Committee: Disarmament and International Security Committee (GA1)

Topic: Ensuring the security and sustainability of outer space activities.

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I. Introduction

After World War II, the United States and the Soviet Union embarked on a journey that would forever change the course of humanity. The "Space Race," as it is typically referred to, was the push by both these states in the 1950s and 1960s to establish a larger and more permanent presence in space than the other. The nature of outer space is still largely a mystery to us, but it is understood that its resources can be utilized for the good of humanity.

The current economic utility of space is confined, for the most part, to local regions adjacent to the Moon and Earth's atmosphere. Regions beyond this are used exclusively for research, although there are prospects of asteroid-mining and other such commercial initiatives that would also take place in deeper space. The portion of space that is more commonly used for purposes other than research consists of the outer layers of Earth's atmosphere, at heights of around 160 km to 36,000 km. Commercial satellites, geospatial intelligence, weather research, and telecommunications make up the bulk of outer space activity, but more countries and corporations are increasing their technological capabilities every year, which will increase the versatility of space and its resources. The Moon is also becoming a more reachable target by the year, and its mineral-rich surface will no doubt prove to be attractive as a source of revenue for corporations and businesses in the primary sector. With more of Earth's land area and raw materials being gradually depleted, the large-scale occupation of space is inevitable.

Military technology has also been advancing in countries around the globe. Space has proven to be a powerful and dangerous medium and one that can be used for intelligence gathering or the deployment of space-based weapons. Both the commercialization of space and the development of military technology around the world calls for additional legislation and discussions on how humanity will deal with this transition.

II. Definition of Key Terms

Artemis: NASA's program to send the first woman to the Moon and set up a permanent establishment intended to be a springboard for other extraterrestrial activities, such as sending humans to Mars

Atmosphere: the envelope of gases surrounding Earth or other celestial bodies

CASC: the Chinese Aerospace Science and Technology Corporation (sic), a state-owned corporation that develops aeronautics technology and is the main contractor for the Chinese space program

CNSA: the Chinese National Space Administration, the Chinese federal agency that is responsible for planning and developing space activities in China

Commercialization of Space: the utilization of space and its resources for private and commercial activities

Constellation: a coordinated collection of satellites

Disarmament: the reduction or withdrawal of presence and use of weapons and military

ESA: the European Space Agency, an intergovernmental organization dedicated to the study and exploration of space

GEOINT: geospatial intelligence, or intelligence about human activity on Earth gathered through the analysis of imagery and geospatial information which describes and depicts physical features and geographically referenced activities on Earth

Geostationary: a satellite's orbit around the Earth in a way that makes it appear fixed in the night sky

Geosynchronous: in sync with the Earth's rotation

GPS: the Global Positioning System, the constellation of geosynchronous orbiting satellites for navigation operated and maintained by the United States Space Force

ISS: the International Space Station, the largest and only habitable satellite (as of July 2019) in low orbit around the Earth operated and maintained by multiple countries around the world

LEO: Low Earth Orbit

Lockheed Martin: a private American corporation that manufactures and provides the U.S. with aeronautics technology and defense systems

NASA: the National Aeronautics and Space Administration, the United States federal agency that is responsible for space programs as well as research in aeronautics and aerospace in the U.S.

NGA: the National Geospatial Intelligence Agency, the United States federal agency responsible for managing GEOINT for the intelligence community

Outer Space: the physical universe beyond Earth's atmosphere

Roscosmos: the Russian State Corporation for Space Activities, the Russian federal agency that is responsible for organizing and carrying out cosmonautics projects in Russia

Satellite: an object that orbits another, usually larger object

Spacefaring Country: a country capable of travel to and from space, manned or unmanned

Space Force: the recently created branch of the U.S. military within the Air Force that is intended to be involved in outer space-related affairs and controls the GPS

SpaceX: a private American corporation that manufactures and develops aeronautical equipment and technology as well as conducts its own missions and research projects

Telecommunications: the field of technology concerned with the communication over broad distances, typically through the use of telephones, telegraphs, cable, or broadcasting

UNOOSA: the United Nations Office of Outer Space Affairs, the United Nations department that deals with all matters and disputes about outer space

III. General Overview

a) The Moon

In the next couple years, several space agencies plan on advancing into outer space in a number of ways. First and foremost, NASA plans to establish a permanent, sustainable, and operational Moon-base by 2028, and intends on using this establishment as a step towards sending humans to Mars. As NASA is a federal agency, this initiative is not for the purpose of exporting raw materials or building a tourism industry, but rather for research and explorational purposes. The establishment of a colony on the Moon will certainly provoke existing legislation, however, and will likely result in international tension despite NASA's seemingly harmless intentions. Particularly, the UN treaty that rules on Moon-related activities bans WMDs (weapons of mass destruction), but does not disallow weaponization or military activity on the Moon. For reference, a similar treaty (the Antarctic Treaty System, although this was not created by the UN) ruling on the jurisdiction of Antarctica disallows all military activity on the continent. It is imperative that the primary goal of the UN is emphasized, which is to maintain security and peace before ensuring sustainability of operations. Nevertheless, NASA's mission is an international collaborative effort and has no prospects of militarization of any kind.

b) China

China has also initiated a program to construct a new space station, which will take the place of its recently decommissioned space station, Tiangong-2. This space station, like all space stations, is exclusively for experimental research, not commercial or military purposes, and is set to be completed by 2022. It is suffice to say that this space program is not particularly controversial and will not pose any potential risk to the UN space-based legislative system or the existing (relative) peace among the international spacefaring community.

c) The Commercial Sector

i) Space Tourism

In the commercial sector, most spacefaring corporations have their eyes set on some form of space tourism, or the development of space technology and defense systems to sell to third parties. The most preeminent corporation in the space industry right now is SpaceX, which is developing rocket technology and methods of more efficient space travel. SpaceX seeks to one day be a space-tourism company, but its current goal is to be the first to land people on Mars.

ii) The Commercial Sector Collaborating with the Government

On the other end of the spectrum, companies like Lockheed Martin and Boeing are concerned with selling their technology to the U.S. military. Aeronautics companies such as these pose somewhat of a threat to other countries, because these corporations lobby congressmen for higher expenditures on the U.S. Department of Defense (especially the Air Force) so that they can sell more. As a result, the DoD has initiated several projects including weaponized satellites and anti-missile defense systems which would not be feasible if not for the aeronautics corporations'equipment and trained personnel. As no other countries even have the capabilities to construct weapons for which the U.S.' defense systems would be used to counter, it can be argued that these expenditures on space defense are unwarranted, and may even promote an international arms race. Nevertheless, the increasing influence of the commercial sector on outer space will continue to become more and more of a pressing issue and calls for the need of international intervention and some kind of restriction.

d) The Space Debris Problem

Firstly, the space debris issue is not one that can be merely "legislated away." In short, the problem is that man-made satellites and past space missions have occasionally collided with one another or other natural debris, resulting in various sized chunks of steel and glass that continue orbiting around the planet at high speeds. What makes this

more problematic is that this is a chain reaction, meaning the amount of debris increases exponentially (the more debris there is, the more objects collide, leading to more debris, and so on). Not only does this debris destroy satellites and create more debris, but at a certain point, there will be too much debris to leave the atmosphere safely; the pieces of metal and glass will be orbiting at velocities high enough to destroy any spacecraft entering or exiting the atmosphere. The urgency of this issue means that it must be treated as a priority and a solution must be employed within the next couple years.

IV. Major Parties Involved and their Views

China:

Like the U.S., China publicly argues that it is of the utmost importance to prioritize peaceful collaboration in humanity's advance into the cosmos, but acknowledges that national security cannot be an oversight. The Chinese government has claimed that disarmament has come far, but there is still much progress that must be made, and for that reason, the Chinese government must continue to preserve itself by employing space-based defense systems. The Chinese government has also been weary of the U.S.' space-based military projects, and has sought out multilateral negotiations to slow these projects. As it stands, Chinese officials see the U.S.' actions as the beginnings of an arms race, meaning China would have to expend resources to meet the U.S.' level of technology, but it the consensus among Chinese officials that this is in no one's interest, and it is best to leave space de-weaponized altogether. Essentially, China's main position on outer space is that it cannot be yet another medium for war and it has been stressing the need for the demilitarization of space for the last several years.

It is worth noting that China has some interests of its own when it comes to outer space, and these line up with the economic side of the U.S. There are a number of Chinese companies, such as LinkSpace, iSpace, and Spacety, most of which are not even ten years old, but have big goals. Currently, such companies are researching and developing recyclable rockets, but a few are looking to send humans to Mars within a decade or so. In general, both the private sector and public sector of space exploration are largely focused on deploying and maintaining satellites or the development of satellite technology for now. However, since the Chinese government opened up the space industry to the private sector in 2014, around 70 companies

have popped up, and the government is not hesitant to subsidize many of these startups. It is not a stretch, then, to say that the space industry in China may pose serious competition for its U.S. counterpart.

The United States:

The United States maintains an official position that prioritizes global peace, but emphasizes national security. The U.S., being the largest capitalist economy in the world, is also seeking commercial interests in space, and with multiple corporate giants such as Northrop Grumman, SpaceX, Virgin Galactic, Lockheed Martin, Boeing, and companies selling resources and technologies to these corporations, there is no doubt that the U.S. will be leading the way in the commercialization of space. The government-managed space program, NASA, is likely to advance more slowly than these corporate entities, due to a lack of funds and lack of support in the U.S. Congress (although, NASA is still one of the largest space programs in the world). Either way, when it comes to developments in outer space, the U.S. government is more interested in national security initiatives, rather than space tourism or other private utilizations of space.

It should be noted that, despite U.S. government officials' remarks that they endeavor to keep the progression into space peaceful and collaborative, there have been several military projects involving the weaponization of space for the sake of "space superiority" (Zhang). The development of missile defense systems, satellites capable of destroying other satellites, and even hypervelocity rod bundles (heavy rods that would be sent from a satellite toward Earth at high speeds for exclusively offensive purposes) has concerned many other spacefaring nations and has encouraged them to lobby for a complete de-weaponization of space. The reason behind the U.S.' course of action, according to the U.S., is to preserve national security and to maintain reasonable control over space as a world power, whether for economic power or political power, which is similar to the justification for its excessively powerful navy.

V. Relevant United Nations Documents

There are five treaties commonly referred to as the "five United Nations treaties on outer space". The links below provide brief overviews of each treaty.

- **The "Outer Space Treaty"**

Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies

- **The "Rescue Agreement"**

  Agreement on the Rescue of Astronauts, the Return of Astronauts and the Return of Objects Launched into Outer Space

- **The "Liability Convention"**

  Convention on International Liability for Damage Caused by Space Objects

- **The "Registration Convention"**

  Convention on Registration of Objects Launched into Outer Space

- **The "Moon Agreement"**

  Agreement Governing the Activities of States on the Moon and Other Celestial Bodies

VI. Questions to Consider

- How will the Moon be utilized over the next decade?
- Will it be restricted for only experimental use? Or will it be open for commercial use?
- How will it be governed? Will it be an autonomous region?
- What legislation will be put in place/must be put in place to solve the space debris issue?
- Should the space debris issue be prioritized over all space missions?
- With advances in technology, how can we ensure that satellites will remain de-weaponized?

- Should there be a committee that permits/disallows entrance of satellites into the atmosphere, since the atmosphere is shared by all nations?
- How, specifically, can collaboration between nations be encouraged, so that progress achieved by a nation is progress achieved by the world?

VII. Conclusion

Over the last century, humanity has made major strides in aeronautics technology. This technology has developed to the point where it is integral in our daily lives. Navigation, weather forecasting, defense systems, agricultural systems monitoring, surveillance, entertainment, and telecommunications are all dependent on space-based technology. What's more, there are more technologies and resources to develop and utilize with our advance into the cosmos; however, these upcoming developments may potentially result in international disputes or threats of sovereignty. Two of the most pressing issues presented by outer space are the space debris problem and the potential international arms race. For this reason steps must be taken cautiously to avoid international conflict regarding outer space.

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