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Introductions from your UNOOSA Dais

Dear StuyMUNC delegates,

My name is Tanim Miah and I will be serving as your director for the Joint Crisis Committee at StuyMUNC 2021. This is my second year chairing a committee, and I am excited because it is one of my favorite topics: space exploration and resource extraction. I am currently a senior at Stuyvesant High School, and I have been a member of Model UN since my freshman year. This year I am part of the Lower Secretariat, and I help run and prepare meetings and logistics. I was first attracted to Model UN because of my interests in geopolitics, history, and international relations. I wanted to express my opinions on important global issues with peers who share similar interests. It was through Model UN conferences that I was not only able to significantly improve how I articulated arguments but also gained unique perspectives on innovative solutions to critical issues. I found my voice in conferences by debating meaningful issues and commanding the room with my unique insights. I have fallen in love with Model UN, and I am excited to make your experience at this conference impactful and leave you with a novel view on modern diplomacy and its intersection with history and national security strategy.

As our planet Earth slowly dies from excessive resource extraction, space is becoming an increasingly attractive alternative to find resources. In recent years space technology has become more affordable and advanced as the private sector takes on a leading role in space exploration. As resource extraction from space becomes more likely, it is important to consider how nations should share these resources and the role of national governments in facilitating this change.

Geopolitics is an extremely complex subject, and issues, such as the lunar mining, though seemingly simplistic, have many complex and nuanced facets. I hope to engage in a stimulating debate, where we will analyze a multitude of intricate variables that made this event a critical juncture in history. Despite the challenges presented by recent circumstances, I still hope to facilitate an enriching and valuable debate and look forward to the new opinions and perspectives proposed by delegates. Hopefully, this committee will transform how you analyze historical events and consider the dynamic nature of modern diplomacy.

If you have any questions when preparing for our committee, feel free to send me an email. I look forward to meeting all of you. Best of luck!

To Infinity and Beyond,
Tanim Miah
tmiah20@stuy.edu

Dear delegates,

Hello and welcome to StuyMUNC! My name is Elaine Huang and I am over the *moon* to be one of your directors for the UNOOSA Lunar Mining committee for this year's StuyMUNC. I am a sophomore and I have been part of StuyMUN from my freshman year. MUN has been a great experience in pushing me out of my comfort zone to improve my public speaking skills. This is my first time directing a committee as well my first in-person conference ever! Outside of MUN, I am a writer for the school newspaper The Spectator, part of stage crew for SING! and the Stuyvesant Theater Community, play the piano, and enjoy reading and writing.

For this committee, be sure to consider all the ways the Moon and mining could affect the Earth and its people, both in the present and the future. After all, that floating rock does control our tides, and you will be setting a precedent for how it will be handled. If this is your first in-person conference ever, welcome, you are not the only one. Do your research, speak up, be creative, and don't worry, everyone else is as nervous as you are to speak in front of a large crowd.

I am so excited to see you all in May! If you have any questions or suggestions, feel free to email anyone on the dias. Good luck and I hope your time at StuyMUNC 2022 is *out of this world*.

See you moon!

Elaine Huang

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Dear delegates,

Hello! My name is Lesley Lo, and I'm delighted to be one of your directors for the UNOOSA Lunar Mining committee at StuyMUNC 2022. I'm a sophomore at Stuyvesant, and I've been involved in Model UN since my freshman year. I've enjoyed staffing my fair share of committees, but this is my first time as a director, so I'm excited to work and learn with you all to make this committee a great one. Outside of Model UN, I'm on the Stuyvesant fencing team, and I'm also a part of the Student Union's Communications Department.

This may be the first in-person Model UN conference you've had in a while, or your first ever in-person experience. We are all adapting and learning to transition into this environment, so don't worry. At least we don't have to fret over Zoom crashing or getting thrown out of breakout rooms anymore! As with all conferences, the best advice I can give you is to speak a lot, even if you're nervous. It can be nerve-wracking to deliver an impromptu speech in front of a room, but rest assured that all delegates feel this way, no matter how experienced they are. Project your voice and stay confident. Don't be afraid to have fun and bring new ideas to the table—keeping the flow of the committee going is really important, and it's what makes committees interesting!

If you have questions or need any help, don't hesitate to email anyone on the dias. I hope that you'll enjoy StuyMUNC 2022, and I can't wait to see what you all come up with.

Catch you lunar!

Lesley Lo

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Committee Information

The United Nations Office of Outer Space Affairs (UNOOSA) is responsible for prompting international cooperation regarding the use and exploration of outer space. It also oversees the use of space technology and science and creates legal regulations regarding space-related activities.

This committee will function as a General Assembly committee. This committee will therefore follow all normal General Assembly parliamentary procedure. If you have any questions about this, feel free to directly email us or look at the delegate guides here.

In this committee, you will be discussing the potential benefits and drawbacks of mining the moon, fifty years after the last crewed landing on the moon. Be sure to consider the economic as well as environmental effects of your actions, and that your decisions will set a precedent for future space mining laws. The ultimate goal of our committee is to write and present a resolution that is favorable to as many countries as possible.

Prior to the conference, delegates may write a position paper designed to reflect the views of their assigned country. You should establish what the key issues for the committee are, as well as address pre-existing laws or treaties that are relevant. It's important to include what your country has done to address these issues thus far, and then suggest possible solutions to be considered by the committee moving forward. As you begin writing your position papers, your research should encapsulate all the topics addressed in the Background Guide. The suggested format is:

1. A short introduction that states the committee's topics and your country's commitment to resolve these topics.
2. Your country's position on the topic.
3. Your country's relation to the topic.
4. Your proposal of possible solutions or policies to pass in the resolution.

StuyMUNC does not require position papers, but they are highly recommended. They should be submitted to tmiah20@stuy.edu by April 29, 2022 for feedback; about one page long single-spaced, written in 12pt font. Position papers will still be accepted up until the start of the conference, however, there is no guarantee that you will receive feedback after the deadline has passed.

Committee Background

Overview on Moon Mining

As our modern way of life continues to consume more and more of Earth's natural resources and extraction becomes more and more damaging to the planet, people, countries, and corporations are looking for new sources of important resources. One promising candidate, rich in valuable metals and other elements rare on Earth[1] : the Moon.

While numerous treaties and international agreements have been previously created on the issue of rights to space, its space, and its resources, there are currently no clear rules or regulations on lunar mining.

Previous Moon and Space Treaties

There have been 5 treaties governing how space is to be used.[2] These treaties have mostly addressed states' responsibilities to the international community regarding space and its exploration.

The first of the treaties, the Outer Space Treaty[3], was passed in 1967. This treaty outlawed nuclear weapons in space and limited what military activities were allowed in space. This treaty, involving 134 countries, was the first international agreement on space regulation and was the basis for all following international space law. As this treaty was primarily created to regulate military activity in space, it is unclear whether activity such as lunar mining would be in opposition to it.

The "Rescue Agreement"[4] from 1986 governs the responsibilities of rescuing people in space. This agreement states that any state with astronauts in distress must notify the United Nations, and any state part of the agreement must provide help to any astronaut that has landed within their borders due to trouble in space.

The Liability Convention[5], ratified in 1972 and involving 117 states and 4 international organizations, declares that all states are responsible for space-related objects launched from their territory.

The Registration Convention of was enacted in 1976 required participating states to register any objects they launch to space with the United Nations.

The Moon Treaty of 1984 aims to create an international set of laws governing all celestial bodies in the Solar System, as well as considering space exploration the "common heritage of humankind". It involves 18 states but has not been ratified in any state that

has launched humans into space. The vague wording has also led to numerous descriptions about its meaning.

International Space Law/Policy

Early space law was based on the idea that space should remain open and accessible to all nations, and rooted in the tradition of the "Law of the Sea"', where the oceans would remain open to multinational use, as well as precedents, such as the Antarctic Treaty. Though efforts to establish a comprehensive system of law was initiated as early as 1910, the first real effort to create regulations did not occur until the launch of *Sputnik* in 1957. The global superpowers of the Cold War, though reluctant at first to establish space as a place for non-military operations, agreed to reserve space as a place for peaceful missions. International cooperation in lawmaking began with the creation of the United Nations Committee on the Peaceful Uses of Outer Space (COPUS), whose sole focus was on the creation of space law. Numerous multilateral and bilateral agreements were passed between 1962 and 1979, largely due to the limited exploration and technology preventing countries from exploiting space resources.

Modern space law is primarily defined by five treaties passed between 1967 and 1979; however, these treaties are not definitive, and it is noteworthy that none of these treaties discuss effective regulations on weaponization, debris, or property rights. The Outer Space Treaty centers around the exploitation of space for "common heritage of humankind", which is the only such reference in any UN treaty. The language in the treaty prevents the "national appropriation" of any body in space, but remains unclear in similar property rights of corporations for commercial purposes. Individual countries have turned to bilateral and multilateral treaties, which both prevents any state from claiming sovereignty in space and allows for limited resource extraction. With a growing disparity between global superpowers and developing nations in space exploration technology, it will become difficult to have a singular body of space law to govern national space programs.

National space programs have been invariably linked to foriegn policy and national security strategy, and individual space policy has been influenced by the political atmosphere of the past few decades. Following the launch of *Sputnik*, space policy, limited to the United States and Soviet Union, was centered around dominance in space technology. This shifted following the collapse of the Soviet Union, giving way to a more international cooperation between the superpowers and their allies. The stage became more complex

as the world entered the 21st century; a multipolar world emerged and non-state actors (primarily multinational corporations) began to play an increasingly important role in space exploration. The Global War on Terror and rising powers, such as China, strenghtened the link between space policy and national security, delegating much of the development of space policy to the private sector. Currently, international cooperation in space policy has a largely market-oriented focus.

Given the conflicting interests and cooperation during the first Space Race between the United States and the Soviet Union and an emerging second race between the United States and China, scholars have proposed polycentric governance of space. Instead of having a singular national entity having jurisdiction over space, an amalgamation of public and private stakeholders would cooperate to govern space. As no foreseeable multinational organization is likely to control space, a more integrated polycentric alternative is increasingly popular.

Though telecommunication satellites and GPS systems are the primary concern of many governments, questions remain on the militarization of space. Though the space treaties explicitly attempt to prevent the weaponization of space, as the global geopolitical atmosphere becomes more tense and technology advances, weapons systems involving weapons of mass destructions are a greater concern for both national and private space policy.

Potential Environmental Effects of Lunar Mining

Mining the Moon would involve disrupting its surface[6]. This could erase the millions of years of history that iles in the Moon's surface.

There are also concerns of humans rapidly depleting all of the Moon's resources like Earth's was used up. This would result in none left for the future or for less developed countries that were not as fast to the Moon.

The Moon also plays a heavy role in influencing life on Earth. The Moon's gravity pulls the tides, stabilizes the season, and the Moon reflects sunlight in the night sky.[7] Species of animals also rely on it and its phase changes for navigation. It is also unknown how else drastically and permanently changing the Moon might affect other aspects of life on Earth.

Space debris is another concern on the issue of lunar mining. Space debris, or space junk is defined as any trash left in space by humans. This can be large objects like entire satellites or pieces of spacecraft or smaller things like little pieces that have chipped off machinery.

Space trash has the potential to do immense harm if it collides with important equipment.[9] Even small pieces of debris such as paint chips can cause damage.[8]

If not cleaned up, the amount of space debris is also forever increasing as pieces of junk collide and break apart. Similarly to microplastics, these pieces become smaller and more numerous the longer they float and collide.

If the Moon were to be mined, more objects would be launched into space at a greater frequency. This would result in the creation of more space debris and a greater chance for space junk to negatively affect a mission.

1

[1]https://en.m.wikipedia.org/wiki/Lunar_resources

[2]https://www.unoosa.org/oosa/en/ourwork/spacelaw/treaties.html

[3]https://en.wikipedia.org/wiki/Outer_Space_Treaty

[4]https://en.wikipedia.org/wiki/Rescue_Agreement

[5]https://en.wikipedia.org/wiki/Space_Liability_Convention

[6]https://www.sciencefocus.com/space/what-if-we-mined-the-moon/amp/

[7]https://www.lpi.usra.edu/education/explore/marvelMoon/background/moon-influence/

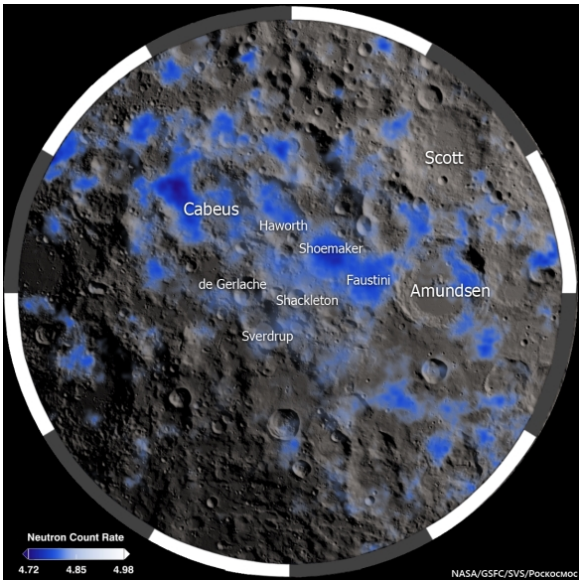
[8]https://www.nasa.gov/mission_pages/station/news/orbital_debris.html

[9]https://www.nhm.ac.uk/discover/what-is-space-junk-and-why-is-it-a-problem.html

Current Space Mining Ambitions

As humans use up Earth's resources, nations and private companies are taking action and implementing plans for lunar mining in order to obtain resources from the moon and asteroids. Samples taken from the moon suggest vast amounts of water ice in craters, regolith, and basic minerals that can be extracted.

Applications of Lunar Resources



The presence of lunar ice on the moon's south pole.

Lunar ice can be used to drink or converted into oxygen and hydrogen, which is useful for cost-effective fueling for satellites, journeys to the moon and Mars, and crewed missions.[2] In-space refueling is revolutionary in that it can provide the necessary fuel needed for continuous, long missions to the moon and Mars that would be otherwise infeasible without lunar water.[3] Accessing space would become less costly. Moreover, lunar ice suggests the possibility of being able to support lunar settlements or operations, aiding humans in creating a sustained lunar presence.

Lunar soil, also known as regolith, is found all over the moon and can offer construction materials.[4] Scientists are currently researching more applications of pure lunar regolith, but the abundance of the resource proves promising and reliable for building lunar settlements. As humans attempt to colonize the moon, the use of aggregate materials will be gradual. Humans' initial presence on the moon will be supported by materials entirely from Earth, but as those are finite, lunar materials will have to be innovated and used instead.

Samples from space missions show that lunar rock contains many basic minerals such as calcium, magnesium, silicon and oxygen, which

[2] https://www.upi.com/Science_News/2022/03/07/NASA-lunar-mining-Artemis/7281646426839/

[3] https://payneinstitute.mines.edu/

[4] https://www.smithsonianmag.com/

can be used to manufacture ceramics and glass. Scientists are worried about possible impurities caused by the extraction process, but further experimentation may make this goal feasible.

Space resources are also of military interest because powerful nations are competing to expand and defend their spheres of influence as the threat of the weaponization of outer space grows larger.[5] Such threats include the proliferation of weapons to attack satellites. The United States wants to maintain space superiority, but its competitors want to undermine this, so the balance of space power may tip.

Plans for Space Mining

Given these commercial, scientific, and security motivations, many countries and private companies are now actively pursuing, or at least seriously considering, space mining. The United States is particularly aggressive with its extensive legal infrastructure for mineral exploitation, space resources laws which recognize individuals' rights to materials from outer space, and NASA's ambitious Artemis Program[6].

In an effort to establish a lasting lunar presence, the Artemis Program aims to send astronauts to the moon before 2025 and successfully extract and use extraterrestrial resources to act as a stepping stone to future Mars missions. Additionally, NASA has already awarded contracts to companies to extract lunar regolith by 2024, thus starting the era of commercial space mining[7].

Other nations, especially Luxembourg and the UAE, are currently developing the legal infrastructure needed to extract lunar resources. Luxembourg has also entered into an agreement of understanding regarding space mining between various countries, including China and Japan. China claims that the development of space resources is a national priority, specifically challenging U.S. economic primacy in space[8].

Meanwhile, Russia is developing the necessary technology to mine in space. Russia, Japan, India and the European Space Agency all have their own space mining ambitions, and governing these emerging interests will require a new framework that facilitates international cooperation.

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[5] https://nationalinterest.org/feature/geostrategic-importance-outer-space-resources-154746

[6] https://www.nasa.gov/specials/artemis/

[7] https://www.nasa.gov/press-release/nasa-selects-companies-to-collect-lunar-resources-for-artemis-demonstrations/

[8] https://www.milkenreview.org/

Committee Positions

United States

The US was the second country to send a man into space and the first and only one to perform crewed landings on the Moon. However, the last one of these was in 1972, 50 years ago.

The National Aeronautics and Space Administration (NASA) is already planning to return to the Moon to build a permanent base, where resources will be mined. NASA has already announced companies that have won contracts to mine the Moon.

Canada

Canada's Canadian Space Agency (CSA) had initially declined interest in lunar mining. However, agreements with Australia and Japan suggest Canada's upcoming involvement in further space exploration.

Latin America

Most Latin American countries have created space programs and have plans for the creation and launch of satellites in place. However, as of now, only a fraction of satellites orbiting the planet belong to South American countries, and these were all launches in cooperation with the United States or Europe. None of the Latin American countries have the resources to individually compete in the modern space race.

Europe

The European Space Agency (ESA), comprising 22 countries and the majority of Europe. It was created in 1975, but its origins lie in previous cooperative European efforts to compete with the then-world superpowers of the United States and the Soviet Union. The ESA has successfully launched numerous objects into orbit and rockets, and is making headway in exploration of comets and stars. The ESA is one of the main agencies in space exploration. Historically, it has collaborated heavily with the United States's NASA. However, it is now moving toward working more with Russia.

The European Space Agency currently plans to partner with Russia and Japan to begin mining the Moon by 2025.

Australia

Australia's current space agency was founded in 2018, with its predecessors having been disbanded in 1996. This organization is focused on consolidating Australian space-related research, specifically for commercial gain.

The Australian Space Agency is planning to send a rover to the Moon in a deal with NASA in the Artemis Accords. This rover would collect lunar soil and other samples, as well as study whether the oxygen on the Moon would be able to support human life.

Russia

Russia, as the Soviet Union, sent the first person to space while competing with the United States during the space race, as well as the first to land on the Moon.

Russia's modern space program, the State Space Corporation, simply known as Roscosmos, was inherited from the Soviet space program. Roscosmos is currently partnered with the International Space Station program, but is considering its departure from the program. Russia is ambitious in creating its own space stations and programs, and also has plans to partner with the European Space Agency as well as China in lunar mining missions.

China

China has many space programs such as the China Aerospace Science and Technology Corporation, Chinese Lunar Exploration Program, and China Manned Space Program. Many of these programs are governed by the China National Space Administration (CNSA), which has a number of space achievements despite its relatively short history.

Scientists in China have long been interested in mining the moon to provide energy for the earth, and institutions are researching rocks sampled from the Chang'e 5 mission, suggesting China's eagerness to join the space race. China has also agreed to collaborate with Russia on space initiatives.

Japan

The Japan Aerospace Exploration Agency (JAXA) and other private companies such as ispace have plans to land on the moon again and extract resources to use as a fuel source.

South Korea

South Korea has been developing its space program, the Korea Aerospace Research Institute (KARI), for years, but has not focused primarily on lunar mining. Despite being a latecomer to the space race, KARI shows promising technology and improvements.

Democratic People's Republic of Korea

The National Aerospace Development Administration (NADA) is North Korea's national space agency. NADA has launched space satellites and vehicles, but is pursuing a deep space

exploration program in competition with South Korea, claiming that sanctions will not hinder its progress in future plans for the moon.

South Asia

India's Indian Space Research Organisation (ISRO), created in 1969 from an organization founded in 1962, had their first satellite launched in 1975, by the Soviet Union. The ISRO currently has the world's largest group of orbiting satellites. It has sent multiple unmanned missions to the Moon, with a goal of landing a rover on the Moon, future unmanned lunar missions, and finding a new energy source on the Moon.

The Malaysian Space Agency (MYSA) was created in 2019 through a merging of the Malaysian Remote Sensing Agency (MRSA) and the National Space Agency (ANGKASA). This organization focused on developing new space technology and advancing the satellites and the usage of their data.

Singapore's space agency, the Singapore Space and Technology Ltd (SSTL) aims to develop space technology to help its country and people. Singapore has launched numerous satellites and signed the Artemis Accords, joining the United States on its mission to the Moon.

The Middle East

The Iranian Space Agency is responsible for all Iran space-related activities. Iran has launched numerous satellites and rockets, as well as a few animals.

The Israel Space Agency (ISA) heads all of Israel's space research. It has launched numerous satellites and rockets. While there are no national lunar mining plans for the ISA, a private Israeli company intends to cooperate with Japanese private company ispace on missions to extract resources from the Moon.

While Jordan does not have a national space agency, there is a growing interest in space exploration, with developments being led by young people. Jordan's first satellite, built by Jordanian university students, was launched by SpaceX in 2018.

The United Arab Emirates Space Agency (UAESA) was created in 2014 and is responsible for advancing the space sector in the United Arab Emirate through research and development of technology. The UAESA aims to send a rover to the Moon by 2024, with the help of Japanese private space company ispace, to study the Moon's surface.

In 2008, the United Arab Emirates proposed the Pan-Arab Space Agency, an international organization for cooperation in space-related

activities similar to the European Space Agency. In 2019, 11 Arab countries signed an agreement to establish this group.

Africa

Historically, Africa's abundance of natural resources have made large profits for foreigners. While the future of space mining is still uncertain, Africa would want to get involved early to avoid being a latecomer to the burgeoning new industry.

The space forces of African countries are at various stages of development, with some just beginning to establish themselves and others having already sent satellites into orbit with plans for manned missions. Many of these were launched in cooperation with China or another forgein country.