THAIMUN

United Nations Office for Outer Space Affairs II

The question of preventing man-made space debris and space-pollution

The question of outer space territories between nations

TABLE OF CONTENTS

Introductory Letters:

Pailynn Srilomsak

Greetings delegates, I extend my warmest welcome to the United Nations Office for Outer Space Affairs (UNOOSA II). Navigating and solving global issues and the expanses of outer space affairs may sound complicated, but don't worry, we chairs are here to support you every step of the way! Whether it would be regarding the motion itself, the chair report, MUN procedures or small talks. I can assure you that your overall experience and enjoyment at THAIMUNXI are my top priorities and I will try my best to make your experience at this conference as fulfilling as it can be. I will try my absolute best to facilitate fruitful, as well as productive discussions/debates.

My nickname is Nump-Nump (yes, a lot of people find it funny), and I am beyond honoured to be chairing this wonderful committee. I am a grade 11/ Year 12/ M.5 student from Harrow International School Bangkok (HISB). I have participated in a total of 9 conferences of which I chaired 3. Other than my messy educational life and MUN, I love to spend my free time, listening to music, playing basketball and video games.

Please do not be afraid to contact me if you have any queries about the chair report or procedures or if you are very bored and want someone to randomly talk with! You can find me on Instagram (nump_nump) and by email (pailynn.srilomsak@gmail.com)

Aisida Iramaneerat

Greetings delegates! Welcome to UNOOSA II, where we foster international cooperation in space and beyond. My name is Aiko, and I am currently finishing up my sophomore year at PDS. This is my first time chairing in person, and I'm thrilled to be doing it at THAIMUN! I started MUN around a year ago and I love how quickly it can bring people together across the span of just a few conference days. Whether you are a new or well-experienced delegate, I can assure you that your contributions will be valued in our discussions. Looking forward to seeing both new and familiar faces!

Outside of the conference room, I'm a huge Formula 1 fan and will ditch (almost) everything to enjoy race weekend. Other than that, I love anything related to film, acting, and the arts. If you happen to spot me at debate tourneys, please come say hi!

If you have any concerns or questions, please don't hesitate to contact me via email at aisida.iramaneerat@gmail.com or on Instagram @aiiraa.k. Wishing every one of you the very best in your preparations!

Committee Overview

Founded on 13th December 1958, The United Nations Office for Outer Space Affairs or UNOOSA is a specialised office within the UN Secretariat, serving as an organisation which promotes and facilitates peaceful international cooperation in outer space, working to establish or strengthen the legal and regulatory frameworks for space activities. **It was originally created to assist and advise the COPUOS (Committee on the Peaceful Uses of Outer Space), an ad hoc committee.** UNOOSA plays a vital role in coordinating efforts relating to space activities, benefits of space technology, and addressing the concept of space exploration. Its missions can be separated into 7 main areas; International Cooperation, Space Law and Policy, Capacity Building, Space Applications, Space Science, Space Debris Mitigation, and Space for Sustainable Development. Thus The United Nations Office for Outer Space Affairs acts as a centre for all space-related issues within the UN body.

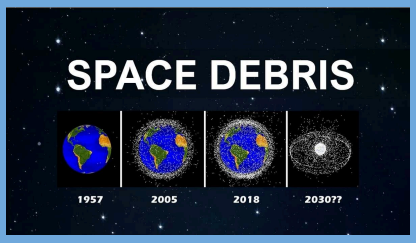
Man-made space debris and space pollution is an ongoing issue that needs answers and responsibility from all nations. Since the 1950s, the space age era, humans have launched thousands of rockets and satellites into orbit, of which many are still orbiting the earth, increasing the risk of collision and concerns about safety as we launch more and more objects into space.

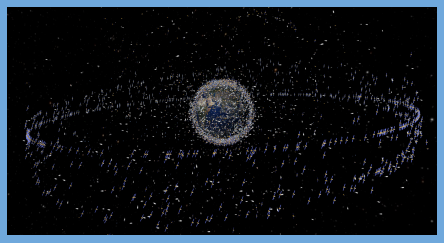
The question of outer space territories has long been outlined by the Outer Space Treaty since the year 1967, which states that “Space activities are for the benefits of all nations, and any country is free to explore the orbit and beyond ". In conclusion, there is no claim for sovereignty in space, no nation can own space, the Moon or any other body. However, there are concerns over this issue as the interest in space mining and exploration grows.

Topic 1: Question of Preventing man-made space debris and space pollution

TOPIC INTRODUCTION:

The international regulations for space debris should be a fundamental step in order to avoid the buildup of debris in space (or worse, The Kessler Syndrome) and to ensure a sustainable space for all. There are two main categories of space debris or what is known as space junks; natural debris, such as meteoroids, and man-made debris like broken satellites and rocket bodies. While natural debris is expected to degrade over time, man-made debris will continue to accumulate in orbit, posing dangerous threats to crew members, space crafts and even us, earthlings. These threats range from collisions, explosions to the re-entering of man made space debris into Earth's atmosphere, as some larger sized space debris do not burn up in the atmosphere. Currently, there have been various previous attempts by the UN and some other space faring nations to combat this issue. Furthermore, there are several international regulations and protocols in place, including the United Nations Space Debris Mitigation Guidelines and the Inter-Agency Space Debris Coordination Committee (IADC). However, none of these existing guidelines could prevent another pressing issue that could possibly greatly contribute to the increase in space debris if not regulated correctly, "anti satellite weapon testing". The voluntary nature of the framework and the lack of capability to enforce these regulations poses a challenge that each nation should aim to resolve.





KEY TERMS:

Term	Definition
Space Debris	Discarded and non-functional man-made objects in orbit around Earth, such as defunct satellites and fragments from collisions.
Orbital Debris	Small fragments of space debris that travel at high speeds.
Collisions	Accidental or intentional impacts between space objects.
Space Traffic Management	The coordination and regulation of spacecraft movements and activities in Earth's orbit minimise the risk of collisions and space debris generation.
Active Debris Removal (ADR)	The use of technologies and missions to actively capture and remove defunct satellites or space debris from Earth's orbit.
End-of-Life Disposal	The planned deorbiting or relocation of a satellite or spacecraft at the end of its operational life reduces the risk of becoming space debris.
Low Earth Orbit (LEO)	An orbital path which is relatively close to the Earth’s surface.
Inter-Agency Space Debris Coordination Committee (IADC)	An inter-governmental forum was established in 1993 with the primary objective of coordinating international efforts to address and manage debris in Earth's orbit. Members include the European Space Agency (ESA), Japan Aerospace Exploration Agency (JAXA), and more.
Space Surveillance Network (SSN)	A global system of radar and optical sensors monitoring objects in Earth's orbit to track and predict the movements of satellites and space debris.
Anti-satellite weapon (ASAT)	Space weapons designed to incapacitate or destroy satellites for strategic or tactical purposes.

History of The Topic:

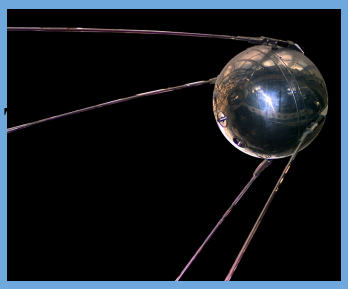
The issue of space debris emerged since the launch of the “Sputnik 1”, a Soviet artificial satellite that was launched into orbit in the year 1957. Most of the space debris are the result of in orbit explosions, and some were deliberately caused during the anti-satellite weapon testing in 1960s-1970s, and others were from rocket stages (boosters) blowing up. By 1994 there had been

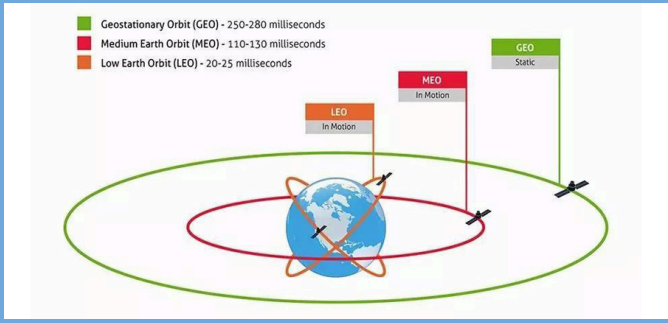
68 breakups, involving satellites launched by the former Soviet Union, and another 18 similar events had occurred involving rockets and other man-made space debris.

Space debris is proven to be a hazard to numerous space objects, notably active satellites, spacecraft (both crewed and uncrewed), and space shuttle missions. Space crafts are usually protected by whipped shields, though small impacts can still produce a cloud of plasma, which is an electrical risk to the panels. Satellites are believed to have been destroyed by small orbital debris, with the earliest event believed to be the disappearance of Kosmos 1275 on 24 July 1982. This case, however, was not proven to be entirely true, even though the tracking showed that it blew up into 300 new space debris. 10 February 2009, was when the first major satellite collision occurred, this was where a satellite (Kosmos 2251) and the operational Iridium 33 collided with each other, creating thousands of pieces of new smaller debris, with legal and political liability remaining unresolved. As the collision occurred in the Lower Earth Orbit (LEO), a significant portion of these debris are expected to remain in this orbit for several decades as they are man-made and therefore cannot naturally decompose. Posing as a threat for space objects mentioned in the above paragraph.

After the launch of Sputnik 1, the “North American Aerospace Defense Command” or NORAD began their compilation of a database of all known rocket launches and objects reaching orbit, including satellites, and protective shields. Means of tracking satellites and space debris include radar and optical detectors such as lidar can be used to track debris as small as 1 cm, however, most debris remains undetected.

Currently, there is no legally binding international treaty regarding minimising the amount of space debris, though COPUOS published voluntary guidelines in 2007 and the updated version in 2018 (Space Debris Mitigation Guideline). There are also very few commercial incentives to clear up space debris, as the cost does not belong to the entity or organisation which is the source of the debris.





Date	Description
4 October 1957	The first man-made Earth satellite, Sputnik 1, was launched.
27 January 1967	The UN Outer Space Treaty was opened for signature, prohibiting parties from placing nuclear arms or other weapons of mass destruction in orbit, on the Moon, or on other bodies in space.
11 January 2007	China launches a direct-ascent anti-satellite weapon and destroys a defunct weather satellite in LEO, Fengyun-1C.
22 December 2007	The UN General Assembly approved the Space Debris Mitigation Guidelines put forth by the Committee on the Peaceful Uses of Outer Space.
10 February 2009	An inactive Russian communications satellite, Kosmos-225, collided with an active U.S.-based commercial communications satellite, Iridium 33.

KEY ISSUES:

1. **Lack of incentives** and the **regulations with regard to private entities**: With the development of technology and advancement in the space industry, this means that the use of space is shifting from scientific to a more commercial use, which are mostly led by private entities. Leading to the increase in space debris generated by private entities, since there is no clear mention about the consequences of these actions by private entities, these entities can therefore not take responsibility for their actions; consequently increasing the amount of debris. Moreover, these private organisations are not willing to solve these debris problems, as the removal of debris from space is costly and does not profit them in any way shape or form; thus incentives, whether it would be from the nation that the organisation is in, or from international efforts would be greatly needed.

2. **No official international treaty**: Since there is only a voluntary guideline created in 2007 and updated in 2018 by COPUOS, this means that only some nations follow these guidelines. In order to efficiently solve this issue of space debris, international cooperation is needed; and thus an international treaty where all nations follow a collective framework which outlines what they should do, appropriate regulations to follow and any incentives or consequences.

Global Reform Efforts:

The Outer Space Treaty outlines the international legal framework for responsible space use and explicitly restricts the utilisation of the Moon and other celestial bodies to peaceful activities. However, the treaty does not prevent the deployment of conventional weapons in orbit, potentially permitting certain highly destructive tactics like kinetic missiles.

The UN Space Debris Mitigation Guidelines provide specific recommendations and measures to mitigate space debris, such as reducing debris generation, controlling spacecraft and rocket body reentry, and improving the survivability of spacecraft and upper stages.

Space Debris Mitigation Guidelines in 2007 and 2018 In a resolution on December 22, 2007, the General Assembly supported the Space Debris Mitigation Guidelines, endorsed by COPUOS. In 2018, UNOOSA introduced the updated Space Debris Mitigation Guidelines. These guidelines, building upon the 2007 version, were designed to provide voluntary recommendations for responsible space activities and debris management. The international community, through the COPUOS, acknowledged and endorsed these guidelines.

The Liability Convention established principles for holding states accountable for damages resulting from their space activities, emphasising that launching states are liable for any harm caused to other nations or their space objects. It offers a framework for compensation for damage to involved nations.

However, evaluating the effectiveness of past UN policies indicates the need for policymakers to strengthen the current policies and schemes and seek future solutions continuously. Current ongoing initiatives draw attention to being more stringent in regulating space operations and establishing legally binding obligations for all actors to mitigate space debris and pollution.

Questions your Resolutions Should Address:

Private Entities

Some nations may require more support regarding substantial investments in research and development. To create the needed hardware and software tools, nations should consider offering tax incentives and funding programs to support private space companies to adopt practices that result in less debris being produced.

International Interests

Executing a joint effort for debris cleanup requires collaboration between all space-faring nations with a shared commitment to reducing space pollution such as the establishment of an international monitoring system or deep-space refuelling stations that could potentially facilitate debris collection and removal.

Space Traffic Management

Mitigating the amount of space debris can be achieved by establishing standardised guidelines for all satellite operations and launch procedures. Controlled deorbiting is an example of an effective practice for end-of-life disposal of satellites

Countries & Party Stances

Asia

China

China solidified its stance as a pioneer of space exploration. However, the nation's ambitious endeavours have led to the creation of an enormous amount of debris. China has been involved in several historical controversies surrounding space debris, including one in 2007 when it tested its anti-satellite missile system. This resulted in the creation of more than 3,000 trackable fragments and an estimated 150,000 smaller pieces of debris. Such debris adds to the already massive space pollution issue and has a significant impact on future space missions. China has addressed the gravity of this situation and has proposed several measures to mitigate the problem. These include developing space debris identification and removal technologies and implementing regulations to prevent debris from being created in the first place.

Japan

Japan is continuously developing debris-mitigating technology. The nation has been affected by space debris in the past, particularly during the Iridium 33 incident in 2009 where debris from a decommissioned Soviet satellite collided with a commercial American satellite. This event created thousands of new pieces of debris, some of which are still in orbit. Japan has been proactive in addressing this issue and has developed numerous initiatives to prevent the creation of more debris, including enhancing the management and monitoring of space debris and partnering with other nations to encourage the adoption of international regulations. In the future, Japan plans to continue its efforts to reduce space debris and promote sustainable and responsible space exploration.

Europe

Russia

Russia is one of the world's leading spacefaring nations and has been involved in space exploration for over half a century. Unfortunately, Russia is one of the world's highest producers of space debris and has also contributed significantly to the issue of orbital waste, particularly through the various stages of its rockets and satellites. Russia has taken steps to address this issue in recent years, including implementing a space debris mitigation policy, developing debris removal technology, and cooperating with other nations to address the issue through international regulations. Russia also continues to advance its space technology and plans to further address space debris.

Germany

Germany is an important contributor to international space missions and has a wealth of expertise in developing advanced technologies. Germany has also been affected by space debris and has taken measures to address this issue. Its involvement in the E.T.PACK project aims to provide a deorbit kit that will be mounted on launcher upper stages and satellites in the future, allowing spacecrafts to be eliminated at the end-of-life, instead of leaving them in orbit. Some of Germany's solutions involve the implementation of stricter regulations on space debris mitigation and removal practices.

France

France's policy framework emphasises the prevention and mitigation of debris. Proposals include the use of space tugs to collect dead satellites and remove space debris from critical orbits. Additionally, France has pioneered the use of laser technology, developing a ground-based system to zap debris. CNES (Centre National d'Etudes Spatiales) has been proactive in collaborating with other countries and agencies, as seen in its partnership with ESA's CleanSpace One program. Efforts made include investment in research and development of satellite technology that will enable efficient clean-up of debris.

North America

United States

The United States is responsible for over a quarter of the total amount of the world's space debris. The United States' policy on space debris prevention and mitigation is guided by its Space Policy Directive-3. The policy emphasises addressing the issue of space debris and requires agencies to identify and mitigate potential risks related to space debris. Proposed solutions include developing active debris removal technology and creating international standards for spacecraft design and operations. The US

Government has invested heavily in developing space debris tracking technology and has shared this technology with other countries to improve their efforts in combating space debris and mitigating its generation from future missions.

Canada

Canada has contributed significantly to the development of technology in the field of robotics and AI. While the country has not been involved in many historical controversies surrounding space debris, Canada has been affected by space debris in the past, including an incident in 2013 when the country's RADARSAT-2 satellite narrowly avoided a collision with space debris. As a result, Canada has been proactive in developing various strategies to mitigate the problem of space debris, including investing in debris removal technology and collaborating with international partners to establish global regulations for space activities.

Independent Groups

European Space Agency (ESA)

The European Space Agency's policies regarding space debris prevention emphasise the importance of mitigating its impact and maintaining sustainable space exploitation. Proposals include applying the 3Rs approach–Reduce, Reuse, and Recycle concerning satellite design and considering future decommissioning at the design stage. The ESA has proposed many cutting-edge solutions such as enviroSPACE, an initiative that aims to increase awareness and understanding of environmental sustainability issues in space research, development, and operations. Additionally, the agency has developed the E.T.PACK initiative which aims to revolutionise space debris challenges through innovative and cost-effective technological solutions. Efforts include the design of a satellite capture “claw” mechanism that safely disposes of space debris before it becomes an operational hazard.

National Aeronautics and Space Administration (NASA)

NASA, in alignment with the Space Policy Directive-3, has been working on developing various debris removal technologies–such as the Restore-L mission which will refuel a satellite orbiting the Earth keeping it in service for longer and therefore reducing the number of inactive satellites. Another initiative, the Space Traffic Management program, aggregates data inputs from various sources, leading to more effective coordination and decision-making in identifying the risk associated with space debris. Efforts to manage space debris are ongoing, and NASA is routinely looking for ways to improve its ability to mitigate risks associated with space debris pollution.

Questions to Consider

- How can lessons learned in past events be used to inform future missions and prevent future occurrences?
- Should there be frameworks outlining liability and compensation in the event of a collision?
- Should there be a centralised global database for tracking space debris?
- What incentives can be provided to private entities in order to collaborate and fund future initiatives?
- What international treaties can be implemented to ensure responsible use and management of space debris?

Recommended Sources

Journals and Articles

Space Operations: Space Debris: The ESA Approach

Responsible Space Behavior for the New Space Era: Preserving the Province of Humanity

Websites

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Topic 2: The Question of Outer Space Territories Between Nations

TOPIC INTRODUCTION:

There are 5 international treaties that constructs space law as a whole, all these treaties are overseen by the UNOOSA and the UNCOPUOS; The Outer Space Treaty, The Rescue Agreement, The Moon Agreement, The Liability Convention, The Registration Convention. For this topic, we will be focusing on some of these treaties only, The Outer Space Treaty and the Moon Agreement. Though all 5 treaties play their parts in formulating the international space laws of present days and each have their importance in different aspects.

The Outer Space treaty however lacks clarifications in many areas, for example the unclear separation between air space and outer space, resulting in the lack of prevention of claims in the LEO. Leading to the Bogota Declaration incident which was submitted by 8 countries claiming their sovereign rights over equatorial space claiming it as a natural resource.As more interests of natural resources such as minerals, grow, along with technological advancements. Outer space becomes more and more prone to resource extractions by private entities both monopolised and non-monopolized by their nation's government, commercialisation and weapon testing. A much more clear and rigid framework and international collaboration would be needed if outer space were to be still used for peaceful purposes.

KEY TERMS:

Term	Definition
Celestial Bodies	An astronomical object outside of the Earth's atmosphere (ex: Moon, Sun, asteroids)
National Appropriation	The establishment of a permanent settlement or the carrying out of commercial activities by nationals of a country on a celestial body, is prohibited by the Outer Space Treaty.
Sovereignty	The supreme authority a state has, to govern itself and make decisions within its own borders.

International Cooperation	Collaboration between countries in space exploration and related activities is encouraged by the Outer Space Treaty.
Outer Space Treaty	the international agreement which provides a core legal framework for ensuring peaceful use of outer space.
Liability	The legal responsibility of a state for any damage caused by its space activities to other states or their space objects.
Bogota Declaration	Assertion that the rights of Equatorial States to treat segments of the geostationary orbit as being under their national sovereignty

History of The Topic:

The preservation of outer space for peaceful purposes was brought up in the late 1950s at the UN. During this period of time, the United States of America and its allies submitted proposals in 1957, which centred on “reserving space exclusively for peaceful and scientific purposes". However this got rejected by the then Soviet Union as it was preparing for its first satellite launch and to test its first ICBM (inter continental ballistic missiles).

In 1963 the UNGA approved two resolutions on outer space, UN resolution 1884; which called for countries to refrain from stationing WMD in outer space, and UN resolution 1962; which stated that all countries have the right to freely explore and use outer space. These two resolutions would go on to become the core basis of the Outer Space Treaty, which was finally endorsed in the UNGA on 19 December, 1966 after several months of negotiation between the US and the Soviet Union. The treaty came into effect on 10 October 1967 after being ratified by multiple nations, notably the Soviet Union, United States of America, United Kingdom.

This treaty mainly outlines the ban of stationing of WMD in outer space, prohibition of military activities on celestial bodies including the testing of weapons, and the emphasis that outer space is to be used for peaceful purposes.

As the technology progressed rapidly, it finally led to a focus on the moon in the territorial discussions. The Outer Space Treaty established the moon and other celestial bodies as bodies not subject to national ownership. While the regulatory frameworks on the use of resources from the moon remained unclear, however. The Moon Agreement, the Agreement Governing the Activities of States on the Moon and other Celestial Bodies, was proposed in 1979 but was met with a divided front as major nations such as the US, Russia, and China opted not to sign it.

Timeline:

Date	Description
10 October 1967	Adoption of the Outer Space treaty in the general assembly
3 December 1976	Bogota Declaration signed
22 April 1979	Moon Agreement drafted, but received limited ratification
5 September 1996	Principles Relevant to the Use of Nuclear Power Sources in Outer Space,o adopted by the General Assembly
19 June 1998	COPUS adopts the International Code of Conduct for Outer Space activities, but it has not been fully adopted by all nations.
2010	UNOOSA engages in discussions on the development of the International Code of Conduct for Outer Space Activities. Calling for updated norms amongst the technological advancement the world faces today
13 October 2020	Artemis Accord launched into action

KEY ISSUES:

1. Lack of Precise Definitions: Even though the outer space treaty outlined in their first article that no nation could gain sovereignty over outer space, there was **no clear establishment to when the air space ends and outer space begins.** Thus resulting in incidents such as the Bogota Declaration.

2. Circumventable Articles: Due to loopholes which were found in the Outer Space treaty, an article (or more) be circumvented. Such as Article IV, which stated that nations cannot place any objects which carry nuclear weapons or any other kinds of WMD in orbit around the Earth. However nations such as India had tested the performance of their weapon delivery systems through "peaceful" spaceflight, this action does not violate the treaty , it however **undermines the concept that outer space could only be used for peaceful purposes only.**

3. Outdated Policies allow leeways to capitalise outer space: Since the Outer Space treaty was drafted in the year 1967, details and regulations regarding capitalisation of space have not yet been clearly established. Especially when technological advancement is growing at a much faster rate than before, private entities could consider the consequences of their actions later, while they centred their focus on commercialisation and expansion first. Asteroid mining could also be monopolised by anyone who entered this market first, as it is an emerging field of technology and could bring in valuable minerals and elements. This industry could potentially generate trillions of dollars to the world economy. However, if a nation gains exclusive control of this, international disputes could emerge.

Global Reform Efforts:

- Outer Space Treaty: 1967 adopted by the UNGA, legally binding document
    - **Bans** the stationing WMD in outer space
    - **Bans** military activities on celestial bodies eg. Moon
    - **Established** that space is to be used for peaceful purposes

- Moon Treaty: 1979 signed in the UNGA, supplements the OST (Outer Space Treaty)
    - Demilitarisation of the Moon and other celestial bodies
    - **Prohibits** the use of threats, use of force, any other hostile actions, threats of hostile actions on the Moon (reserved exclusively for peaceful activities)

    - **Prohibits** the use of the Moon to commit any hostile acts or to engage in any threats in relation to the Earth, The Moon, Spacecraft and its personnel, man-made space objects
    - **Prohibits** the placement of objects carrying nuclear weapons or any other kinds of WMD in orbit or other trajectory to or around the Moon

- Artemis Accord: led by NASA (USA)
    - All activities will be conducted for peaceful purposes and in accordance with the OST
    - Space resource extraction and utilisation will be conducted in compliance with the OST

Questions your Resolutions Should Address:

- To what extent should the separation between air space and outer space be established?
- How could the framework be improved to be more rigid, clear, cohesive and inclusive of present day's issues, such as asteroid mining and the emerging technological advancement in this field?
- How could the policies include more regulations and consequences regarding the use of outer space by private entities?
- How could the framework regarding the use of resources on the Moon and other celestial bodies be made to be more clear and compromised to space faring nations?

Countries & Party Stances:

<u>Asia</u>

China

China is a party to the Outer Space Treaty and has taken an active part in establishing international space law, based on its policies that mirror peaceful exploration and non-appropriation principles enshrined within the treaty. Chang'e lunar exploration missions and the Tiangong space station project were milestones in China's development of its problem-solving ability. The growing space programs of the nation raise questions on how they can affect outer space territories and activities. China's long-term goals for space exploration involve further lunar missions, Mars trips and many grand plans aimed at keeping humans in outer space permanently. As China develops its space competencies, it is crucial for the country to play an instrumental role in defining governance over outer space territories during global discussions on responsible and equitable use of celestial resources. However China still tested its ASAT test in 2007 which produced a humongous amount of space debris and was condemned internationally.

India

In terms of outer space territories between nations, India has been a long-held proponent of peace and cooperation in the exploration of space. Being a signatory to the Outer Space Treaty, India endorses its policies in consonance with the ideals of international cooperation and the common heritage of outer space. The country has made significant contributions like the Chandrayaan and Mangalyaan missions, highlighting its potential in lunar exploration as well Martian India's space agency, the Indian Space Research Organisation ISRO continues to be a key player in developing space technologies. But India was also involved in the "peaceful" space flight, aiming to test its missile delivery system; it did not violate the Outer Space Treaty, but instead undermined the whole point of the treaty; space could only be used for peaceful purposes only.

Russian Federation

Russia has been one of the major nations since the onset of what can be termed as space age and made pioneering contributions to outer space activities, in addition to ratifying the Outer Space Treaty which enunciates its beliefs about peaceful usage and therefore exploration or rather investigation into deep freezers. Russia's space agency, Roscosmos is a descendant of the Soviet-era space program and has retained its status as a mighty power in any pursuit related to outer space. Russia's historical involvement encompasses great milestones like the first human in space and creation of such an iconic spaceship as Soyuz. The country significantly influences territories in outer space and is increasingly engaged, such as its leading role with the International Space Station (ISS). Russia also keeps contributing to debates regarding mitigation of space debris and sustainable activities in outer space. Future prospects involve lunar missions, continuing further in

the field of space exploration and broadening its efforts towards responsible management of outer space territories. Russia firmly cements itself as an integral player in the world's global arena regarding space territories and activities.

Republic Of Korea

Although the Republic of Korea will not have a particularly long history in terms of its space programme, it is becoming increasingly noticeable as an emerging player in outer space territories. South Korea is a member state of the Outer Space Treaty, the country has come a long way in the field of space exploration with launching satellites and establishing its space agency known as Korea Aerospace Research Institute (KARI). South Korea takes an active part in international debates on space territories and demonstrates interest for responsible activities in outer space. As the country moves forward with its space ambitions, reflections on how it should participate in defining regulatory systems for outer space territories also gain more relevancy. Future plans range from enhancing its satellite capabilities, lunar exploration missions to fostering international collaborations; these initiatives will place South Korea right at the centre of global discussions on equitable and sustainable space exploration.

Japan

Japan occupies a special and important role in the conversation about outer space territories. Being one of the first nations to express its support for international cooperation, Japan also ratified the Outer Space Treaty and signed it; this signifies its statement of intentions about peaceful use as well as exploration in outer space. The country possesses a strong background in space exploration, characterised by successful events like H-IIA rocket launches and the ISS provisions. JAXA (Japan Aerospace Exploration Agency) is the space agency of Japan, which plays a key role in developing the nation's capabilities to go beyond earth's atmosphere. Due to the changing trends of outer space management, Japan is an active stakeholder in international programs such as space debris mitigation and environmentally friendly activities in outer orbit. Japan holds the ambition to maintain a leading role in space exploration with lunar mission work, asteroid probing as well as contribution towards outer space territories responsible sharing or collaborative use.

Europe

France

France is a strong participant in the exploration of outer space, and has greatly participated in defining this conversation on territories from outside Earth. France is a

signatory to the Outer Space Treaty and thus fully supports peaceful use and exploration of outer space. The nation has a great space legacy with its contribution to the European Space Agency (ESA) and an independent national space agency called CNAS(Centre National d'Études Spatiales). France plays an active role in international cooperation and made a significant contribution to the creation of Ariane launch vehicles. The country's history of involvement also implies that it is ready to participate in international partnerships related to space exploration. France has also been influenced by how technology for satellites and their participation in cosmic exploration missions have impacted the territories of outer space. France is at the vanguard of space governance and remains actively involved in debates on sustainable activities being conducted from outer space, while highlighting its commitment to irresponsible and or uncooperative behaviour towards initiatives associated with exploration and utilisation of territories situated beyond planet Earth. Plans for the future include further participation in European space efforts, highlighting France's position as one of the main players on a global scale within the international space community.

United Kingdom

The UK has made an important contribution to the debate on outer space territories, aligning its policies with international principles such as those outlined in the Outer Space Treaty Historically, the UK has played an important role in outer space research by participating in satellite technology and telecommunications. The establishment of the UK Space Agency in 2010 marks a significant commitment to improving its space capabilities. The UK's space activities are not as extensive as some of the major players but it demonstrates a commitment to joint efforts including participation in European Space Agency (ESA) programmes. The UK is actively engaged in discussions on space sustainability and responsible practices due to the changing space governance environment. Future plans include developing satellite technology, continued participation in the global space industry, and creating responsible and accurate use of space. The status of the players will be concrete .

Germany

A cornerstone of European space efforts, Germany plays a key role in the discussion about space zones. As a signatory to the Outer Space Convention, Germany aligns its space policies with the principles of peaceful exploration and cooperation. State involvement in space is exemplified by contributions to the European Space Agency (ESA) and the German Space and Space Institute (DLR). German historical associations include advances in satellite technology and participation in solar system exploration

missions. The country actively cooperates in international projects, encouraging joint efforts in space exploration. Germany's influence in the space areas is characterised by its technological contribution and commitment to sustainable practices, reflected in projects such as space debris reduction. Germany stands in the European Space Community on responsible and equitable space activities. Continues to contribute to discussion. Future plans include continued engagement in European missions and efforts, indicating Germany's commitment to play a key role in shaping the future governance of the space zones.

North America

United States of America

The United States (USA) remains a dominant power in the field of outer space, shaping the narrative through historical achievements and ongoing contributions As the first signatory to the Outer Space Treaty, The United States applies basic principles to the peaceful use and exploration of the establishment of outer space The primary role is the national space agency, the National Aeronautics and Space Administration (NASA), which pursues a sophisticated space exploration mission a landmark Apollo moon landing and Mars rover mission influenced by ongoing governance developments The United States maintains leadership in space policy discussions and actively participates in international cooperation Future plans will include major missions to the moon, Mars exploration, and continued innovation in space technology, which will reinforce the governance formation of America's enduring importance in the space regions

Independent Groups

SpaceX

Founded in 2002 by Elon Musk, SpaceX, an American aerospace architects and aerospace company, has emerged as a revolutionary force in space exploration and exploitation. The company plays a key role in reassessing the importance of the need to reverse the cost of spaceflight and restart the cost of spaceflight. Ti-Services Policy Through and in conjunction with the success of commercial spaceflight the company's disruptive approach to space technology influenced the broader space governance, prompting discussions of private sector participation in 2010, reusability, sustainable space practices and the importance of SpaceX's plans for the future of aspirants and missions performance, continuing the trajectory of space activities around the world

Blue Origin

Founded by Jeff Bezos in 2000, Blue Origin represents an important player in the changing landscape of space exploration. As a private space company, Blue Origin has played a pivotal role in pushing the boundaries of aerospace technology and helping to articulate the global discourse on space activities. The company focuses on reusable rocket technology, exemplified by the New Shepard suborbital rocket, which aims to make space travel accessible Blue Origin's emphasis on sustainable practices is consistent with the broader discussion of responsible space exploration. The company's future plans include the development of the New Glen orbital launch vehicle and the Blue Moon lunar flight, demonstrating a commitment to further expanding human presence As a major player in the commercial space, Blue origin continues to influence the issue of space operations, which is responsible for external operations space -Contribute to ongoing global dialogue on applications and research

Virgin Galactic

Founded by Sir. Richard Branson in 2004, Virgin Galactic is uniquely positioned in space exploration as a private space tourism company Although not a dominant company, Virgin Galactic has had a profound impact on public opinion and discussion about space activity of the species. The company is a pioneer in commercial suborbital spaceflight, with its SpaceShipTwo vehicle designed to take paying customers on short trips into space Virgin Galactic's efforts contribute to the ongoing global dialogue on democratising space travel and emerging space tourism industry No Virgin Galactic space for civilians The focus to facilitate is to reframe discussions about the future of space activities Although the scale may differ from traditional space agencies though Virgin Galactic is playing a key role in influencing conversations around responsible and inclusive space exploration

Relevant documents

Relevant Documents for this topic are all in the google drive link

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Questions to Consider

- What are the challenges that pose for some spacefaring nations out from ratifying important agreements?
- How do the development of technologies impact the development and adaptation of international space law? Do current agreements/treaties support these advancements?
- What areas should future agreements, such as the draft of the "International Code of Conduct for Space Activities" focus on to address these emerging challenges?
- What enforcement mechanisms, if any needed, can be put in place to ensure compliance of nations with the international space law?

Recommended Websites to Use

Regulated Commercial Space Activity

International Space Law

War In Space May Be Closer Than Ever

Aerospace Security Project

Applying an irregular warfare lens to outer space (video)

The Space Border That Could Seal Us on Earth (video)

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