**Forum:** General Assembly 1

**Issue:** Addressing the exploration and usage of outer space by international cooperations

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## Introduction

On October 4th, 1957, the Soviet Union shocked the world by sending the artificial satellite Sputnik into outer space. The increasingly rapid development of the field of space exploration followed suit. Over the last century, technological advancements have enabled us to learn about outer space and its possibilities for exploration. Possession of satellites and other advanced technology allows countries to wield immense power in the international community and have enabled humanity to understand much more about what lies beyond the atmosphere. Aside from their applications to space exploration, we benefit from these scientific developments in many areas of our lives, from television to navigation and communication.

While outer space presents opportunities for exciting scientific discovery, complications have also arisen. The Space Race between the United States and the Soviet Union during the Cold War was an early sign of potential dangers. The Space Race eventually led to the formation of the collaborative International Space Station, a potent symbol of international cooperation in outer space. However, the competitive and tense nature of the Space Race is a warning of the space militarization that the future might hold. As technology becomes more advanced, the potential for dangerous weapons to be built or placed in space only skyrockets. Countries will also lack fair access to knowledge and resources, as the rights that nations have to outer space may be challenged.

In addition to government-sponsored space agencies, the private sector is playing an increasingly important role in space exploration. Private firms such as SpaceX and Virgin Galactic have proposed plans for space tourism, colonization, and mineral extraction, and many successful tests show that they are closer than ever to achieving these goals. However, this raises many ethical concerns about space exploration. How can we prevent human activity from contaminating other celestial bodies and damaging their ecosystems? Who has legal jurisdiction over problems in space, and whose job is it to enforce space law? Can space be owned, and if so, how do we decide who owns it? And finally, if private space technology centers around profit, how do we distribute the benefits of space technology to everybody, regardless of wealth?

In the modern world, the United Nations has enacted laws and regulations, agreed upon by most member nations, to ensure the peaceful usage of outer space. However, these laws are at risk of being exploited by powerful governments and private firms for their self-interest. The international community's approaches to space exploration and space militarization need revision. Thus, the General Assembly First Committee must find peaceful and global solutions so that outer space can continue to benefit humanity as a whole.

# Definition of Key Terms

**Outer space**

The physical universe beyond the Earth's atmosphere. In the context of the Outer Space Treaty, outer space is free for exploration and use, and not subject to national appropriation. The treaty also forbids the placement of weapons of mass destruction in outer space in any manner.

**Space technology**

Equipment, devices, or infrastructure developed in the aerospace industry for use in outer space. It has many everyday applications, such as in GPS systems, weather forecasts, and long-distance communication networks.

**International space law**

International agreements, treaties, conventions, rules, and regulations that govern space-related activities. Usually refers to regulations set forth in the five international treaties (Outer Space Treaty, Rescue Agreement, Liability Convention, Registration Convention and Moon Agreement) and principles (Declaration of Legal Principles, Broadcasting Principles, Remote Sensing Principles, Nuclear Power Sources Principles and Benefits Declaration) of the United Nations that are concerned with outer space.

# Background

## Breakthroughs in space exploration

Following the launch of Sputnik in 1957, both the Soviet Union and the United States continued to reach significant scientific achievements. 1958 marked the start of American satellite Explorer 1 and the creation of the National Aeronautics and Space Administration, otherwise known as NASA. In 1961, Yuri Gagarin of the Soviet Union became the first human to enter space and orbited the Earth. Two years later, Valentina Tereshkova became the first woman to do so. Tensions escalated as the two countries tried to outdo each other in the aerospace field, fueling the already-present hostility of the Cold War. As each side reached new landmarks, other countries also developed their space programs and launched rockets or satellites into space, including Canada, France, Japan, and China.

In May of 1961, United States President John F. Kennedy announced publicly that his goal was to land a man on the moon before the end of the decade. The successful landing of Neil Armstrong and Buzz Aldrin during the Apollo 11 mission in 1968 both accomplished this goal and revolutionized humankind’s understanding of the moon and outer space. As the Space Race came to a close, neither side officially “won” the race, but the moon landing is often cited as a reason that the United States was ultimately victorious.

## Involvement of the United Nations

Soon after the creation of NASA, the United Nations General Assembly adopted its first resolution related to outer space. The United Nations had recognized that nations shared an interest in developing outer space, but that there were numerous scientific, legal, and ethical questions that had to be addressed. General Assembly resolution 1348 (XIII) established the ad hoc Committee on the Peaceful Uses of Outer Space, also known as COPUOS, to observe and regulate the activities of nations in outer space. Their primary concern was that space could fuel rivalries between international superpowers and lead to exploitation by technologically developed nations. A year later, in 1959, Resolution 1472 (XIV) established COPUOS as a permanent committee.

In 1961, General Assembly Resolution 1721 B (XVI) set up the UN Register of Objects Launched into Outer Space. Member states were requested to register any objects they launched into space with the United Nations Secretary-General. This set a precedent for identifying the liability of member nations for their objects in space, which became crucial as technology moved forward.

In 1963, the General Assembly adopted the first of five legal principles, which would soon become the framework for all activities related to outer space. The Declaration of Legal Principles Governing the Activities of States in the Exploration and Uses of Outer Space, also referred to as the Declaration of Legal Principles, established the legal basis for international space law. Five international treaties concerning outer space followed these.

## Outer Space Treaty of 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, otherwise known as the Outer Space Treaty, is the first international treaty of five concerning outer space. It was primarily based on the Declaration of Legal Principles but contained new provisions and further outlined the already-established principles. It has been signed and ratified by 105 countries and has never actually been violated. However, due to the lack of any law enforcement in outer space, reinforcement of the treaty in the case of violation is still a question the UN is seeking to address.

Some of the treaty's most challenged points are that weapons of mass destruction cannot be placed into space and that celestial territory is not subject to national appropriation. The latter point is of particular concern as it remains focused on countries, creating uncertainty in the international community as to whether this law still applies to private and individual ownership of space.

## International Space Station

The initial measures are taken by the United Nations consistently emphasized the importance of international cooperation to maintain peace and prosperity. One of the most notable examples of where nations have collaborated, and continue to do so today, is the creation of the International Space Station (ISS). The ISS, which began construction in 1998 as the Space Race, died down, orbits the Earth, and helps scientists from as many as 18 different nations research outer space.

The United States and Russia are the most involved nations in the ISS and provide the most funding, but the international space station is truly a global effort. The European Space Agency, Canadian Space Agency, and the Japanese Aerospace Exploration Agency have also contributed to the ISS and participated keenly in running experiments.

## Potential militarization of outer space

While the International Space Station is a symbol of the international cooperation that can be achieved through space science, continuous developments in space science have also allowed potential space weapons to become more likely and more threatening. Of the approximately 1300 satellites orbiting the Earth, many are used for military purposes by countries such as the United States, Russia, and China. Some of these countries are said to be developing and testing anti-satellite missiles, which could pose significant problems on a global scale if they are ever used against other satellites. Anti-satellite missiles not only risk ruining satellite systems that individuals may rely on for a multitude of purposes but pose an even greater danger: space debris.

Space debris mainly consists of broken spacecraft parts and can be found in the earth's orbit. However, a third of all space debris comes from only two events, and both involved the destruction of satellites. China used a missile to destroy one of its satellites in 2007, and a USA and Russian satellite accidentally collided in 2009. Space debris presents issues of liability and ownership but can also make space exploration potentially dangerous for any other efforts. Even the ISS has had to adjust multiple times to avoid colliding with any space debris. If anti-satellite missiles can target satellites of higher orbit, this not only poses a risk to individual nations but to the entire international community. Debris is easy to create, but extremely difficult to remove from space.

Space weapons themselves are dangerous, but what could potentially be even more threatening is the tension created by disputes regarding space that could lead to full-blown land conflict. As nations develop more dangerous technology and move towards possible militarization, an emphasis on international cooperation and attempts to find peaceful solutions are more critical than ever.

### *Space surveillance*

Many nations have set up space surveillance systems to track objects in Earth's orbit. When used for security purposes, space surveillance systems are essential tools to monitor third-country satellites and any potential dangers they could pose. In the past year, Japan and the USA have planned to connect their Space Situational Awareness systems for additional security. These systems will help both countries better detect other countries' satellites and evade any potential attacks. At the same time, satellite inspection and repair systems such as those of China could also contain hidden military capabilities and could function as weapons against other satellites. No matter its unknown purpose, space surveillance is more important than ever for gathering intel as artificial objects abound in outer space.

## Space exploration and the private sector

Alongside the rise of government-sponsored space agencies, private firms are becoming involved in space exploration, a majority of which come from the USA. Many of their scientific achievements have surpassed those of other nations, with ambitious plans to commercialize space travel, colonize other celestial bodies, and harvest natural resources from asteroids and planets. There are benefits to private investment and interest in aerospace engineering, but also consequences and concerns.

The competition for innovation brought about by the private sector may accelerate the development of space technology, as different firms are competing for both with each other and the government to produce the safest, most effective forms of space travel. Additionally, the private sector is often responsible for making government-developed technology more accessible and affordable to the public, allowing the benefits of this technology to be widely applied. However, privately-funded space programs will likely have differing interests from government-sponsored programs. While government-sponsored programs must prioritize the interests of the government and the taxpayers, privately-funded programs will also need to consider profits, including the ability to secure funding and the interests of stakeholders involved in the program. Space exploration efforts driven by profit may also cause potential violations of the Outer Space Treaty. Mineral resources from celestial bodies, as well as the ability to own extraterrestrial territory, all present lucrative opportunities for private firms and individuals. Coupled with the lack of sufficient legislation explicitly addressing private firms, a new “Space Race” involving the private sector could undermine international cooperation and create more fragmentation of the benefits of space.

## Major Parties Involved

### United States of America (USA)

The USA is a member of COPUOS and signatory to all five space treaties except the Moon Treaty. It wants the freedom of action in outer space and is thus strongly opposed to an international treaty that would ban all space weapons. Instead, the USA supports the establishment of international standards for behavior in space, such as the European-initiated International Code of Conduct for Outer Space. The USA currently has many satellites in orbit and is actively involved in developing space technology. In the past few years, Congress has pushed for Pentagon's Space Security and Defense Program to focus more on "offensive space control" and "active defense" – ambiguous terms that suggest space militarization is on the horizon.

### Russian Federation

Russia is a member of COPUOS and signatory to all five space treaties except the Moon Treaty. Like the Soviet Union, Russia was historically a frontrunner of the Space Race and continues to be actively involved in space science today. In recent years, Russia (along with China) has pushed for a legally binding international treaty explicitly banning space weapons, despite their wishes for freedom of action in space. Russia has been suspected of having several satellite platforms in low earth orbit with offensive or surveillance capabilities. For many years now, Russia's military has included a space-specific branch.

### People's Republic of China

China is a member of COPUOS and signatory to all five space treaties except the Moon Treaty. Despite being several years behind the USA and USSR in sending a human to space, China's space program is one of the most developed today. Unlike other nations where space programs are mainly independent of the military, China's space program is closely linked to its national military – a sector of the military is concerned explicitly with space. China has recently been accused of developing satellites that could function as offensive orbital weapons against other satellites but claims that its satellite platforms are only for cleaning up space debris and inspecting or repairing satellites.

### European Space Agency (ESA)

The European Space Agency is an intergovernmental organization comprised of 22 member states, most of which are signed to the first four space treaties and involved in COPUOS. The ESA has collaborated with the United States and Russia in the past and has expressed commitment to the peaceful uses of outer space. The ESA is also a prominent contributor to the ISS. European nations are currently leading the initiative for the creation of an International Code of Conduct for Outer Space, which would set clear standards for space activities to remain peaceful and beneficial in nature. This initiative is supported by the US but opposed by Russia and China in favor of a legally binding treaty.

### United Nations Committee on the Peaceful Uses of Outer Space (COPUOS)

The United Nations Committee on the Peaceful Uses of Outer Space, or COPUOS, was established in 1959 by the General Assembly as a select committee governing issues of outer space. Its objective has always been to maintain the peaceful exploration and usage of outer space for the betterment of humankind. The United Nations Office for Outer Space Affairs (UNOOSA) is the office responsible for COPUOS.

## Previous Attempts to Resolve the Issue

The Agreement Governing the Activities of States on the Moon and Other Celestial Bodies of 1979, otherwise known as the Moon Treaty, is the most recent treaty on outer space and the one with the least signatories. The focus of this treaty was on celestial bodies such as the moon, including using them for peaceful purposes, leaving their environments undisturbed, and notifying the UN of any stations established on these bodies. It was intended to set principles for further development of international space law, and as a result, remained imprecise. A central point of controversy is that the Moon Treaty forbids the harvesting of natural resources from celestial bodies, which would apply to the mineral deposits, water ice, or other valuable resources already found on the moon. The Moon Treaty also addresses the establishment of an international regime to govern these resources and other space activities. Given that no nation with significant space technology has ratified the treaty, the Moon Treaty is considered a failure and has little influence on international space law.

The previously mentioned United Nations Register of Objects Launched into Outer Space has also aided COPUOS on this issue and now helps to ensure liability for any incidents happening in space, as objects can be traced back to their countries of origin. The Space Object Register covers more than eighty-eight percent of space objects launched into Earth's orbit or beyond. While the end goal is to monitor and keep track of all space objects to ensure their peaceful uses, the Space Object Register and its accompanying Convention on Registration of Objects Launched into Outer Space has been effective at receiving information from countries on their space objects and then making this information accessible.

As space exploration moves forward, a significant concern of the international community has been the inequality that may develop between spacefaring nations and developing nations. Many developing countries lack the necessary funds, technology, or innovation for conducting experiments in outer space or having strong space programs, leaving them unable to reap many of the benefits of space research. In September 2019, UNOOSA partnered with Italian aerospace company Avio in the Access to Space for All Initiative. Through this partnership, UNOOSA aims to provide developing nations with the opportunity to conduct experiments on satellites for free. Avio would allow selected institutions from these nations to launch their space technology free of charge, therefore making the benefits of space more economically accessible. UNOOSA has stood firmly behind this ideal as they believe that outer space is key to achieving the UN Sustainable Development Goals and that forty percent of all 169 targets involve space. Recognizing that an increasing number of developing nations are showing interest in space exploration, their objective is to aid developing nations in becoming responsible spacefaring countries, so that they may also make progress in the Sustainable Development Goals.

Below is a list of past United Nations General Assembly resolutions that have been related to issues of outer space. While UNGA resolutions do not hold legal binding power, these resolutions offer valuable guidance on the conduct of space activities, and the international community widely accepts their principles.

- International Co-operation in the Peaceful Uses of Outer Space, 20 December 1961 (**RES 1721 (XVI)**)
- International Cooperation in the Peaceful Uses of Outer Space, 8 December 2000 **(A/RES/55/122)**
- Application of the concept of the "launching State," 10 December 2004 **(A/RES/59/115)**
- Recommendations on enhancing the practice of States and international intergovernmental organizations in registering space objects, 17 December 2007 **(A/RES/62/101)**
- Recommendations on national legislation relevant to the peaceful exploration and use of outer space, 11 December 2013 **(A/RES/68/74)**
- Declaration on the fiftieth anniversary of the Treaty on Principles Governing the Activities of States in Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies, 7 December 2017 **(A/RES/72/78)**

## Possible Solutions

- Currently, international space law is lacking in that there are no specific, agreed-upon definitions of basic terms such as "space weapons" despite the importance they play in many treaties and agreements, and no appropriate legal enforcement in outer space. This ambiguity allows countries such as the United States, Russia, or China to develop satellites and other space objects with offensive and defensive properties, without officially being classified as space weapons. Countries with specific sectors of their military dedicated to outer space claim that any technology they develop is used for other purposes, and not for militarization. To investigate space activities thoroughly and ensure liability in the event of a conflict, the United Nations needs to find ways to **remove this ambiguity** and enforce the consequences of violating space law. Whether that is through **setting an international definition that all nations** have agreed upon, or ensuring that appropriate legal enforcement exists to hold actions in space accountable, clarifying these terms in the global context is a crucial first step to any other legislation or action surrounding outer space.
- To promote international cooperation, nations must be **transparent** with one another. A possible solution is to find methods in which countries **can report their scientific progress**, actions, and findings in outer space while ensuring **accuracy and transparency**. This will not only keep nations accountable but will also allow the international community to benefit from other nations' discoveries and encourage more collaboration such as that of the ISS.
- The private sector is playing an increasingly important role in the development of space technology. However, international space law remains centered on government-run space programs and does not address the actions of private aerospace companies in such detail. Though individual countries have laws on a national level to limit the private sector and hold it accountable, it is crucial to consider what the relationship between government agencies and private firms could mean for the development of space technology as a whole. Delegates will need to consider whether international law should seek to set limits on private space technology and its applications, or on the other end of the spectrum, encourage even closer collaboration between the public and private sector to advance development.
- Spacefaring nations have a clear advantage in scientific and financial resources compared to developing countries. As a result, developing nations are often unable to reap the benefits of space exploration and will only fall further and further behind. Given that space is key to achieving the UN Sustainable Development Goals, it is in the best interests of the UN to help developing nations access similar opportunities. Delegates of the General Assembly First Committee will need to find ways that developing nations can **overcome scientific and financial barriers**, but must also consider the importance of space science concerning other issues or activities the country may be invested in.

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