proposals on transparency and confidence-building measures in outer space activities. In response to this decision, the European Union began a process on an international code of conduct for outer space activities.
- In 2010, the General Assembly agreed to launch a Group of Governmental Experts (GGE) to explore transparency and confidence-building measures that could be undertaken to enhance space security.⁶
- On November 6, 2020, the First Committee of the United Nations General Assembly voted to approve the new UK resolution on reducing space threats through rules and through norms, rules and principles of responsible behaviors. This important decision will help improve transparency and communication regarding space activities and other confidence-building measures, all of which are essential to mitigate emerging risks.⁷

Second: Space military competition and its motives

Space security is not a recent issue developed as part of international defense strategies. The talks on using space for military purposes began to take shape in the seventies of the last century. However, a very important development occurred in this field when Russia tested a mechanism through which satellites could be used as a platform to launch other satellites, and perhaps in the future, this mechanism can be developed to allow the launch of ballistic missiles or anti-satellite projectiles. The Russian military have consistently denied US accusations about this mechanism as a cover for a military test aimed at destroying hostile satellites, while Moscow describes this mechanism as a technical mechanism dedicated to examining Russian satellites.

The main reason for the American apprehension about this experiment is that it moves the militarization of space to other completely new directions. Until 2019, space military applications were mainly focused on intercepting satellites by means of long-range missiles launched from the

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⁷ Security: We are helping to keep space safe, Wilton Park, link, [https://www.wiltonpark.org.uk/space/](https://www.wiltonpark.org.uk/space/)
surface of the Earth, but the Russian move expands the range of capabilities that it can be used in space, to include direct confrontations in the upper layers of space, in which satellites are combat tools similar to fighters.  

It can also be said that the arms race in outer space is no longer an exclusive matter for technologically advanced countries, but rather its problems cast a shadow over the emerging countries in the field of space exploration, which makes the issue of setting controls for this race one of the main concerns of many Arab countries that have ambitious programs in outer space. (Example: UAE, Egypt, Morocco), and African countries also have space agencies with reasonable programs (e.g.: South Africa, Nigeria, and Uganda).

Thus, the countries of the Middle East has motives for military competition in the outer space, especially since competition has recently heated on the importance of strengthening the presence in outer space, as several countries such as the UAE, Saudi Arabia, Iran, Egypt and Turkey began to rapidly develop their space programs. In addition, Israel has launched for the first time a locally manufactured satellite. The key motives behind the Middle East growing interest in outer space are summarized as follows:

1. **Preserving the national security of countries**: presence in outer space will reflect positively on strengthening the position of countries at the geopolitical level. Satellites play a pivotal role in strengthening defense systems, especially ballistic missiles, cruise missiles and unmanned aircraft. The countries of the Middle East felt the urgent need to increase their presence in space during 2019 and 2020. This may be attributed mainly to the attack launched by the Houthi militia against Saudi Aramco facilities in September 2019, where the Houthis were able to use cruise missiles and drones to target two of the company's plants, one of which is the largest oil refinery in the world. The Houthis were accused of cooperating with their ally Iran, which in turn used satellite-related technologies to launch such attacks. Thus, it seems that superiority in the use of space-related technology has become the winning card in this battle.

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8 محمد منصور، الديناميات الجديدة للتنافس الدولي في الفضاء الخارجي، موقع الميادين، 28 أغسطس 2020، الرابط، https://bit.ly/3OG9q18

2. Middle Eastern countries' awareness of the importance of diversifying economic resources and reducing dependence on oil and gas, in light of the global trend to reduce dependence on fossil fuels in the future. Hence, the intensification of space-related technical activities has become one of the most important drivers of the emerging space race in the Middle East. Increasing investments in space activities will promote innovation and create a new sector of companies working in this field, which means creating new job opportunities and reviving the economies of the countries of the region.10

Third: Militarization of space and its impact on international peace and security

Although some international treaties prohibit military activities related to outer space, the concept of the militarization of space has steadily expanded in recent years, and space weapons have come to belong to multiple classes of combat systems, some of which include more than one use, and others do not consider space as a primary theater for it, but it has the ability to work in it. Therefore, international organizations have classified the types of weapons and combat systems related to outer space into 6 parts.

The first section relates to missile systems launched from ground platforms, which is the most common so far. It is dangerous because it may be a cover for conducting nuclear experiments in space. Besides, targeting satellites in high orbits may result in the scattering of the debris of these satellites in space, exposing satellite navigation and other satellites to serious risks.

The second section has to do with electronic systems launched from ground-based guidance devices with the aim of jamming hostile satellites and causing technical damage to them, whether temporarily or permanently.

The third section has to do with the confrontations taking place between satellites, whether through the interception of one of the satellites to the other, or the launching of projectiles directed at hostile satellites by one of them. An example of this section is the Russian experience in late 2019.

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10  Fakhry, إيمان، "دوافع تصاعد السباق الإقليمي في الفضاء الخارجي، المستقبل للأبحاث والدراسات المتقدمة، 23 نوفمبر 2021، الرابط، https://bit.ly/3MJL0GT
The fourth section is similar to the second section, but it is done through satellites in space and not from ground stations, as a particular satellite is allocated in order to broadcast high-frequency waves in the direction of hostile satellites.

In addition to the above, there are two other sections related to the future of military conflicts in outer space. The first relates to the ability to strike ground targets by means of projectiles launched from space media, and the other operates by the same mechanism but uses microwave signals, lasers and electronic warfare applications in order to jam enemy spacecraft, or Intercontinental ballistic missiles, which take flight paths close to outer space.11

Weaponization of space and its repercussions on international peace and security

In light of the steady increase in the military uses of the space sector, and in light of the tendency of many international and regional powers to establish a military space force similar to the United States of America, the world may slip in the future into space wars, which would threaten international peace and security, especially with the absence of rules International organizations regulating the uses of space and preventing its militarization.

Undoubtedly, the current struggle between the major powers over control of space and the work on militarizing it entails a clear threat to international peace and security for a number of reasons: -

- The absence of international standards for the regulation of space and its uses, as the efforts made under the auspices of the United Nations in March 2019 to reach a treaty to stop the arms race in space failed without reaching an agreement due to the dispute between the United States on one side and Russia and China on the other. Especially that the Outer Space Treaty of 1967 did not clearly define the nature of the uses of space, in addition to the fact that there are many countries in the world that have not joined it until the present time, and this treaty, although it prohibits countries from placing nuclear weapons in space, and installing them on the moon and celestial bodies for the purposes of Peaceful, but it does not prohibit the deployment of conventional military activities in space, the creation of space

11 محمد منصور، الديناميات الجديدة للتنافس الدولي في الفضاء الخارجي، موقع الميادين، 28 أغسطس 2020، الرابط، https://bit.ly/3OG9q18
military forces or the weaponization of space, which allows states to deploy weapons in space without imposing any sanctions.

- The steady increase in the militarization of the space domain, to the extent that many major powers are now including the militarization and control of space within their defense and military doctrine for the coming years, which may lead to the outbreak of conflicts and wars in the future. The U.S. Space Force is the 6th independent U.S. military service branch, tasked with missions and operations in the rapidly evolving space domain. Many countries have followed the same approach, such as Russia, China and France, which indicates the increasing use of space for military and war purposes. Many of the world’s armies began to think well of using space to carry out specific warfare missions, by placing systems in space that would attack a target located on Earth, the atmosphere, or in the space itself.

- The Coronavirus pandemic prompted many major powers to assert their military superiority, especially in the field of space, under the claim that this would enhance their position in the international system in the post-Corona world. This was evident in the mutual hostility between the major powers, which consider each other a threat. The greatest strategic view is that they have developed, tested, and deployed counter-space capabilities, which indicates the hostile path taken by these forces in space and provokes an arms race in space.

- Controlling precious resources and minerals in outer space: The interest of major powers in the field of space exploration and work on its militarization hides other goals, which are to control the resources and rare minerals it contains. These elements enter into the manufacture of almost everything, from batteries and electronics to petroleum refining and energy production.\(^\text{12}\)

- Communications satellites also play an important role in improving infrastructure and bridging the digital gap, and the need to work on strengthening international cooperation in the field of space and investing it in support of the comprehensive and sustainable development process for the countries of the world. Also, space exploration is the key to achieving development in other sectors and sciences and harnessing them to serve humanity. UN reports revealed that there are attempts to develop sustainable resources on the moon for the benefit of humanity, and that a team of artists and botanists are looking into the

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\(^\text{12}\) الصراع الدولي على تسليح الفضاء الابعاد والتداعيات على السلم والامن الدوليين، مجلة دروع الوطن، ديسمبر 2020، الرابط، [https://bit.ly/37zHhIq](https://bit.ly/37zHhIq)
possibilities of creating a complete plant village on the moon by using the best types of technology, and that in 2017, they developed a lunar vehicle within a program dedicated to creating robots that are suitable for harsh space environments.\textsuperscript{13}

- The heated competition between the countries of the Middle East region may push the region into a raging space race, which is a likely scenario to occur in the event of more turmoil and conflicts between the main actors in the region, which may push the countries of the region to seek to benefit from foreign expertise without considering the possibilities of regional integration. with the aim of outperforming regional opponents. It goes without saying that this scenario will increase conflicts and deepen mistrust among the countries of the region not only with regard to space activities but also in all other files.\textsuperscript{14}

**Militarization of space also has some effects on arms control and nuclear disarmament:**

- Weaponization of space will destroy the strategic balance and stability, undermine international and national security, and disrupt the existing arms control tools, especially those related to nuclear weapons and missiles, inevitably leading to a new arms race.
- Weaponization of space will also seriously disrupt the arms control and disarmament process, as the withdrawal of the United States from the Anti-Ballistic Missile Treaty in 2001 and the development of US land and sea missile defenses increased tensions with Russia and led to increased missile proliferation. The development of space technologies is likely to lead Russia as well as the United States to make smaller and smaller cuts to their nuclear arsenals and refuse to develop new treaties to regulate nuclear weapons and their delivery systems. China is likely to build more warheads to maintain its nuclear deterrent, which in turn could encourage India and then Pakistan to follow its path.\textsuperscript{15}

**Fourth: The role of the private sector in space**

In light of the ongoing technological advances and the lower costs, the use of space is increasing at the international level, whether within the governmental or private commercial sectors. The increased use aggravates the risks associated with congestion and competition. These risks must

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\textsuperscript{14} د. ايمان فخري، دوافع تصاعد السباق الإقليمي في الفضاء الخارجي، المستقبل للأبحاث والدراسات المتقدمة, 23 نوفمبر 2021، الرابط, [https://bit.ly/3MJl0GT](https://bit.ly/3MJl0GT)

\textsuperscript{15} Outer space : Militarization, weaponization, and the prevention of an arms race, Reaching Critical Will, link, [https://www.reachingcriticalwill.org/resources/fact-sheets/critical-issues/5448-outer-space](https://www.reachingcriticalwill.org/resources/fact-sheets/critical-issues/5448-outer-space)

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then be managed to realize the significant opportunities for security and prosperity that the space offers and to keep the space safe.\(^\text{16}\)

For the first time, strategic competition for space depends on the private sector as much as it does on the public sector. As independent actors, the new space companies have a much more important presence in outer space by launching their own equipment. In short, space is no longer limited to governments.

It is notable that governments are increasingly relying on companies specializing in space not only to provide customized responses to pressing demands but to help them be at the forefront of global strategic competition. This is the case with the European Union Space Investment Fund CASSINI, which has provided support for space startups worth at least $1 billion. In addition to the existence of partnerships between a number of governments and private companies in the field of space, in order to maintain their competitiveness in space, as governments have become dependent on some of their services and products. The interstate policy has also opened the way for space companies to have a greater influence on the way governments compete with each other.\(^\text{17}\)

The emergence of new space companies operating independently in outer space has also brought to light some of the geopolitical gaps that have yet to be addressed. For example, there are a number of problems raised by the private sector’s intervention in outer space, represented by the concerns raised by the possibility of countries sponsoring terrorism or terrorist groups possessing or controlling some space capabilities and the resulting electronic attacks on a satellite that manages sensitive data to protect people and their well-being. Hence, without common rules among stakeholders in the public and private sectors, these challenges will persist.

Simply put, the unprecedented pace at which these companies have taken off means that the existing multilateral forums have not yet established the necessary mechanisms to meet these pressing challenges. Hence this should be a point of interest to countries that support democratic

\(^{16}\) Security: We are helping to keep space safe, Wilton Park, link, https://www.wiltonpark.org.uk/space/

\(^{17}\) Raquel Jorge, It’s time to address the role of New Space firms in global security, April 8, 2022, Tech Crunch, link, https://tcrn.ch/3NSTkMB
principles because in addition to the traditional challenges of space there are new issues in which private companies have a greater role and must be addressed from a democratic perspective.

It is undoubtedly clear that the new space companies are reshaping the global competition for outer space. This is because they influence the way governments interact and compete with other countries and they also have a larger and independent presence in outer space.  

In light of the above, it can be said that with so many actors in the space today, it is no longer possible to operate without a common understanding and rules between them. There is now an urgent need to establish global multi-stakeholder dialogues to address the new space age, its global security implications as well as the needs and demands of individual and emerging players, whether they are states or private companies. Governments will continue to play a major role in decision-making on global standards. However, the new era of space cooperation has already begun. Therefore, Maat for Peace, Development and Human Rights calls on the international community to establish new international rules and protocols to activate cooperation between states and the private sector in the field of space and its peaceful uses.

**Conclusion & Recommendations:**

In conclusion, the militarization of space is very dangerous, especially since the boundaries between military and civilian uses are still blurry. Civil satellites provide services with a military function, and this would lead to conflict between major countries. Moreover, the increasing commercial use of space creates opportunities for disputes over the areas of operation of satellites, which is more likely to trigger military reactions by governments.

Maat for Peace, Development and Human Rights affirms that further efforts must be made to reconsider creating an international dialogue to avoid chaos resulting from the militarization of space, due to which space will turn into an arena for future confrontations that threaten international stability, peace and security as well as negatively affect the achievement of sustainable development goals, especially goal 16. Hence, Maat recommends the following: -

• The necessity of coordination between the Office for Disarmament Affairs, the Office for Outer Space Affairs and other relevant United Nations entities in order to reduce the militarization of space and thus maintain international peace and security.

• Establishing binding legal measures for all countries, whether private or for companies, to abide by the principles of transparency and confidence-building in outer space activities.

• Providing various types of information related to countries' space policies and activities, and notifications aimed at reducing risks.

• Laying down general rules for the peaceful uses of space and for all countries' access to sources of mutual benefit in it.

• The need for the states parties to the Outer Space Treaty to agree to include in the treaty a ban on the use of conventional weapons in outer space or the use of terrestrial weapons against objects in space such as satellites and orbital stations.