Southern China International MUN

Disarmament Committee: On measures to ensure space security and encourage responsibility in the space system
Agenda overseen by: Stephen Chen

1. Description of the Issue

1.1 History of the Issue

Space exploration dates to 1957 when the USSR first launched its man-made satellite into orbit (. Sputnik 1 (the satellite) was a major breakthrough in science, however, Sputnik 1 also caused waves in the political atmosphere as it marked the dawn of an arms race in space. Sputnik 1's launch occurred during the Cold War, creating unrest amongst the United States and its allies since the USSR seemed to be the forerunner in the race towards controlling space and its resources. The launch of Sputnik 1 received worldwide media coverage with global superpowers like the United States and Britain headlining Sputnik 1 development; in the USSR however, Sputnik 1 became a national symbol and was used as a tool of propaganda. Sputnik 1's was globally significant as it set a precedent in the attitudes toward space exploration. Space exploration would be forever tainted with underlying political agendas, and reckless profits (PBS).

Sputnik 1 is just one instance that proves how easily space can be exploited for personal gain, to address this issue, the United Nations has drafted several policies and resolutions. One of these policies is The Outer Space Treaty. The Outer Space Treaty was drafted in 1966 with 112 countries signing it.
The six principles of the treaty are:

- "Space activities are for the benefit of all nations, and any country is free to explore orbit and beyond.
- There is no claim for sovereignty in space; no nation can "own" space, the Moon, or any other body.
- Weapons of mass destruction are forbidden in orbit and beyond, and the Moon, the planets, and other celestial bodies can only be used for peaceful purposes.
- Any astronaut from any nation is an "envoy of mankind," and signatory states must provide all possible help to astronauts when needed, including emergency landing in a foreign country or at sea.

- Signatory states are each responsible for their space activities, including private commercial endeavors, and must provide authorization and continuing supervision.
- Nations are responsible for damage caused by their space objects and must avoid contaminating space and celestial bodies" (Spacefoundation.org).

The Outer Space Treaty focused on ensuring space security for all nations; space security can be defined as the availability of nations to use space and its resources whilst taking into account sustainability and refraining from weaponizing space. In other words, "the secure and sustainable access to, and use of, space and freedom from space-based threats" (Space Security Index). Access to the use of space refers to the "security and sustainability of outer space as an environment that can be used safely and responsibly by all" (Space Security Index). This approach includes the commercialization of space (commercial flights to space, commercial use of space's resources, etc.) as many more developed countries like China, India, and the United States are in favor of the commercial use of space; private firms (SpaceX, Blue Origin, Virgin Galactic, etc.) are also in favor of the commercial use of space. The commercial use of space has always been extremely controversial, one instance of this is the passing of the "Communication Satellite Act of 1962" in the United States. Senator Russel B. Long claimed, "This bill is as crooked as a barrel of snakes" (Govinfo.gov). Proponents against the commercial use of space claim that poorly regulated policies could lead to larger oligopolies and propel the exploitation of the common people. However, supporters of the commercialization of space believe that a free market system in space would create a richer economy and lead to further economic developments (Govinfo.gov).

In today's world, the space industry is no longer structured with the government leading the market (trade.gov). According to trade.gov, the space industry can be broken down into 4 sectors: space launch services, communications, and remote sense satellites, related satellite services, and necessary ground-based equipment.

Space launch services refer to any services that are used to launch items (including but not limited to, rockets, probes, satellites, spacecraft, etc.) into space. Other services that fall into this category are sending astronauts into space, sending cargo to the international space station, and space tourism: commercial flights to space for common people.

Communications and remote sensing satellites are the sectors that deal with satellites used for commercial purposes. This includes satellites that detect threats, observe the weather, GPS, and much more. Satellites typically require some form of ground-based equipment which is needed for the satellites to function. Ground-based satellite equipment also makes up a portion of the space industry.

The space industry generates roughly 300 billion US dollars annually, with the majority from the communications and remote sensing satellites sector (trade.gov). Space launch services and satellite manufacturing currently account for only 5 billion US dollars annually which is comparatively smaller than the communications and remote sense satellites sector, however, growth is projected. With the developments of small-sat satellite technology (the

miniaturization of satellites), the costs of creating and launching satellites have significantly decreased. The implications of small-sat technology are positive for the market, as the barriers of entry become lower and become more profitable.

1.2 Recent Developments

Threats to space security have gradually become more prevalent through the years as technology advances and new political developments occurred.

On November 15th, 2021, Russia launched a missile into space, destroying one of its abandoned satellites into 1,500 pieces. The act caused international outrage as the space debris endangered several astronauts on the ISS (International Space Station) and the ESA (European Space Agency). The debris caused by the explosion endangers all nations as it jeopardizes long-term sustainability in space (Ned Price, Space.com). Russia claimed that they conducted this act as an anti-satellite test (ASAT), which is the act of launching a weapon (typically a missile) to incapacitate or destroy satellites for strategic or tactical purposes. This act was deemed unnecessary, dangerous, and irresponsible due to the risks to sustainability it created; Ned Price, US Department of State spokesperson claims that Russia's ASAT test, "clearly demonstrates that Russia's claims of opposing the weapons and weaponization of space are disingenuous and hypocritical" (Space.com). This is just one instance of countries using legal loopholes to conduct dangerous acts in space. It is also important to recognize that ASAT tests are conducted by many countries with technological capabilities, the countries that conducted the most ASAT tests in 2022 were the United States and Russia leading with more than 30 ASAT tests. China trails by a large margin, launching and conducting only 10 ASAT tests in 2022, comparatively lower than the United States and Russia. India conducted less than 10 in 2022 (SWF CounterSpace Capabilities).

A recent initiative by the UN in 2019 called the PAROS (Prevention of an Arms Race in Outer Space) focused on increasing space security. The main topics in the PAROS included: "(1) The existing legal regime in outer space and elements of general principles; (2) Elements of general obligations; (3) Elements related to monitoring, verification and transparency and confidence-building measures; and (4) Elements related to international cooperation, institutional arrangements and final provisions" (GGEParos). The PAROS discussed various points for each topic, the committee recognized the principles that are relevant to the prevention of an arms race in outer space:
(i) The applicability of the United Nations Charter in outer space;
(ii) The freedom of access to outer space without discrimination and on the basis of equality;
(iii) The non-placement of nuclear weapons or other weapons of mass destruction in outer space;
(iv) The use of the moon and other celestial bodies exclusively for peaceful purposes;
(v) State responsibility for the activities of their nationals in outer space; (vi) The liability of launching States for damage;
(vii) The requirement to give due regard to the interests of others in the use and exploration of outer space; and

(viii) The duty to consult before proceeding with any activity that could cause potentially harmful interference with the outer space activities of others.

Recent developments in space technology also include "counter space technology". Counterspace technology can be defined as technology that can "interfere with and deny, degrade or even destroy the satellite capabilities of potential adversaries" (PeterMartinez SWF). Martinez also claims that counter-space technology has the ability to "potentially cripple an adversary's nuclear deterrent" (PeterMartinezSWF). This has major implications for the national security of all nations and can lead to "huge concerns for strategic ability" (PeterMartinezSWF).

As international space exploration is an ever-changing and rapidly accelerating field, no single organization has defined what constitutes "normal" actions and behavior in space. The concepts of "use of force", "self-defense", and "proportionality" have not been clearly defined and constituted in this context. This means that there are many legal loopholes nations and private firms can jump through to carry out actions that decrease space security.

Key Terms

Space Security – *"The secure and sustainable access to, and use of, space and freedom from space-based threats" (SpaceSecurityIndex).*
Space Race – *"The competition between nations regarding achievements in the field of space exploration" (OxfordDictionary).*
Satellite – *"An artificial body placed into orbit around the Earth or Moon or another planet in order to collect information or for communication" (OxfordDictionary).*
Space Industry – *The economic activities involved in the manufacturing, launching, and usage of components that go beyond Earth's orbit (Wikipedia).*
Space sustainability – *"Ensuring that all humanity can continue to use outer space for peaceful purposes and socioeconomic benefit now and in the long term. This will require international cooperation, discussion, and agreements designed to ensure that outer space is safe, secure, and peaceful" (SWF2018).*

2. Emphasis of the Discourse

2.1 Stance of Intergovernmental Agencies
There are three main intergovernmental agencies that deal with space security: The Committee on the Peaceful Uses of Outer Space (COPUOS), the United Nations Office for Outer Space Affairs (UNOOSA), and the International Telecommunications Union (ITU).

The **COPUOS** was established by the United Nations General Assembly in 1959 to help regulate space exploration for the benefit of mankind in terms of "security, peace, and development" (UNOOSA). The committee helped international cooperation in peaceful uses of outer space, studying space-related activities which could be undertaken by the United Nations and encouraging space research programs. One other crucial job tasked to COPUOS

is to study legal problems, issues, or challenges that may occur in the development of space exploration. One example of this is a meeting that occurred on 21 February 2022 titled: "National legislation and practice relating to the definition and delimitation of outer space" (UNDOC/GEN). This meeting detailed steps of the process of how COPUOS helps nations domestically by allowing a handful of nations to discuss how to define the borders of space. (UNDOC/GEN).

The United Nations Office for Outer Space Affairs (UNOOSA) was established on December 13 1958 by the General Assembly (UNOOSA.org). UNOOSA focuses on helping all nations, specifically lesser developed countries to "access and leverage the benefits of space to accelerate sustainable development" (UNOOSA.org). The organization does this by offering countries and providing them with resources like training, meetings, and workshops where they are able to learn from experienced more developed countries. Furthermore, UNOOSA also offers nations fellowships and rigorous development programs for their citizens to build a strong foundation of knowledgeable experts in fields pertaining to space. This is essential for lesser developed countries, as the old saying goes "If you give a man a fish, you feed him for a day. If you reach a man to fish, you feed him for a lifetime." Currently, UNOOSA has two active fellowships in Japan and Germany relating to nano-satellite technology and drop tower experiments (UNOOSA.orgfellowship). UNOOSA has many more fellowships under its Access to Space 4 All Initiative (which is specifically for developing nations). Alongside its well-sought initiatives to help nations develop space exploration capabilities, UNOOSA also has an emergency response satellite program for all nations. UN-SPIDER, an abbreviation of the United Nations Platform for Space-based Information for Disaster Management and Emergency Response provides nations with satellite technology when during a disaster or emergency.

The International Telecommunications Union is also a United Nations agency tasked with connecting the world's people. Established in 1865, it has helped maintain international communication and develop technologies that increase the ease of communication between all people. The ITU is relevant because the ITU Space Services Department is "responsible for allocating the geostationary orbits used by telecommunications satellites and the radio frequencies used by satellite broadcasting" (GuidesGeorgeTown).

2.2 Stance of Developed Countries

The developed countries in this section refer to nations that have a developed space program and are dominating or powerful forces in space. Developed countries typically have an egocentric stance that puts self-interest above collaboration. Although all countries value personal interest, most do not have the capabilities to forgo collaboration, however nations like the United States of America, Russia, China, United Kingdom, Japan, etc. Developed nations frequently delay ratification of space policies which allows them to be able to bypass certain restraints that would otherwise be placed on them after ratification. All the aforementioned countries have continued to weaponize their satellites and space.

2.3 Stance of Developing Countries

Developing countries require the aid of developed nations and collaboration to increase their space capabilities. The focus for these nations is to reach launching capabilities and reap the benefits of satellite technology. Developing nations wish to build the basic infrastructures in space through cooperation and domestic efforts like fellowships. The main challenge lesser developed countries are facing is funding; the development and manufacturing of space technologies are relatively expensive, and many lesser-developed countries need to allocate their (typically) low government revenue in other places than space. In the past, the UN Technology bank and the UNOOSA have worked collaboratively with lesser developed countries to increase the usage of satellite data (Un.orgtechnologybank).

3. Possible Solutions

3.1 In Favor of Developed Nations

Considering developed nations' stance, they are in favor of implementing looser constraints on launching and manufacturing satellites and other space technologies. Developed nations also push for looser laws in space to allow scientific research and increase their military power. The three main leaders in the ongoing space race are China, Russia, and the United States. For example, The Moon Treaty of 1979 (part of the original Outer Space Treaty) has not been ratified by China, Russia, or the United States. The Moon Treaty stated that no single country could own the moon and that the moon should only be used for peaceful purposes. The fact that the three leaders in the space race had not signed or ratified this treaty means that they have a potential interest in "owning" the moon or using the moon for non-peaceful purposes like housing weapons, or testing weapons (TheSpaceReview). Developed nations also need to work collaboratively to overcome legal boundaries and improve space security. Although self-interest is at heart, without space security the Tragedy of the Commons would occur and not one single country would be able to advance in the space race.

A possible solution in favor of developed nations to increase space security is to further fund and loosen the constraints on the commercialization of space. The commercialization of space whilst maintaining space security and sustainability is advocated by many developed countries because it is difficult for developed countries to see eye to eye on topics regarding the weaponization of space. Through the commercialization of space, the global economy improves, and space security improves if regulated rigorously.

3.2 In Favor of Developing Nations

Developing nations focus on building the infrastructure to become independent in satellite technology. It is important to note that many countries, developed and developing alike have not reached satellite launching capabilities. Developing nations in particular are working to increase their capabilities to become independent in space exploration as the global space

economy is growing. The space economy could be the market where many lesser developed countries boost their economies.

Similarly, to the solution in favor of developed nations, a free market approach to space while accounting for space security and sustainability is a solution developing nations would support, however developing nations require aid from intergovernmental agencies and developed nations. Creating a space program is relatively expensive and requires a large number of trained individuals which many of these nations currently lack. Even with the efforts of the UNOOSA, developing nations are still struggling to build their own space programs.

4. Keep in Mind the Following

1. To what extent has your country worked collaboratively with other nations to improve space security?
2. How has your country negatively impacted space security for other nations?
3. To what extent is your country able to collaboratively improve space security?
4. What military capabilities does your country have in space?
5. What are the limitations on conducting tests in space that create space debris or decrease space security?
6. In what circumstances does your country use satellite technology to gain strategic political leverage?

5. Evaluation

As countries have grown reliant on satellite technology and outer space as a whole, space security has become an increasingly more important topic globally; countries have not yet properly discussed and solved the issues surrounding space security. Concerns about how international law applies in outer space are unclear because of a lack of communication and new resolutions from countries. Issues surrounding the pollution of space are also becoming increasingly prevalent because space pollution is dangerous to astronauts and equipment because space debris often moves at high speeds, it is also dangerous for people on Earth because space debris can also be pulled into the atmosphere which would cause it to crash down to the Earth at high speeds. Issues of an arms race in space are also not completely mitigated as more countries begin weaponizing space. Weapons in space could destroy satellites that people rely on for broadcasting, communication, and location. Space weapons could also be used directly as a weapon on other nations (missiles, nuclear weapons, etc). The use of space cannot be forgone as the space industry has already become a large section of the global economy, however, nations must work together to continue expanding the space industry whilst accounting for space security and long-term sustainability.

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